

Political Ecology and Differential Vulnerabilities to Droughts among Livestock Farmers in South Africa: A Case Study of Mpakeni Community

Eromose Ebhuoma, Felix Donkor and Osadolor O. Ebhuoma



About the STEPS Centre

The ESRC STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre carries out interdisciplinary global research uniting development studies with science and technology studies.

Our pathways approach links theory, research methods and practice to highlight and open up the politics of sustainability. We focus on complex challenges like climate change, food systems, urbanisation and technology in which society and ecologies are entangled. Our work explores how to better understand these challenges and appreciate the range of potential responses to them.

The STEPS Centre is hosted in the UK by the Institute of Development Studies and the Science Policy Research Unit (SPRU) at the University of Sussex. Our main funding is from the UK's Economic and Social Research Council.

We work as part of a Global Consortium with hubs in Africa, China, Europe, Latin America, North America and South Asia. Our research projects, in many countries, engage with local problems and link them to wider concerns.

Website: steps-centre.org

Twitter: [@qstepscentre](https://twitter.com/qstepscentre)

For more STEPS publications visit:
steps-centre.org/publications

This is one of a series of Working Papers from the STEPS Centre

ISBN: 978-1-78118-604-6 © STEPS 2020



BUSINESS
SCHOOL

SCIENCE POLICY
RESEARCH UNIT



**Political Ecology and Differential Vulnerabilities to Droughts
among Livestock Farmers in South Africa: A Case Study of
Mpakeni Community**

Eromose Ebhuoma, Felix Donkor and Osadolor O. Ebhuoma

STEPS Working Paper 114

Correct citation: Ebhuoma, E., Donkor, F. and Ebhuoma O. O., (2020) *Political Ecology and Differential Vulnerabilities to Droughts among Livestock Farmers in South Africa: A Case Study of Mpakeni Community*, STEPS Working Paper 114, Brighton: STEPS Centre

© STEPS 2020

Some rights reserved – see copyright licence for details

ISBN: 978-1-78118-604-6

This research was funded through the ESRC-funded project 'Governing the Land–Water–Environment Nexus in Southern Africa' (ES/I021620/1).

For further information, please contact: STEPS Centre, University of Sussex, Brighton BN1 9RE.

Tel: +44 (0) 1273915673; Email: steps-centre@ids.ac.uk; web: www.steps-centre.org

STEPS Centre publications are published under a Creative Commons Attribution – Non-Commercial – No Derivative Works 3.0 UK: England & Wales Licence (<http://creativecommons.org/licenses/by-nc-nd/3.0/legalcode>)

Attribution: You must attribute the work in the manner specified by the author or licensor.

Non-commercial: You may not use this work for commercial purposes.

No Derivative Works: You may not alter, transfer, or build on this work.

Users are welcome to copy, distribute, display, translate or perform this work without written permission subject to the conditions set out in the Creative Commons licence. For any reuse or distribution, you must make clear to others the licence terms of this work. If you use the work, we ask that you reference the STEPS Centre website (www.steps-centre.org) and send a copy of the work or a link to its use online to the following address for our archive: STEPS Centre, University of Sussex, Brighton BN1 9RE, UK (steps-centre@ids.ac.uk).



Contents

Acronyms.....	iv
Abstract.....	v
1 Introduction.....	6
2 Theoretical framework: political ecology and vulnerability nexus	7
3 The intersections of agricultural livelihoods and the land–water–environment nexus	8
3.1 Study area.....	8
3.2 Methodology	9
4 Results and discussion.....	10
4.1 Drought conditions in Mpakeni.....	10
4.2 Households’ differential vulnerability to drought.....	10
4.3 Power relations and pasture accessibility.....	13
5 Conclusion	15
References.....	15

Acronyms

CAN Action Congress of Nigeria

CLRA Communal Land Rights Act (South Africa)

PEF political ecology framework

SAWS South African Weather Service

TLGFA Traditional Leadership and Governance Framework Act (South Africa)

Abstract

Subsistence livestock production in Mpakeni community, South Africa, is crucial to enabling rural households to diversify their livelihood and spread risks. However, the frequent reoccurrences of drought have resulted in shortages of nutritious pastures in Mpakeni's communal areas, posing significant threats to livestock production. While exposures to drought conditions in Mpakeni are homogeneous, socio-economic and political factors determine the choices and manner in which various social groups engaged in livestock production can undertake to secure pastures to reduce their vulnerability. This paper adopts a political ecology framework to qualitatively analyse Mpakeni community livestock farmers' vulnerability to drought, including the dynamics that shape the reproduction of such vulnerabilities among the various socially differentiated groups. Key findings reveal that distinct household characteristics among different social groups amplify their inability to secure pastures from their customary locations during drought conditions. Also, the appropriation of large areas of land by traditional leaders reduces the options available to poor households to secure pastures in the face of drought. This paper argues that differentiated vulnerabilities of social groups are rooted in institutionalised forms of governance at the local level, which emanate from the corridors of power.

Keywords: Political ecology, vulnerability, climate change, livestock farming, South Africa.

1 Introduction

Most of South Africa's black rural population reside in the former homelands or Bantustans, commonly referred to as communal areas by the post-apartheid government (Clark and Luwaya 2017). Amongst a variety of livelihood activities that black rural households engage in, livestock production offers multiple-use value, although its contribution to local livelihood is sometimes underestimated (C. M. Shackleton *et al.* 2005). Some of the objectives that livestock production in black rural areas seeks to achieve include 'bride price payment, ritual and ceremonial slaughter, meat, milk, occasional cash sales and savings, as well as providing draught power and manure as inputs to crop production' (Cousins 2018: 373). Indeed, C. M. Shackleton *et al.* (2005) and Twine (2013) found livestock production to be an essential asset that enables black rural households to spread livelihood risks and build resilience. Given its wide range of benefits, it is unsurprising to note that about 1.11 million black households were involved in livestock production in either subsistence or market-oriented farming between 2009 and 2015 (Cousins 2018). The enormous contributions livestock production makes to rural livelihood in communal areas are perhaps why it is deemed a vehicle that can reduce the high poverty and inequality levels through the injection of effective policies (Hall and Cousins 2013).

In the last decade, however, climate variability has resulted in increased drought conditions with severe consequences for livestock production through shortages of nutritious pastures¹ in communal areas (Clarke *et al.* 2012; Muller and Shackleton 2014). Climate projections for South Africa suggest a 5–10% decrease in rainfall coupled with hotter and drier weather conditions by 2050 (Gbetibouo and Ringler 2009; Clarke *et al.* 2012; Engelbrecht 2016), resulting in future drought conditions more severe than any experienced previously. This may result in the forced sales of livestock and livestock mortality because of difficulties associated with forage accessibility, a scenario that has played out previously during drought conditions (Schreiner *et al.* 2018). However, exposure to drought conditions does not usually translate into uniform vulnerability for all households. There are social differences – non-local elites, female-headed households and migrant settlers – that influence how households access communal areas and hence become differentially vulnerable to drought (Ajibade *et al.* 2013; Ajibade and McBean 2014; Dinko *et al.* 2018). According to Dinko *et al.* (2018), local power structures shape social groups' differential vulnerability to drought in communal areas. In South Africa, traditional leaders, through legislations such as the Traditional Leadership and Governance Framework Act (TLGFA) and Communal Land Rights Act (CLRA), are crucial to dictating access and use rights of local communal resources because these legislations fortify the powers of traditional leaders as custodians of communal property (Bennett *et al.* 2013; Claassens 2014; Tantoh and McKay 2018). Thus, accountable governance, as Mnwana (2015) emphasised, is pivotal to dismantling potential barriers that may amplify any social group's vulnerability through institutionalised forms of ruling at the local level.

Studies have underscored how drought conditions impact the livelihood of various social groups differentially (Clarke *et al.* 2012; Muller and Shackleton 2014; S. Shackleton *et al.* 2014; Hosu *et al.* 2016). However, these studies have generally not highlighted the dynamics that shape vulnerability at the household level or the power relations, including how local governance of communal resources such as land determine the choices made by households in attempting to secure pasture in drought conditions. Therefore, this study examines these dynamics at both household and communal levels that amplify the vulnerability of livestock to drought in Mpakeni, Mpumalanga Province, South Africa, using a political ecology framework (PEF). The utilisation of the PEF is underpinned by its opportunity to integrate social, political and biophysical factors in analysing vulnerability induced by climatic risks

¹ Pasture refers to land covered with grasses, shrubs and other low plants suitable for grazing animals.

(Abate *et al.* 2010; Yeh *et al.* 2014). This form of analysis is important because livestock, in addition to providing the benefits highlighted earlier, symbolise rural households' wealth status, and, therefore, catalyse investment in this activity.

2 Theoretical framework: political ecology and vulnerability nexus

By analysing how rural households access pasture for livestock production in the face of drought conditions, this study builds on the PEF. While differential vulnerability in securing pastures at the household level is given due attention, the struggles to access pastures cannot be fully comprehended within constricted boundaries (Nygren 2004). Exposure and vulnerability to climatic risks are simultaneously shaped by the political and socio-economic structures that increase the effects of hazards, and the extent to which people can cope and adapt to them (Blaikie *et al.* 1994; Ajibade and McBean 2014; Dinko *et al.* 2018). This contrast the climate hazard research approaches to unpacking vulnerability because most analyses are based on an assessment of the cumulative adaptive capacity of any group of people under scrutiny. The reason for this could be hinged on the methodology, often quantitative, applied to conduct such studies. Birkenholtz (2012), for example, acknowledged that climate hazard research seems more interested in highlighting patterns and testing relationships through statistical methods to identify correlates of vulnerability without scrutinising the underlying causes. The climate hazard approach offers little explanation for why climate variability affects social groups unequally and 'why adaptive capacity is unevenly distributed among equally exposed populations' (Ajibade and McBean 2014: 77).

Using the PEF, Dinko *et al.* (2018) illustrated why some households in semi-arid north-eastern Ghana, under chieftaincy rule, were unable to secure farmland close to the community dam for irrigation farming in the dry season. They found that, rather than distance from the dam, it was the categorisation of some households as migrants, despite being Ghanaian nationals, which impeded their ability to secure farmlands. The Chief, as Dinko *et al.* (2018) further argued, did not consider migrant settlers a priority in the distribution of farmland close to the dam. The study also found that female-headed households with a high-dependency ratio, who are not remitted by absentee husbands, and who are involved in off-farm activities, lack means to transport water, and lack assistance with fetching water due to their children's age are more likely to be water insecure. This is because, after engaging in the rigorous daily tasks of off-farm activities, the female household head will be able to fetch only a small amount of water even if more is required (Dinko *et al.* 2018).

Also, by utilising the PEF, Ajibade and McBean (2014) revealed how divisive community politics in Baida communities in Lagos, Nigeria, amplified households' vulnerability to flooding. They explained that while the 2008 local government chairmanship election was won by the Action Congress of Nigeria (ACN) political party, the ACN lost the support of most Baida residents on the campaign trail. 'This was because the Chairman showed favouritism to party loyalists in his selection of cabinet members and concentrated community development projects in neighbourhoods supportive of his administration' during his first tenure in office, which lasted four years (Ajibade and McBean 2014: 82). During that period, infrastructural developments that had the potential to reduce flood risks significantly were not pursued. Instead, party loyalists were rewarded with hefty paycheques for their role in subduing insurgents and any groups soliciting for top priority to be given to environmental issues. The political and environmental situation, coupled with chronic poverty and lack of housing rights – households could not construct proper houses using bricks but relied on wooden structures due to tenure insecurity – culminated in heightened vulnerability to flooding for Baida residents. It was, therefore, unsurprising that the July 2011 rainstorm in Baida, with an unusual magnitude of

rainfall that lasted for 18 hours, wreaked havoc on health, household assets, and livelihood activities (Ajibade and McBean 2014).

Against this background, the utilisation of a political ecology form of analysis is crucial because a community comprises diverse individuals and households with contrasting characteristics and prevailing circumstances that could amplify their vulnerability to drought and widen existing inequalities. Also, it facilitates a robust understanding of the power relations that exclude some households from easily accessing resources that can scale up adaptation to drought. Therefore, the utilisation of PEF will underscore the causal processes that impede easy accessibility to nutritious pastures for some groups of livestock farmers in Mpakeni community during drought conditions and the patterns they produce. This, in turn, may provide the theoretical foundations needed to implement equitable solutions when dealing with issues of disproportionate vulnerabilities in communal areas governed by traditional leaders.

3 The intersections of agricultural livelihoods and the land–water–environment nexus

3.1 Study area

Mpakeni community is situated in Mpumalanga Province, the second-smallest province after Gauteng, taking up 6.3 per cent of South Africa's land area (Statistics South Africa (Stats SA) 2016). Mpakeni is nestled in the Mpakeni Tribal Authority, which is a cluster of four villages: Daantjie, Luphus, Zwelisha, and Mpakeni. It centres on geographical coordinates 25°29'08"South, 31°16'38"East and has an altitude of 821m, classifying it as a Highveld region. It encompasses the Mthethomusha Game Reserve (Figure 1), established in 1993, an 8,000ha area that conserves wild animals such as lions, cheetahs, elephants, and buffalos. It is approximately 3km from Mpakeni.

Mthethomusha Game Reserve was one of the very first game reserves to be built on what has become the contemporary approach to community and conservation partnership. Established through an innovative initiative by which the then Tribal Authority of the Mpakeni tribe, under the leadership of the late Chief Charles Nkosi, gave low potential agricultural land over to the management of the KaNgwane Parks Corporation for optimal and sustainable development' (South African Ventures 2019: 1).

The majority of the populace in Mpakeni identify as siSwati (Swazi) and Xitsonga (Tsonga) with the area located on the southern border of the Kruger National Park. The tributaries of the Makhomane, Luphusi and Nsikazi rivers drain the area and serve as water sources. The Induna (village headman) oversees the affairs of Mpakeni community because the Chief, who is the leader of Mpakeni Tribal Council, resides in Daantjie, outside Mbombela in Mpumalanga.

There is generally a high unemployment rate in the area as it falls in a province characterised by endemic poverty (Provincial Treasury 2015). For example, 37.0 per cent of the residents fall beneath the lower poverty line of R548 (approximately \$40.00) per month (Provincial Treasury 2015). The ratio of males to females is 47.0 per cent to 53 per cent according to Stats SA 2016 census data. Unemployment rates are 24.4 per cent male and 29.2 per cent female, with youth (15–34 years) unemployment at 38.8%. Life expectancy for males and females for the period 2011–16 was recorded at 55.8 years and 57.2 years respectively.

Livestock production in the area contributes to food provision either for home consumption or during celebration, to cash income through sales especially in times of adversity, and to fertiliser (through cow dung) and provides an investment opportunity. To help sustain livestock production, a cattle

dipping exercise is carried out every Tuesday when owners bring their cattle to be disinfected against infections with the help of the agricultural extension officers. Most livestock owners are males, though some females – female-headed households and widows – also own livestock. Livestock reared include goats, cows, sheep, poultry, and pigs. Most households participate in homestead gardening, growing crops such as mealies, chillies, and spinach. Some of the core livelihoods outside of agriculture in the area include mining (25.4 per cent), community services (16.4 per cent) and trade (15 per cent).

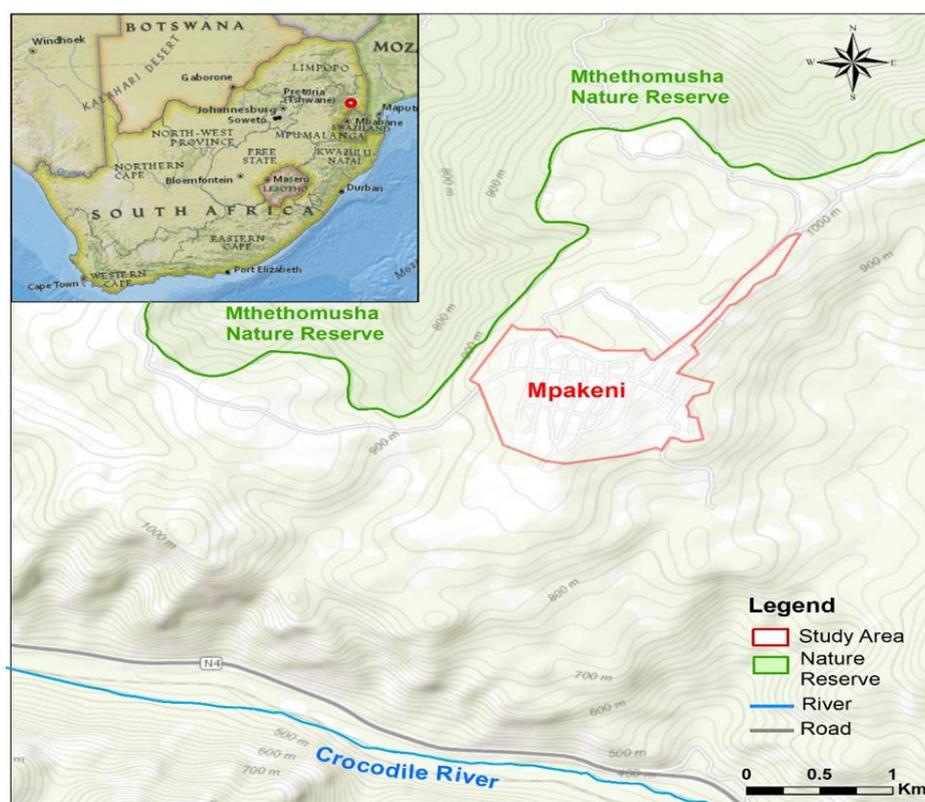


Figure 1: Map of Mpakeni. Source: Authors (2019).

Hampson *et al.* (2002) argue that the area is a hub for hunter-gatherers. A nearby landmark, the Crocodile River, is a big river that crosses Mpumalanga Province. It traces its origin from the north of Dullstroom, Mpumalanga, in the Steenkampsberg Mountains. With a total catchment area of 10,446km², it passes via Nelspruit, the Lowveld agricultural zone and by the Kruger National Park (SanParks 2018).

3.2. Methodology

A total of 57 one-on-one, in-depth interviews were conducted between October 2015 and March/April 2016, while follow-up interviews were conducted in December 2018. The overall aim was to explicitly capture the associated challenges faced by respondents in their quest to engage effectively in livestock production and the factors that impede access to nutritious pastures in drought conditions. Informed consent was obtained in the local dialect, through a local field assistant fluent in siSwati, the local dialect. Respondents were in the 40–75 years age cohort with more females (66 per cent) than males (34 per cent) as patriarchal societal structures, especially in rural areas in developing countries, often exacerbate women’s vulnerability to drought. Thus, studying such a group will provide an in-depth understanding of vulnerability by listening to their experiential stories (Ebhuoma and Simatele 2017; Dinko *et al.* 2018). The respondents were identified using purposive sampling techniques through the help of key informants that have been residing in Mpakeni for over 20 years. The data were analysed using thematic content analysis.

4 Results and discussion

4.1. Drought conditions in Mpakeni

According to Gbetibouo *et al.* (2010), Mpumalanga Province is one of South Africa's provinces most adversely affected by drought. Between 2000 and 2014, the average temperature increased by 0.5°C (Elum *et al.* 2017). The respondents argued that severe drought episodes, which result in pasture shortages, have become almost a yearly occurrence in the last decade. They further emphasised that the occurrence of foot and mouth diseases, which compromise the health of their livestock and occasionally results in mortality, coincides with drought conditions. However, the literature suggests that drought in itself is not responsible for the occurrence of foot and mouth diseases (Samuel and Knowles 2001; Kitching and Hughes 2002), although some argue that its proliferation is amplified by climate variability such as drought (Moenga *et al.* 2013).

About 50 per cent of the respondents categorically emphasised that the 2015 and 2017 drought episodes were the worst that they have had to contend with in the last decade. This was the resultant effect of lower than normal rainfall. Respondents' views align with the 2015 annual maximum daily rainfall data for Nelspruit (the nearest weather station to Mpakeni, about 37km away). The annual maximum rainfall data in 2015 was 370.80mm, which was extremely low in comparison to the annual maximum rainfall for the decade (2005–15) of 810.98mm (Masereka *et al.* 2018). However, data obtained from the South African Weather Service (SAWS) (2019) did not validate the respondents' assertion for 2017. According to SAWS (2019), the daily mean annual rainfall for 2017 was 640.32mm, which was higher than the daily mean for the decade (2007–17) rainfall of 620.13mm. Perhaps their view that the 2017 drought episode negatively impacted livestock production is held because the slightest variation in pasture availability coupled with most households' inability to purchase pasture severely undermined livestock production. By 2050, drought conditions in Mpumalanga Province are expected to be more prolonged and severe due to climate variability and change (Engelbrecht 2016). This is expected to amplify existing difficulties associated with obtaining nutritious pastures in drought conditions for subsistence livestock farmers.

4.2. Households' differential vulnerability to drought

Generally, the inability of households to access and secure nutritious pastures in drought conditions were resulted from several factors. In addition to rearing livestock at subsistence level, virtually all households with women engaged in petty trading such as selling homegrown green leafy vegetables, clay pots, locally manufactured alcoholic drink, and locally made broom. Despite this, the majority of households in Mpakeni live in poverty and are heavily dependent on social grants. Approximately 40 per cent of respondents have high dependency ratios, or a lack or shortage of household labour, or are catering to the needs of a sick household or struggling to remit siblings without work occasionally. Thus, the intersection of a household's high dependency ratio, limited finances, and shortages of household labour amplifies livestock vulnerability in times of pasture scarcity triggered by drought. This situation, however, is worse for female-headed households who have to look after their grandchildren and are only occasionally paid by the parents of their grandchildren.

As some female-headed households explained, despite being beneficiaries of elderly grants, receiving occasional remittances from their children for looking after their grandchildren and their involvement in petty trading, they cannot afford to hire a herder to look after their livestock during drought conditions to facilitate precision grazing in locations where pastures are likely to be found. This is because their total monthly financial resources are barely enough to obtain the livelihood they seek. Therefore, in times of pasture shortages triggered by drought, female-headed households' involvement in petty trading coupled with the shortage of household labour means less time available to guide their livestock to seek pastures in distant locations. Labour power, as documented by Yeh *et*

al. (2014), is an important determinant of livestock sensitivity to drought. It is acknowledged that greater attention to livestock during daily herding improves their weight and overall wellbeing, and consequently their likelihood of surviving pasture shortages during drought conditions. The saying that livestock owners are actually 'servants of livestock rather than their owners' (Yeh *et al.* 2014: 70) aptly illustrates the labour-intensive nature of herding livestock to ensure they thrive. Unfortunately, the intersection of the aforementioned issues prevents some households from taking good care of the livestock that would otherwise have the potential to increase the wealth of the owners.

As a coping strategy, some get up before 7 a.m. to shepherd their livestock to the bank of Crocodile River (Figure 3.1), approximately 2.5km from Mpakeni, where there is a strong possibility of finding nutritious pastures for foraging, and return home before 9 a.m. In extreme drought conditions when nutritious pastures by the river bank have been depleted significantly, they are barely able to buy nutritious pastures and often resort to scavenging for pastures while they keep their livestock in the kraal. This is because they do not have the luxury of time to seek nutritious pastures further away because of having to take part in other livelihood activities. This strategy they are forced to rely on to secure pasture means that their livestock are likely to become emaciated, which, in turn, would drastically reduce its market value. It is documented that herders seeking pastures when they are in short supply in their usual locations due to climate extremes is a more economically efficient strategy than raising livestock in pens (Abate *et al.* 2010; Goldman and Riosmena 2013; Opiyo *et al.* 2015). In addition, the shortage of household labour prevents female-headed households from consistently taking part in the weekly cattle-dipping exercise.

Another reason that amplifies female-headed households' vulnerability to drought-induced shortages of nutritious pasture is due to gendered roles that have institutionalised women's role as informal caregiver to sick or elderly people as well as looking after their grandchildren (Babugura 2000; Enarson *et al.* 2006). This highlights the gendered inequalities of vulnerability underpinned by societal norms and cultural beliefs. This finding supports the notion that cultural beliefs can undermine the adaptive capacity of female-headed households (Ajibade *et al.* 2013; Ebhuoma and Simatele 2017; Dinko *et al.* 2018). Thus, societal norms and cultural beliefs in most rural communities in the developing South continue to create fertile ground to ensure the flourishing and reproduction of such vulnerabilities, which exacerbates the difficulties for female-headed households to find a way out of poverty.

It is worth highlighting that despite over 90 per cent of respondents being social grant recipients, the majority, especially those outside the bracket of the local elite could barely afford to purchase pasture consistently in times of scarcity. For instance, a respondent, in her 60s, commented:

I am the household breadwinner and earn a living through petty trading, subsistence crop, and livestock production. I live with three of my children and one grandchild. I receive social grant monthly, but this is hardly enough to make ends meet. Although one of my children works in a factory, he is unable to remit me regularly because this salary is meagre. When pastures become scarce, I have to devise strategies including taking them close to Crocodile river to scavenge for pasture and bring them back home before 10 a.m. to avoid the scorching sun.

According to Neves *et al.* (2009), the introduction of social grants in post-apartheid South Africa was one of the most significant interventions in the rural landscape, with implications for recipients' participation in labour. Social grants serve as enabling resources for beneficiaries' participation in subsistence livestock production since some are too impoverished to invest in such a venture. However, findings from this study suggest that social grants alone did not protect the livestock of social grant recipients from being highly susceptible to excruciating drought conditions. For example, some social grant recipients highlighted that, owing to the extreme drought conditions in 2015 and

2017, they could barely afford to purchase pastures² to meet the nutritional requirements of their livestock. Consequently, they were constrained to sell some of their livestock at discounted prices and slaughter the frail livestock for food. To treat livestock illnesses, the poor resorted to homemade herbal medication because it was a cheaper than purchasing medication, which they claimed was 'exclusively reserved for the local elites'. The local elites comprise the educated minority who receive regular income through their ability to secure government jobs such as nurses, municipal accountants, teachers, and administrators (see also Cousins *et al.* 2018).

This aligns with the findings of Schreiner *et al.* (2018). They argued that in the 2015 drought in South Africa that resulted in the depletion of forage in natural grazing areas, livestock mortality and forced slaughtering of livestock, underpinned by pasture unavailability, increased significantly. In this light, therefore, the notion that social grants alone might set rural households on the trajectory to successfully building their resilience to extreme climatic conditions in an agrarian society may be grossly flawed. Thus, securing additional source(s) of income to generate residual income is crucial to give households agency to prevent their livestock from being susceptible to the adverse effects of drought (see also S. Shackleton *et al.* 2014).

Contrary to the realities of most Mpakeni households, the local elites – 6 per cent of the respondents – could hire herders to look after their livestock. Thus, the livestock of the local elites rarely misses out on the weekly cattle dipping as that forms part of the herders' duties. In times of nutritious pasture shortages, the herders are able to cover longer distances to source nutritious pastures. As one respondent commented: '*my herd-boy seems to know precisely where to source for pastures in the community*'. In extreme drought conditions, the local elites can supplement pasture scavenging with regular purchase of fodder from Koporas, a shop in Mpakeni that sells agricultural-related products.

Unlike the 73 per cent of households that rely solely on homemade herbal remedies to treat livestock illnesses, the local elites usually purchase commercial medication, which is deemed more effective in combating livestock illnesses than herbal remedies (Masika *et al.* 2000). This medication ensures that the market value of their livestock remains relatively intact throughout the year since their livestock rarely becomes emaciated. Hence, the ability of local elites to secure a regular source of income through their job as government employees has paved the way for them to fortify their financial security by acquiring the services of a herder and actively engaging in other livelihood activities during their time off work.

In light of the above, identifying how drought or climate variability affect households differently in any agrarian system can be used to capture the existing structural inequalities that persist within that system, which may be captured ineffectively through quantitative approaches. Thus, it is crucial to recognise contextual issues at any local level to implement the appropriate strategies and policies to effectively tackle households' livestock vulnerability to climate extremes, which are likely to be nuanced and vary slightly from one community to another. In summary, the intersections of high dependency ratio, limited financial assets, and shortage of, as well as inability to pay, wage labour are key determinants of livestock vulnerability in times of pasture scarcity triggered by drought. Also, vulnerability is exacerbated for female-headed households due to their 'institutionalised' role as household caregivers.

² Although the Department of Agriculture provides supplementary feed to subsistence livestock farmers to ameliorate the shortage of nutritious pastures in drought conditions, respondents complained that this supply is usually inadequate and irregular. Hence, they are forced to seek alternative ways of secure pastures.

4.3. Power relations and pasture accessibility

The TLGFA (2003) and CLRA (2004) vested comprehensive powers in traditional leaders to dictate allocation and use rights of communal lands (Bennett *et al.* 2013; Mnwana 2015). In Mpakeni, one way in which the Induna has asserted his authority as the custodian of communal lands is by appropriating considerable hectares of land, through perimeter fencing, where the right of access is reserved exclusively for his livestock. To reinforce his authority over land allocation and use rights, stringent penalties have been put in place against anyone who unlawfully enters such appropriated land to seek pastures to serve as a deterrent to others, although some respondents stated that the penalties do not apply to his relatives. In this regard, a respondent in her 60s who had been residing in Mpakeni for more than 20 years commented:

Mpakeni has always had designated plots reserved exclusively for the Induna where only his livestock grazes. If any community member violates this statute, he/she is mandated to pay a fine of R500.00 [approximately \$36.00] or give one of his/her livestock to the Induna. In times of scare pastures, the restriction further dampens the poor's ability to cope. The Induna benefits unjustly from poor people without any regard for their prevailing economic circumstances.

Failure to pay the fees levied on trespassers could result in the traditional authority taking the hard line, as one respondent explained, of banishing the offender from Mpakeni. Such a drastic measure, however, which has rarely been enforced, seemed to be applicable only to people considered as migrant settlers in Mpakeni despite being natives of South Africa. For instance, the respondent, in his 50s, stated:

I know of a family that violated the law by allowing their cattle to graze on the field designated for the Induna. The family, who were commoners and had not resided in Mpakeni for up to five years, were not aware of the laid-down restriction. The family refused to pay the fine levied to them, which, unfortunately, resulted in their banishment from Mpakeni.

The powers vested in traditional leaders have, unfortunately, been used as a tool to legitimately grab large areas of land and dispossess the poor who are overwhelmingly dependent in communal areas for pasture security on accessing such appropriated land. This amplifies the poor's inability to access pastures in times of severe drought, which, in turn, widens the gap in vulnerability between the poor and those with social links to members of Mpakeni Tribal Council, to whom the penalties do not apply. A plausible reason why the prevention of poor people from accessing appropriated hectares of communal lands has continued to flourish is because the various communal land legislations do not provide a legitimate platform to contest the decisions of traditional leaders, even in situations when it is perceived to be a violation of the powers conferred on them as custodians of communal lands (see also Bennett *et al.* 2013; Hall and Cousins 2013; Mnwana *et al.* 2016; Musavengane and Simatele 2016; Yeni 2018). Parallel scenarios have played out in communal areas that have been appropriated and converted into mining hubs.

The easy entry and expansion of various mines into communal lands previously used for agricultural purposes by rural households, as documented by Capps (2018), is rooted in traditional leaders' handling of communal assets as their personal property. As such, traditional leaders singlehandedly decide on mining and investment deals – enriching themselves – without consulting the wider community (Claassens 2012; Manson 2013). Traditional leaders' unaccountability and lack of transparency in mining deals have often triggered waves of violent protests by angry villagers, who continue to wallow in abject poverty, against the traditional leader (Chief) who approved the mining deals without the villagers' consent. Such confrontation has, in some instances, climaxed in legal battles (Claassens 2012; Manson 2013; Mnwana 2015). However, court rulings in the past have not only swung in favour of the tribal Chief but have 'endorsed the punishment of village activists who

challenge the Chief to account', thereby dashing any hopes villagers might have of being compensated (Manson 2013; Mnwana 2015: 505). Such rulings unwittingly recalibrated communal areas as traditional leaders' private properties and ensured the continued dispossession of villagers from communal lands.

The above scenario exemplifies how localised policy structure restricts the rural poor's access to communal areas. The rural poor, as documented by Twine (2013), are overwhelmingly dependent on communal resource, since their very existence and ability to meet their livelihood aspirations are overwhelmingly tied to it. Thus, any local political structure that deliberately or inadvertently prevents the rural poor from having full access to communal resource could jeopardise their fight to overcome poverty significantly. This reinforces Agrawal's (2008) assertion that local institutions such as traditional leaders mediate the accessibility and use of resources at local levels, which, in turn, may have significant implications for the adaptive options chosen by households in the face of climatic risks. Further, the results support the claim that lack of land tenure security is a core challenge affecting households in communal areas, which exacerbates the vulnerability of historically marginalised groups, placing them at risk of exploitation and dispossession (Claassens 2014). Moreover, the absence of tenure security has also aggravated the socio-economic disadvantages experienced by vulnerable groups in communal areas as poverty and deprivation remain widespread. This is evidenced in the prevailing socially constructed and politically reinforced inequalities resulting in unequal access and use rights of communal areas in Mpakeni.

The flourishing of this structure of dispossessing the rural poor in Mpakeni may be indicative that focusing attention on scaling up the diverse benefits of livestock production for poor households by rural developers is not perceived as an effective strategy to eradicate rural poverty. Rural developers may not be cognisant of the adverse impacts such enclosures may be having on poor households' ability to access pastures, or they are merely clinging to their preferred model, which is to seek innovative ways to ensure that subsistence livestock production carried out by black farmers is scaled up to commercial level despite previous unsuccessful attempts (Kepe and Cousins 2002; Hall 2004; Hall and Cousins 2013).

It is, however, noteworthy that there have been instances where the statutory punishments have not been meted out to those who violated collective grazing decisions and blatantly refused to pay the fees levied on them (Bennett *et al.* 2013). Their ability to successfully challenge the authority of traditional leaders with impunity could be hinged on the close-knit relationships and social links households have built with members of local civil society institutions such as ward councillors and farmers' organisations for years since the people that make up the aforementioned groups are usually indigenes of the community. Therefore, a plausible reason why a family may have been successfully banished from Mpakeni is because of the household identity as migrant settlers. It is argued that significant differential preferences persist regarding how indigenes of a community and migrant settlers access communal resources (Dinko *et al.* 2018).

In summary, the appropriation of many hectares of land by the Induna, coupled with punitive measures against households without social links to Mpakeni tribal authority that unlawfully enter the appropriated land in search of pastures, amplifies poor households' vulnerability to pasture shortages during drought conditions. Thus, it is recommended that policy reforms in communal areas have to clearly articulate grounds for community members to contest traditional leaders' decisions regarding the use of communal resources, especially if they pose a threat to agrarian livelihoods. This is crucial to ensure poor households can continue in livestock production, especially since droughts are expected to worsen as the future unfolds. Also, all-encompassing legislation that protects the rights of migrants residing outside their native homestead is desperately needed. This is because existing legislation undermines migrants' rights to lay claim to communal property, which may continue to see them being categorised as 'foreigners'. From this study, however, it is recommended that reforms in

South Africa's communal areas become more grounded in empirical knowledge about the socio-political composition of rural communities that occupy and own the land.

5 Conclusion

Droughts have become increasingly common in many rural areas whose members are largely dependent on climate-sensitive livelihoods. This includes livestock farming which is an essential safety net for rural households in Mpakeni. However, the increased occurrences of drought in South Africa exacerbate the desperate situation of livestock farmers to secure pastures to ensure they continue in livestock production. This makes it imperative to isolate the socioeconomic factors that can either facilitate or impede access to critical resources for building the resilience of vulnerable groups involved in livestock production particularly in the communal areas in Mpakeni.

Using a political ecology framework, this paper reveals that household high dependency ratios, coupled with limited finances despite being recipients of social grants, undermines non-elites' ability to cope with pasture shortages. This is exacerbated for female-headed households because of their 'institutionalised' role as household caregivers. Further, vulnerabilities among diverse socially differentiated groups are entrenched when the traditional leader holds sway over critical communal assets, thereby making poor and vulnerable migrant settlers subject to his whims and caprices without any further recourse for redress. The absence of some of the core tenets critical to the governance of the commons such as providing a legitimate platform to contest the governance of communal resources will continue to undermine vulnerable groups' ability to realise the maximum benefits livestock production has to offer.

References

- Abate, T., Ebro, A. and Nigatu, L. (2010) 'Traditional Rangeland Resource Utilisation Practices and Pastoralists' Perceptions on Land Degradation in South-East Ethiopia', *Tropical Grasslands* 44: 202–12
- Ajibade, I. and McBean, G. (2014) 'Climate Extremes and Housing Rights: A Political Ecology of Impacts, Early Warning and Adaptation Constraints in Lagos Slum Communities', *Geoforum* 55 (August): 76–86
- Ajibade, I., McBean, G. and Bezner-Kerr, R. (2013) 'Urban Flooding in Lagos, Nigeria: Patterns of Vulnerability and Resilience among Women', *Global Environmental Change* 23.6: 1714–25
- Agrawal, A. (2008) *The Role of Local Institutions in Adaptation to Climate Change*, International Forestry Resources and Institutions Program (IFRI) Working Paper W081-3, Ann Arbor, MI: University of Michigan, doi.org/10.4324/9780203942277 (18 December 2018)
- Babugura, A. (2000) *Gender and Climate Change : South Africa Case Study*, Cape Town: Heinrich Böll Stiftung, https://za.boell.org/sites/default/files/downloads/GCC_south_africa.pdf (11 November 2018)
- Bennett, J., Ainslie, A. and Davis, J. (2013) 'Contested Institutions? Traditional Leaders and Land Access and Control in Communal Areas of Eastern Cape Province, South Africa', *Land Use Policy* 32: 27–38
- Birkenholtz, T. (2012) 'Network Political Ecology: Method and Theory in Climate Change Vulnerability and Adaptation Research', *Progress in Human Geography* 36.3: 295–315

Blaikie, P., Cannon, T., Davies, I. and Wisner, B. (1994) *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, 1st edn, London: Routledge

Capps, G. (2018) 'Custom and Exploitation: Rethinking the Origins of the Modern African Chieftaincy in the Political Economy of Colonialism', *Journal of Peasant Studies* 45.5–6: 969–93

Claassens, A. (2014) 'Denying Ownership and Equal Citizenship: Continuities in the State's Use of Law and "Custom"', 1913–2013', *Journal of Southern African Studies* 40.4: 761–79

Claassens, A. (2012) 'Unaccountable Chiefs are a Recipe for a New Marikana', <https://showme.co.za/durban/news/unaccountable-chiefs-are-a-recipe-for-a-new-marikana> (12 March 2019)

Clark, M. and Luwaya, N. (2017) *Communal Land Tenure 1994–2017: Commissioned Report for High Level Panel on the Assessment of Key Legislation and the Acceleration of Fundamental Change, an Initiative of the Parliament of South Africa*, https://www.parliament.gov.za/storage/app/media/Pages/2017/october/High_Level_Panel/Commissioned_Report_land/Commissioned_Report_on_Tenure_Reform_LARC.pdf (28 February 2018)

Clarke, C. L., Shackleton, S. and Powell, M. (2012) 'Climate Change Perceptions, Drought Responses and Views on Carbon Farming amongst Commercial Livestock and Game Farmers in the Semi-arid Great Fish River Valley, Eastern Cape Province, South Africa', *African Journal of Range & Forage Science* 29.1: 13–23

Cousins, B. (2018) 'Employment in Informal-Sector Agriculture in South Africa', chapter 14 in: F. Fourie (ed.) *The South African Informal Sector: Creating Jobs, Reducing Poverty*, Cape Town: HRSC Press

Cousins, B., Dubb, A., Hornby, D. and Mtero, F. (2018) 'Social Reproduction of 'Classes of Labour' in the Rural Areas of South Africa: Contradictions and Contestations', *Journal of Peasant Studies* 45.5–6: 1060–85

Dinko, H. D., Yaro, J. and Kusimi, J. (2018) 'Political Ecology and Contours of Vulnerability to Water Insecurity in Semi-arid North-Eastern Ghana', *Journal of Asian and African Studies* (December), [10.1177/0021909618811838](https://doi.org/10.1177/0021909618811838)

Ebhuoma, E. and Simatele, D. (2017) 'Defying the Odds: Climate Variability, Asset Adaptation and Food Security Nexus in the Delta State of Nigeria', *International Journal of Disaster Risk Reduction* 21: 231–42

Elum, Z. A., Modise, D. M. and Marr, A. (2017) 'Farmer's Perception of Climate Change and Responsive Strategies in Three Selected Provinces of South Africa', *Climate Risk Management* 16: 246–57

Enarson, E., Fothergill, A. and Peek, L. (2006) 'Gender and Disaster: Foundation and New Direction for Research and Practice', in H. Rodriguez, E. Quarantelli and R. Dynes (eds) *Handbook of Disaster Research*, Handbooks of Sociology and Social Research, New York, NY: Springer: 130–46

Engelbrecht, F. (2016) 'Projections of Future Climate Change over Africa', http://www.sasa.org.za/Files/Engelbrecht_F_What_can_we_expect_from_the_weather_SASIAA_2016.pdf (11 February 2019)

Gbetibouo, G. A. and Ringler, C. (2009) *Mapping South African Farming Sector Vulnerability to Climate Change and Variability: A Subnational Assessment*, IFPRI Discussion Paper 00885, Washington, DC: International Food Policy Research Institute

Gbetibouo, G. A., Ringler, C. and Hassan, R. (2010) 'Vulnerability of the South African Farming Sector to Climate Change and Variability: An Indicator Approach', *Natural Resources Forum* 34: 175–87

Goldman, M. and Riosmena, F. (2013) 'Adaptive Capacity in Tanzanian Maasailand: Changing Strategies to Cope with Drought in Fragmented Landscapes', *Global Environmental Change* 23.3: 588–97

Hall, R. (2004) 'A Political Economy of Land Reform in South Africa', *Review of African Political Economy* 31.100: 37–41

Hall, R. and Cousins, B. (2013) 'Livestock and the Rangeland Commons in South Africa's Land and Agrarian Reform', *African Journal of Range and Forage Science* 30.1–2: 11–15

[Hampson, J., Challis, W., Blundell, G. and De Rosner, C. \(2002\) 'The rock art of bongani mountain lodge and its environs, Mpumalanga province, South Africa: an introduction to problems of Southern African rock-art regions', *South African Archaeological Bulletin* 57\(175\): 15–30](#)

Hosu, S. Y., Cishe, E. N. and Luswazi, P. N. (2016) 'Vulnerability to Climate Change in the Eastern Cape Province of South Africa: What Does the Future Holds for Smallholder Crop Farmers?', *Agrekon* 55.1–2: 133–67

Kepe, T. and Cousins, B. (2002) 'Radical Land Reform is Key to Sustainable Rural Development in South Africa', Institute for Poverty, Land and Agrarian Studies, <https://www.africaportal.org/publications/radical-land-reform-is-key-to-sustainable-rural-development-in-south-africa/> (15 June 2018)

Kitching, R. P. and Hughes, G. J. (2002) 'Clinical Variation in Foot and Mouth Disease: Sheep and Goats', *Tech Revue Scientifique et Technique* 21: 505–12

Manson, A. (2013) 'Mining and "Traditional Communities" in South Africa's "Platinum Belt": Contestations over Land, Leadership and Assets in North-West Province c. 1996–2012', *Journal of Southern African Studies* 39.2: 409–23

Masereka, E. M., Ochieng, G. M. and Snyman, J. (2018) 'Statistical Analysis of Annual Maximum Daily Rainfall for Nelspruit and Its Environs', *Jàmbá: Journal of Disaster Risk Studies* 10.1: 1–10

Masika, P. J., Van Averbek, W. and Sonandi, A. (2000) 'Use of Herbal Remedies by Small-Scale Farmers to Treat Livestock Diseases in Central Eastern Cape Province, South Africa', *Journal of the South African Veterinary Association* 71.2: 87–91

Mnwana, S. (2015) Mining and 'Community' Struggles on the Platinum Belt: A Case of Sefikile Village in the North West Province, South Africa', *The Extractive Industries and Society* 2: 500–508

Mnwana, S., Mtero, F. and Hay, M. (2016) *Dispossessing the Dispossessed? Mining and Rural Struggles in Mokopane, Limpopo*, Working Paper 7, Johannesburg: Society Work and Development Institute, University of Witwatersrand

Moenga, B. O., Muchemi, G. M., Kang'ethe, E. K., Kimenju, J. W., Mutiga, E. R. and Matete, G. O. (2013) 'The Impact of Climate Change on the Incidence of Cattle Diseases in a Pastoral Area of Kenya', *Livestock Research for Rural Development* 25.4

Muller, C. and Shackleton, S. E. (2014) 'Perceptions of Climate Change and Barriers to Adaptation amongst Commonage and Commercial Livestock Farmers in the Semi-Arid Eastern Cape Karoo', *African Journal of Range & Forage Science* 31.1: 1–12

- Musavengane, R. and Simatele, M. D. (2016) 'Community-Based Natural Resource Management: The Role of Social Capital in Collaborative Environmental Management of Tribal Resources in KwaZulu-Natal, South Africa', *Development Southern Africa* 33.6: 806–21
- Neves, D., Samson, M. and Van Niekerk, I. (2009) *The Use and Effectiveness of Social Grants in South Africa Economic Policy Research Institute*, Cape Town: Institute for Poverty, Land and Agrarian Studies (PLAAS), www.plaas.org.za (10 December 2018)
- Nygren, A. (2004) 'Contested Lands and Incompatible Images: The Political Ecology of Struggles over Resources in Nicaragua's Indio-Mai'z Reserve', *Society and Natural Resources* 17: 189–205
- Opiyo, F., Wasonga, O., Nyangito, M., Schilling, J. and Munang, R. (2015) 'Drought Adaptation and Coping Strategies Among the Turkana Pastoralists of Northern Kenya', *International Journal of Disaster Risk Science* 6.3: 295–309
- Provincial Treasury (2015) *Socio-Economic Review & Outlook of Mpumalanga*, Cape Town: Provincial Treasury, http://finance.mpu.gov.za/documents/SERO_report_of_Provincial_Treasury.pdf (28 February 2018)
- Samuel, A. R. and Knowles, N. J. (2001) 'Foot-and-Mouth Disease Type O Viruses Exhibit Genetically and Geographically Distinct Evolutionary Lineages (Topotypes)', *Journal of General Virology* 82: 609–21
- SanParks (2018) 'Kruger National Park', https://www.sanparks.org/parks/kruger/camps/croc_bridge (9 February 2019)
- Schreiner, B. G., Mungatana, E. D. and Baleta, H. (2018) *Impacts of Drought Induced Water Shortages in South Africa : Sector Policy Briefs*, Pegasys Institute, WRC Report No. 2604/2/18, Pretoria: Water Research Commission http://www.wrc.org.za/wp-content/uploads/mdocs/2604_Vol_2.pdf (21 January 2019)
- Shackleton, C. M., Shackleton, S. E., Netshiluvhi, T. R. and Mathabela, F. R. (2005) 'The Contribution and Direct-use Value of Livestock to Rural Livelihoods in the Sand River Catchment, South Africa', *Journal of Range and Forage Science* 22.2: 127–40
- Shackleton, S., Cobban, L. and Cundill, G. (2014) 'A Gendered Perspective of Vulnerability to Multiple Stressors, Including Climate Change, in the Rural Eastern Cape, South Africa', *Agenda* 28.3: 73–89
- South African Ventures (2019) 'Mthethomusha Game Reserve', <https://www.sa-venues.com/game-reserves/mthethomusha.php> (12 February 2019)
- South African Weather Services (2019) 'Maximum and Minimum Rainfall Data for Nelspruit from 1970 - 2018', Centurion, South Africa: South African Weather Services
- Stats SA (Statistics South Africa) (2016) 'Community Survey 2016', <http://cs2016.statssa.gov.za/> (28 February 2019)
- Tantoh, H. B., McKay, T. J. M. (2018) 'Rural Self-empowerment: The Case of Small Water Supply Management in Northwest, Cameroon', *GeoJournal*, <https://doi.org/10.1007/s10708-018-9952-6>
- Twine, W. (2013) 'Multiple Strategies for Resilient Livelihoods in Communal Areas of South Africa', *African Journal of Range and Forage Science* 30.1–2: 39–43

Yeh, E. T., Nyima, Y., Hopping, K. A. and Klein, J. A. (2014) 'Tibetan Pastoralists' Vulnerability to Climate Change: A Political Ecology Analysis of Snowstorm Coping Capacity', *Human Ecology* 42: 61–74

Yeni, Sithandiwe (2018) 'Traditional Leadership, Violation of Land Rights and Resistance from Below in Makhasaneni Village KwaZulu-Natal', *Mediating Convergence and Divergence: Traditional Leadership and Customs in a Constitutional Democracy Project*. Johannesburg: Mapungubwe Institute for Strategic Reflection,
http://www.mistra.org.za/Media/InTheNews/Documents/Sithandiwe%20Yeni_Working%20Paper%203.pdf (11 November 2018)

About the authors

Eromose Ebhuoma is a postdoctoral research fellow at the University of Johannesburg. His research interests lie in climate change vulnerability and adaptation, indigenous knowledge systems, rural livelihoods, political ecology, climate services and risk communication.

Felix Kwabena Donkor is a postdoctoral fellow at the University of South Africa (UNISA) specialising in environmental governance, livelihood resilience and common-pool natural resources management.

Osadolor Ebhuoma has a PhD in Environmental Sciences from the University of KwaZulu-Natal, South Africa. His research interests include remote sensing, environmental sustainability, rural livelihoods, environmental health and spatial modeling

Acknowledgements

This research was funded through the ESRC-funded project 'Governing the Land-Water-Environment Nexus in Southern Africa' (ES/I021620/1).

Political Ecology and Differential Vulnerabilities to Droughts among Livestock Farmers in South Africa: A Case Study of Mpakeni Community

STEPS Working Paper 114

Subsistence livestock production in Mpakeni community, South Africa, is crucial to enabling rural households' diversify their livelihood and spread risks. However, the frequent reoccurrences of drought have resulted in shortages of nutritious pastures in Mpakeni's communal areas, thereby posing significant threats to livestock production. While exposures to drought conditions in Mpakeni are homogenous, socio-economic and political factors determine the choices and manner in which various social groups engaged in livestock production can undertake to secure pastures to reduce their vulnerability. This paper adopts a political ecology framework to qualitatively analyse Mpakeni community livestock farmers' vulnerability to drought, including the dynamics that shape the reproduction of such vulnerabilities among the various socially differentiated groups. Key findings reveal that distinct household characteristics among peculiar social groups amplify their inability to secure pastures from their customary locations during drought conditions. Also, the appropriation of large hectares of land by traditional leaders reduces the options available to poor households to secure pastures in the face of drought. This paper argues that differentiated vulnerabilities of social groups are rooted in institutionalised forms of governance at the local level, which emanate from the corridors of power.

