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# Culture as a mediator of climate change adaptation: Neither static nor unidirectional

Roger Few<sup>1</sup>  | Dian Spear<sup>2</sup> | Chandni Singh<sup>3</sup> | Mark G. L. Tebboth<sup>1</sup> |  
Julia E. Davies<sup>2</sup> | Mary C. Thompson-Hall<sup>4</sup>

<sup>1</sup>School of International Development, University of East Anglia & Tyndall Centre for Climate Change Research, Norwich, UK

<sup>2</sup>African Climate and Development Initiative, University of Cape Town, South Africa

<sup>3</sup>School of Environment and Sustainability, Indian Institute for Human Settlements, South Africa

<sup>4</sup>START International, Inc,

**Correspondence**

Roger Few, School of International Development, University of East Anglia & Tyndall Centre for Climate Change Research, UK.  
Email: [r.few@uea.ac.uk](mailto:r.few@uea.ac.uk)

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**Abstract**

Though there is increasing recognition of the cultural dimensions that shape climate change adaptation, our experience from working with actors engaged in adaptation policy and practice suggests that the role of culture still tends to be conceived in overly narrow and fixed terms. This is exemplified in portrayals of conservative cultural norms as stifling positive change. A growing body of research across the world indicates that the reality is seldom as simple as this—culture works in complex and variable ways, and, most importantly, is inherently dynamic. Drawing especially from research work on vulnerability and adaptation conducted in semi-arid regions, we illustrate this argument by briefly exploring three themes—multiple knowledge systems for farming in Botswana, the dynamics of pastoralist values and livelihoods in Kenya, and the interplay of caste and livelihood choices in India. Understanding how different facets of culture such as these operate in context helps move away from viewing culture statically as a barrier or enabler, and toward a more plural and dynamic appreciation of the role of culture in adaptation. This includes recognizing the potential for factors that may be construed as barriers to become enablers. Critical, balanced engagement with cultural dimensions in both research and practice, understanding and working with these dynamic social structures, is essential if adaptation is to create meaningful and lasting change for those who need it most.

This article is categorized under:

Vulnerability and Adaptation to Climate Change > Values-Based Approach to Vulnerability and Adaptation

**KEYWORDS**

adaptation, barrier, climate change, culture, enabler

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## 1 | INTRODUCTION

As interdisciplinary research on climate change adaptation has expanded globally, there has been increasing recognition of the role of culture in shaping its processes and outcomes (Adger, Barnett, Brown, Marshall, & O'Brien, 2013; Barnes et al., 2013; Thomas et al., 2019). While we acknowledge many academic contributions that explore the breadth and fluidity of cultural influences on climate action, our experience in working with adaptation policymakers and practitioners is that cultural attributes are still commonly considered using overly simplistic framings: sometimes viewed in a positive light, but more commonly seen as preserving conservative and fatalistic attitudes that constrain action. Yet culture is neither benign nor fossilized. Instead, it intersects with other dimensions of individual and collective identities in variable ways to influence the development, uptake, and effectiveness of adaptation actions. Recognizing and working with these complexities of cultural influence can be key to achieving more equitable and sustainable adaptation (Curry et al., 2015; Murphy, Tembo, Phiri, Yerokun, & Grummell, 2016). We illustrate this by exploring three themes from research in semi-arid regions, where deep-rooted traditions tend to exist in contexts of rapid environmental and social change.

For the purposes of this discussion, we draw on Spencer-Oatey (2012), to view culture as composed of shared traits across social groups expressed in worldviews, values, knowledges, norms, taboos, customs and behaviors. In considering the mediating role of cultural structures for how we understand and act on climate change, Roncoli, Crane, and Orlove (2016) focus on how they may shape perceptions, knowledge, values, and responses. Following this reasoning, we argue that effective adaptation programming requires an understanding of how ideas about the nature and tolerability of risks, faith in information sources, what actions should be prioritized, the acceptability of responses, and expectations for who can or should take action, all flow, at least in part, from cultural norms and practices.

“Adaptation,” in essence, refers to the process of reducing and preparing for the risks posed by climate change, and, as such, includes identifying barriers and enablers to dealing with these risks (Davies et al., 2019; Jones & Boyd, 2011). These mediating factors are commonly categorized in terms of finance, technology, information, institutions, and cultural norms, although in practice such categories are inherently interlinked and variable, depending on the situation observed and the observer. However, we contend that there remains a tendency in adaptation discussions to employ relatively restricted, fixed representations of culture, particularly as a barrier. What we are emphasizing here, instead, is that culture intersects with diverse facets of individual identities and group characteristics in ways that are very rarely entirely supportive or discouraging for adaptation and that its mediating influence is inherently dynamic.

The illustrative themes we use to highlight these points draw from multiple strands of research conducted between 2014 and 2018 under the Adaptation at Scale in Semi-Arid Regions (ASSAR) project. Analysis of cultural dimensions was embedded throughout this work, but especially shaped a portfolio of social science research in which interviews, surveys, focus groups, and participatory scenario methods were used to analyze social differentiation and its relationship to adaptation.<sup>1</sup> In the following sections, we present brief discussions of three themes that emerged through the studies and discuss how these different facets of culture link to a more plural and dynamic understanding of the role of culture in adaptation. We conclude with a call for more engagement with cultural aspects of climate change adaptation in research and practice.

## 2 | TRADITION AND FARMING PRACTICES IN BOTSWANA

One recurrent theme in discussions of culture and climate change is the role of tradition in knowledge production and how that informs agricultural practices and prospects for adaptation (Jiri, Mafongoya, Mubaya, & Mafongoya, 2016; Newsham & Thomas, 2011; Nyong, Adesina, & Elasha, 2007). Here we draw on research reported from the Bobirwa Sub-District of Botswana on the use of traditional and national meteorological forecasting by Tswana crop and livestock farmers (Mosime, 2018; Selato, 2017; Spear et al., 2019).

Farmers in Bobirwa have coped with variable climatic conditions by using farming practices passed down through generations. Traditional knowledge based on biological, astronomical, and atmospheric observations has also been used to forecast weather and climate conditions (Kolawole, Wolski, Ngwenya, & Mmopelwa, 2014; Mogotsi, Moroka, Sitang, & Chibua, 2011). For example, farmers might observe the flowering of plants, notice certain behaviors in animals, and identify particular cloud formations to decide which crops to plant, when to plant them, and when to undertake weeding. Interviews with farmers suggested that the role of these traditional sources is receding. Many perceived that an increasing pattern of disengagement from agriculture and rural to urban migration by young adults, as well as a lack of willingness to learn and

thwarting of tradition, means that these practices are not always reaching the next generation. Hence, fewer farmers now have the knowledge and skills needed to interpret traditional climate indicators. However, comments were also made that traditional forecasting methods are becoming less reliable, as the climate becomes increasingly variable and extreme.

Botswana's Department of Meteorological Services has recently made seasonal climate forecasts available. These forecasts are accessible to farmers through radio, television and extension officers. The aim is to make farmers aware when drier-than-normal conditions are expected so that they may use more adaptive farming practices, such as arranging supplementary feed for livestock, reducing the size of their herd or planting drought-resistant crops.

Though many farmers in the Bobirwa study use seasonal climate forecasts to make certain farming decisions, such as which seeds to plant, their overall uptake has been constrained. One common reason stated by farmers is that they do not have the financial resources, technology or labor required to change their practices in accordance with seasonal predictions. Interwoven within these arguments were expressions of cultural attachment to traditional ways of farming. This was particularly evident among older farmers, some of whom stated that they will continue to farm as they always have done, in spite of shifting climatic conditions. Religion also shaped decisions about the use of seasonal forecasts. Many farmers rejected the notion that humans can predict the future, invoking the belief that God will protect them in times of need. These perceptions based on traditional and religious beliefs potentially make farmers less receptive to the idea of adaptation to climate change, a possibility mirrored in governmental discourse that "crop production is hampered by traditional farming methods" (Republic of Botswana, 2009).

However, the research revealed that indigenous decision-making mechanisms in Bobirwa are not intrinsically oppositional to seasonal climate forecasts. Because traditional forecasting methods are more scale relevant to local farmers, if used in an integrated manner, traditional and seasonal forecasts can together improve the accuracy of local climate information and better inform agricultural decisions. This approach, increasingly recognized elsewhere (Kniveton, Visman, Tall, Diop, & Ewbank, 2014; Plotz, Chambers, & Finn, 2017), is already being taken by some farmers in Bobirwa.

The research further found instances where existing traditional institutions could leverage opportunities for information sharing and promotion of adaptive farming practices. For example, the tradition of holding regular community meetings at the *kgotla* (meeting place) could enable the dissemination and uptake of climate information. In Bobirwa, there are periods when people gather every day at the *kgotla* to pray for rain. Through close engagement with religious leaders, this platform could simultaneously be used to share climate messages, perhaps even by integrating them into religious narratives—as has been promoted elsewhere in Southern Africa (Kassam, Derpsch, & Friedrich, 2014).

### 3 | PASTORALIST VALUES AND LIVESTOCK TRANSITIONS IN KENYA

Pastoralism has long been the predominant form of livelihood and subsistence in the drylands of northern Kenya (Catley, Lind, & Scoones, 2013; Nyariki & Amwata, 2019). Cattle keeping predominates over large tracts of semi-arid land, complemented by sheep, goat, and camel herding. Traditionally this has been a mobile form of livelihood, with pastoralists relying on patterns of communal access to rangelands that were customarily regulated through tribal agreements. These patterns have been undermined by the erosion of customary rules and land-use dynamics, associated more recently with state-led efforts to develop pastoral lands that are still implicitly perceived as empty and backward (Enns & Bersaglio, 2020; Mosley & Watson, 2016). These sociopolitical dynamics overlay ongoing biophysical pressures in the form of recent recurring drought that has threatened livestock and livelihoods, as detailed through recent research in Isiolo county (Few et al., 2018; Few & Tebboth, 2018; Rao, 2019).

Through participatory research work in several villages, Tebboth and Few (2018) explored one potential adaptation option: switching the balance of livestock from grazers (cattle and sheep) more toward browsers (camels and goats). Browsers are generally more tolerant of water stress, and there are moves by some non-governmental organisations and government agencies to support an increase in camel husbandry in the region to reduce pressure on pasture resources. Yet there are complex factors that constrain this transition, including those related to costs, risk of losses, external support, and services provision (Watson, Kochore, & Dabasso, 2016). What we focus on here are interacting cultural dimensions that can function as barriers and enablers to livestock change.

This work with predominantly Boran communities underlined the importance of cattle keeping in the local cultural fabric (Kagunyu & Wanjohi, 2014). Cattle are traditionally viewed by Boran pastoralists as symbols of social status and wealth, but the attachment runs deeper than this. People have grown up with the identity of being cattle raisers, and the notion that owning a thriving cattle herd is an embodiment of well-being. This attachment was commonly

expressed as a reason for resisting livestock change, but it has also been linked more generally to negative portrayals of pastoralism in public and policy discourse (Achiba, 2019; Greiner, 2016) that view persistent adherence to such traditions as out of step with a modern view of Kenya.

One deep-seated reason to value cattle husbandry is that cattle have customarily been used as dowry payments; cattle ownership is therefore associated intrinsically with masculinity. Allied with this is the existence of shared knowledge resources on cattle keeping that contrast with low confidence about the care of camels. Equally, it was stated that camel milk and meat are not traditionally consumed by Boran people, and there remains restricted demand for these products and their distinctive flavors.

Clearly, each of these factors has constraining elements, and they interact to shape a strong degree of cultural resistance to livestock transition. Yet each factor – identity attachment, dowry customs, traditional knowledge and culinary taste – is not a fixed state and can itself transition from barrier to enabler as customs change and intersect with other dynamic facets of individual and group identity. As many of the research participants indicated, the interplay of these factors already seems to be shifting people's attitudes.

First, it is important to emphasize that camels are not alien species to the Boran people (Quandt & Kimathi, 2016). Familiarity with keeping camels varies from place to place, associated with environmental conditions and interaction with other tribal groups. But the historic predominance of mobile pastoralism means that the potential for keeping browsers, including camels, is at least implicitly recognized across the region. Second, the strength of cultural resistance to livestock transition varies from household to household as people become exposed to change. As increasing numbers see others changing their livestock, so there is a gradual collective redefinition of what is culturally acceptable—especially for many women who can see the sale of camel products as an independent livelihood opportunity. Third, there are indications that the husbandry knowledge barrier is weakening, through promotional campaigns and the sharing of experience. Finally, people described changes that were occurring in culinary tastes. There were claims made in several group interviews that camel milk is more nutritious, better for health, and more reliable because production is seasonally stable. Cultural norms concerning livestock husbandry may be deep-seated, but they are also therefore demonstrably dynamic.

## 4 | CASTE AND LIVELIHOOD OPTIONS IN INDIA

In this theme, we articulate how caste shapes migration decisions and outcomes in India, mediating the role that migration can play as a risk management strategy for households in water-stressed regions. The case draws on research conducted in rural and urban sites in Karnataka and Tamil Nadu in India (Deshpande et al., 2019; Michael et al., 2018; Singh & Basu, 2020; Singh et al., 2018).

Migration is a key livelihood strategy in semi-arid India (Bhagat, 2017; Deshingkar, 2012; Deshingkar & Farrington, 2009). Migration can play a critical role in building local adaptive capacity through remittances and widening livelihood opportunities away from climate-sensitive sectors such as farming (Jha, Gupta, Chattopadhyay, & Sreeraman, 2017; Kattumuri, Ravindranath, & Esteves, 2015). However, moving also incurs significant costs, both tangible (costs of moving, paying intermediaries for entry into jobs, higher costs of living in cities) and intangible (issues of safety, reduced social capital for new migrants), thereby increasing vulnerability (Bhagat, 2017).

Neither the motivations nor the opportunities to migrate are evenly distributed in society. In India, the cultural norms, values, and resource access associated with caste emerge as particularly strong mediators of migration as a response to risk. Disadvantaged castes tend to have poorer landholdings, smaller asset bases, and lower levels of education (Mosse, 2018), all of which affect migration choices. Further, caste interacts with other identities, such as gender, age, and religion, to privilege or marginalize people, with implications for their adaptive capacities.

In villages across Kolar and Gulbarga districts, in Karnataka, members of scheduled castes (historically marginalized socioeconomic groups that fall outside the fourfold caste system of India) are more sensitive to climatic risks and tend to have the highest likelihood of outmigration. However, the studies in urban settlements receiving migrants showed that caste and religion *combine* to constrain entry into cities and certain spaces within them, as well as into certain occupations. For example, being Muslim or from scheduled tribes (indigenous minority groups) restricts migrants from entering wage labor in Bangalore, and they often end up living in flood-prone informal settlements and working as waste pickers.

However, the effect of caste differentiation is not so unidirectional. Caste affiliations are often leveraged to assert political agency in migrant destinations and to avail of livelihood opportunities through caste-based migrant networks (Singh et al., 2019). Thus, caste-based ties can also serve as *enablers* of adaptation by providing safety nets during

distress and helping people diversify livelihoods. In the city of Coimbatore, Tamil Nadu, caste affiliations help entry into formal jobs where wages and job security are higher. In life history interviews in Bangalore city, we also found that early migrants help new migrants access housing and basic services and these ties are strongly tied to caste affiliation.

Crucially, caste-based norms are not static. In Kolar and Gulbarga, for example, there were reports of loosening caste-based segregations. Drought-like conditions and consequent agricultural losses have also pushed some traditionally landholding households to gradually sell their lands. In a reversal of social roles and associated norms, some disadvantaged castes who have accumulated capital through long-term migration, are now procuring land from privileged castes and emerging as a new landholding class. Power shifts such as these challenge the notion of a static interlinkage of cultural and economic structures that shape the livelihood benefits of migration.

## 5 | DISCUSSION—PLURAL PERSPECTIVES ON THE ROLE OF CULTURE

Drawing across these three examples, the foundational but flexible role of culture in shaping responses to climate change and its associated risks is evident. On one hand, the cases reinforce ideas of how cultural factors under certain circumstances can constrain adaptation. On the other, they underline a growing acceptance that we need to go beyond seeing cultural dimensions merely as barriers holding back adaptation and instead view these dimensions as one of many intersecting pieces of individual and collective identities that come together in diverse and changing ways to shape adaptive behaviors. Exploring these nuances of cultural influence is not only more in step with cultural studies and anthropology but also links with a growing body of feminist political ecology applying the concept of intersectionality to studies of vulnerability and adaptation (Carr & Thompson, 2014; Kaijser & Kronsell, 2014).

We fully recognize that cultural attributes can shape people's perceptions of climate risk, impacts, and adaptation options (Quandt, 2019) and that in some cases this may encourage resistance to change (Antwi-Agyei, Dougall, & Stringer, 2015; Nielsen & Reenberg, 2010). This includes the potential for religious beliefs to engender negative responses to seasonal forecasts, as observed in Botswana (see also Ebhuoma & Simatele, 2019), and for deep-seated values and tastes to impede transitions to different livestock types, as observed in Kenya (see also Volpato & King, 2019). Many aspects of culture are produced and reproduced through the codification of formal and informal institutions that strongly determine the possibilities for action (Thomalla, Smith, & Schipper, 2015), a tendency clear from the work on caste and migration in India.

However, it is also important to recognize that cultural structures operate in multiple and changing ways within a broader web of intersecting influences to shape outcomes. Thus, although caste in India constrains agricultural livelihoods in water-scarce villages, it also enables migration, through caste-based kinship ties providing networks for migrants to access homes and jobs. Recognizing culture as enabling, as well as constraining, not only frees up the prospects for analysis but also opens up the possibility to work with culture as a positive force for managing climate risk. Viewing culture as an enabler could help generate insights into more effective ways to facilitate shifts in attitudes, social norms, and behaviors to support progressive adaptations in resource and land use under a changing climate. The studies in Botswana, for example, indicate that there are prospects to work with traditional decision mechanisms and religious ceremonies to reinforce motivation, self-efficacy, and cooperation in responding to climate forecasts (see also Fletcher et al., 2013; Schipper, 2015).

Fundamental in this is the acceptance that culture is inherently dynamic—a characteristic evident in each of the cases discussed here. This suggests that cultural change not only is possible but that it can potentially be leveraged to foster inclusive and sustainable adaptation. In the work reported from Kenya, for example, there was clear evidence that people are carefully considering their livestock mix, as more and more people become exposed to camel product consumption and the livelihood opportunities opening up for women in camel milk trade. In India, changing social norms are altering livelihood opportunities and migration patterns, with critical implications for how people manage and prepare for risk. As Watson et al. (2016) also note, there are always strong reasons to question assumptions about cultural conservatism and inertia in relation to adaptation.

## 6 | CONCLUSION—CULTURE IN THE MIX

Recognizing the interacting set of factors that can influence the progress of adaptation actions is key if research and programming on adaptation to climate change is to move beyond identifying impacts and potential responses. Many

discussions of barriers and enablers in adaptation focus on matters relating to finance, technology, skills, institutional capacity, and governance. Through the people-centered research reported in the cases above, we emphasize a strong, and in some cases central, role that cultural values, norms, and practices may play in shaping development, fit, uptake, and effectiveness of adaptation actions. It is important to recognize how cultural dynamics intersect with peoples' multiple and changing identities, and how a cultural trait can act *both* as a barrier to and an enabler of adaptation. Acknowledging the fluid, and pliable, ways in which culture mediates adaptive capacity, adaptation decisions, and, often, adaptation outcomes has direct implications for policy and practice. It suggests that practitioners should enter into planning and implementation with an open-minded, flexible approach to how they view the cultural norms of different social groups, to how they “tune” processes to existing norms and institutions, and to how cultural resources might be worked with rather than supplanted to achieve effective outcomes. A critical, but balanced, engagement with existing culture will be crucial to successful adaptation in many cases, especially if adaptation is to work in practice for the most marginalized groups in society.

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**Roger Few:** Conceptualization; writing-original draft; writing-review and editing. **Dian Spear:** Conceptualization; writing-original draft; writing-review and editing. **Chandni Singh:** Conceptualization; writing-original draft; writing-review and editing. **Mark Tebboth:** Conceptualization; writing-original draft; writing-review and editing. **Julia Davies:** Conceptualization; writing-original draft; writing-review and editing. **Mary Thompson-Hall:** Conceptualization; writing-original draft; writing-review and editing.

## CONFLICT OF INTEREST

The authors have declared no conflicts of interest for this article.

## ORCID

Roger Few  <https://orcid.org/0000-0001-6653-1400>

## ENDNOTE

<sup>1</sup> Further detail on sites, data collection methodologies, and findings across the ASSAR research used to illustrate this discussion can be found in the cited case study documents: Deshpande, Michael, & Bhaskara, 2019; Few et al., 2018; Few & Tebboth, 2018; Michael, Deshpande, & Ziervogel, 2018; Mosime, 2018; Rao, 2019; Selato, 2017; Singh, Rahman, Srinivas, & Bazaz, 2018; Singh & Basu, 2020; Spear, Selato, Mosime, & Nyamwanza, 2019; Tebboth & Few, 2018.

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