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## **Socially differentiation in (agro)pastoral climate change adaptation: Intersectional perspectives on socio-technical change in Kenya and Burkina Faso**

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### **Introduction**

Due to the climate sensitive nature of cropping and livestock keeping, climate change adaptation has emerged as a central issue in agricultural/rural development. Even development interventions that are not focused on climate change adaptation are increasingly called on to be sensitive to the implications of climate change impacts. However, many approaches to agricultural adaptation to climate change remain highly technocentric, for example relying on measures of drought resistance and productivity to indicate adaptiveness without consideration of how a new practice/technology will move through and be shaped by social spaces of household labor, market access, land use decision making, cultural values, etc. (Crane et al. 2011).

Critical social science work, especially from development anthropology and political ecology, has outlined the contours of socially differentiated effects of agricultural development interventions for decades. The integration of these considerations into intervention planning has been slow and uneven. The emerging discourse of climate smart agriculture (CSA) is no exception. Instead, there is often an underlying, if unstated, assumption that rural society is relatively homogenous, that the promotion and implementation of CSA practices is an apolitical process. This is institutionalized in that the key measures of success in CSA tend to focus on system level outcomes such as resilience/adaptation (maintenance of productivity under climate stress), reduction of GHG emission intensities, and food security (Thornton et al. 2018). In this system-based evaluative framework, there is little explicit space for addressing how the promotion and adoption of CSA practices may – like so many well-meaning "technical" agricultural interventions in the past – produce an uneven social distribution of benefits. Furthermore, the emergent changes in social organization through technical changes are often treated as an instrumental aspect of achieving system level outcomes, rather than as outcomes of interest in and of themselves. However, like any changes in technical livelihood practices, climate change adaptation is a fundamentally social process. As such, social science research into adaptation requires attention to how adaptation practices are socially differentiated, in terms of how they develop, how they are implemented, and how benefits are distributed as the practices are institutionalized.

The objective of this report is to synthesize research from within the Local Governance and Adaptation to Climate Change (LGACC) project that analyzes how mechanisms of social differentiation affect climate change adaptation in pastoral societies that are transitioning toward more sedentary mixed agro-pastoralism. Rather than recounting the details of each case study, the purpose of this report is to distil the key lessons learned from the case studies. Starting with three key dimensions of social differentiation – gender, age and ethnicity – the research has analyzed how these factors affect the strategies that are available to and accessed

by people. This has been done through case studies of a small set of emerging adaptation practices in each of the field sites, which are analyzed in terms of the social processes through which they emerged and how the practices organize people in their implementation and access to benefits. The ultimate objective is to identify the mechanisms through which these different social categories affect adaptation processes and outcomes.

### **Dimensions of social differentiation**

Gender research has widely emphasized that vulnerability to the impacts of climate change are not necessarily going to be evenly distributed in society (Bryan et al. 2017, Denton 2002, Ravera et al. 2016,). This is because vulnerability is partly a function of the mechanisms by which negative effects are socially distributed. Furthermore, gender research has long highlighted the ways that agricultural development interventions, far from being apolitical or gender neutral, can have substantial implications for gendered access to production resources, markets and benefits of change, both in positive and negative ways (Ravera et al. 2016, Alston 2013, Tavenner and Crane 2018, Sultana 2018).

Much has been written about the difficulty of youths gaining access to opportunity due to elder men's retention of control over key productive resources, and this is as relevant to climate change adaptation as other domains. Age can also influence access to social and financial resources, information networks, generational differences in education, varying risk assessment priorities (White 2012, Sumberg et al. 2012). Given the emerging interest in creating better opportunities for youth in agriculture, age is becoming an increasingly important research domain relating to social differentiation in adaptation processes.

Ethnicity is particularly relevant in research on pastoral societies that are transitioning toward more sedentary agro-pastoralism. In both East and West Africa, historical interlinkages between ethnic identity and pastoral lifestyles and values can influence culturally conditioned criteria by which people evaluate potential adaptation pathways and practices (Crane 2010). The historical trajectory of livelihood strategies also influence access to land, technical knowledge frameworks, which also affects perception and evaluation of potential adaptation practices. The history of the relationships between customarily pastoral ethnic groups and non-pastoral neighbors can also affect access to land, resources and information networks.

### **Methodology**

Following the mandate of the project commissioner, USAID, the LGACC project selected research sites in Burkina Faso and Kenya where communities relied heavily on pastoral commons and had met some relative success in adapting to climate change. For the analysis of social differentiation in climate change adaptation practices, scoping studies were conducted in each site first to catalog the range of relatively new livelihood practices in order to identify socio-technical change dynamics and emerging adaptation practices. This catalog of practices was then evaluated for which practices were most directly responsive to climate stress and whether their implementation occurred within households or in a more collective-community manner. Three practices were selected in each site for deeper analysis, with deliberate

inclusion of at least one practice that required collective action and one practice that was implemented within households.

Using qualitative data collection methods of interviews, focused group discussions and participant observation, each of the selected practices was then analyzed in terms of the social processes of its evolution and implementation within the research sites, situating the practices both historically and socially. Adapting an innovations systems approach (See Triomphe et al 2013), particular attention was given to how specific actors drew on various resources (material, financial, social, informational, etc.) in the process of developing or introducing the new practice. Furthermore, the practices were analyzed in terms of how people organize to implement them, with particular attention to the socio-economic profiles of the actors who were (and weren't) engaging in the practice, mechanisms of accessing and using the resources necessary for the practice, and distribution of labor and benefits within households.

This approach to analyzing the various adaptation practices allows us to use empirical cases to identify how and where gender, wealth, age and ethnicity have played roles in the social distribution of adaptation practices. Due to its case study-based approach, this research is not designed for generalization of patterns. Instead, it is meant to identify the mechanisms by which each of these social variables shape peoples' constraints and opportunities.

### **Synthesis of results**

In Burkina Faso, the two of the three emerging adaptation practices centered around fodder: harvest of wild grasses and cultivation of fodder species both for conservation of fodder for feeding to animals over the dry season. The third emerging practice addressed the governance of the pastoral zone itself, particularly the enforcement of its boundaries. In Kenya, the three emerging adaptations practices cover a variety practices at different scales: the original establishment of the Il Ngwesi Conservancy itself, the private and collective fodder cultivation, and species diversification into dairy goats.

### *Gender*

In both Kenya and Burkina Faso, gender was found to be a key variable in terms of distribution of household labor in new adaptation practices, as well as access to information networks. The integration of any new practices into a household economic strategy almost always implies reorganizing labor roles.

Both the Sondré Est pastoral zone and the Il Ngwesi conservancy were established in direct response to drought impacts in the 1980s, which devastated pastoral livelihoods in both East and West Africa and widely precipitated sedentarization and greater territorialization of previously transhumant herders. In both areas, women have had little to no explicit role in the large-scale collective processes of establishing, maintaining and governing their respective territories.

The transition from pastoralists to agro-pastoralists in Burkina Faso has necessitated changes in household gender labor roles. Customarily, the primary gender roles have been for men look

after animals and women market milk. Although men customarily own and herd cows, milk is women's domain. Men also engage in cultivation in circumstances where that is needed. There have customarily been strong cultural norms against pastoral Fulbé women engaging in cultivation or manual labor of any sort, whether field crops or market gardens (Crane 2010). In Sondré Est, Fulbé women still sell milk in neighboring Mossi villages, but they have been taking up labor roles in transport of cut fodder. Increasingly sedentary lifestyles are furthermore contributing to relaxation of cultural taboos against Fulbé women engaging in manual labor. As livelihoods become more reliant on intensified management practices, rather than extensive herding, women's manual labor becomes an important component of household economic productivity. This has led to women starting to do manual labor in cultivation of food crops or animal fodder. The pressure for Fulbé women to engage in manual labor is compounded if their husbands and/or sons go on transhumance with their herds, because the absence of male labor in a household shifts the labor burden onto women. Access to stored fodder in the dry season stretches milk productivity, the sale of which remains a squarely female domain, and thus contributes directly women's economic benefit and household food security.

In Kenya, customary gender roles have likewise shaped engagement in and access to adaptation practices. The conversion of Il Ngwesi from a group ranch to tourist destination led to a diaspora of former residents to a variety of locales around the edge of the conservancy. For those women who now live in towns, opportunities to engage in small-scale commerce or open restaurants have opened up a new range of livelihood opportunities that had previously not been possible.

Fodder cultivation and managed grazing are two key adaptation practices that are being implemented in Il Ngwesi. Fodder cultivation has been implemented by individual households as well as by collectivities, including both by the conservancy administration as well as groups of independent self-organizing households. In all cases, the strategic planning and organizing of materials and networks necessary for fodder cultivation has been the domain of men, as heads of households and heads of the community administrative apparatus. While women have not had leadership roles in the planning of fodder cultivation, this is not to say that they haven't had any role or benefits. Women are expected to maintain and repair fencing around any household cultivation plots, which are occasionally damaged by elephants. However, this labor burden also comes with access to benefits. Women are typically responsible for looking after weak or very young animals who aren't able to go out grazing with the herd. This implies cutting of wild grasses to hand feed to the weak animals. The availability of stored fodder grasses thus reduces women's daily work load.

Herding cattle is customarily a squarely masculine activity. This includes going on long-distance transhumance as well as day-to-day following of the herds. The decision to engage in rotational grazing within the production-oriented zones in the Il Ngwesi Conservancy as well as the implementation of rotational grazing practices is done by men. However, rotational grazing makes it possible for more male herders to stay in the area rather than migrating long distances with their herds, a migration which presently doesn't often involve full families due to

sedentarization. Because milk customarily belongs to women, diminishing migration means that women and children have better access to milk for consumption or for sale.

### *Age*

Age was found to have a variety of effects on how adaptation practices were adopted or implemented. In Il Ngwesi, the eldest male heads of household were generally disinclined toward the adoption of new practices such as rotational grazing and fodder cultivation. Instead, they exhibited and expressed preference for the more familiar customary practices of migration. Middle aged men (~40-60) were typically the most involved in adoption of rotational grazing and fodder cultivation. Generally speaking, they are young enough to be open to change, but old enough to control or draw upon sufficient financial, knowledge, social and material resources to effectively pursue new practices. Male youth (~20-40) perspectives on adoption of adaptation practices varied widely. Customarily, Maasai male youth are known as *morans*, or warriors, who focus their energies on herding cattle in the bush and are as an age set, somewhat outside of some social boundaries. However, adaptations oriented toward intensification or cultivation are anathema to *moran* identity, which is customarily closely intertwined with extensive pastoral practices and lifestyle. Knowing that their elders had lived the culturally valorized *moran* lifestyle, youth are often unresponsive to elders' entreaties to change away from extensive pastoralism, a proposition which they find robs them of their patrimony as Maasai *morans*. However, beyond such identity arguments, young men do not control substantial amounts of resources – including land and livestock – making pursuit of innovative adaptation practices particularly challenging, unless they get out of basic production altogether. However, this difficult for many young men, because of the relatively low education levels, a fact which is itself slowly changing.

As mentioned in the gender sub-section, while women in Il Ngwesi, regardless of age, have some role and benefit in the implementation of some adaptation practices, they have little social power for strategic planning or use of resources unless they are outside of the pastoral economy. Older married women may have some degree of informal leverage in intrahousehold negotiations around livelihood practices, they have little structural power. Young women, usually recently married and relocated to their husbands' family and community, have very little social leverage for pursuing new adaptation strategies.

In Burkina Faso, elder and middle-aged men were heavily implicated in policing the boundaries of the Sondré Est pastoral zone, forming the heart of the Management Committee (COGES, short for *Comité de Gestion*). COGES is mandated with protecting Sondré Est against any inappropriate incursions, primarily by agriculturalists living around the pastoral zone and by migratory herders from outside of the area. This is an important part of the pastoral zone as an adaptation strategy, because residents' vulnerability to climate stress would be elevated if the integrity of their resource base is not maintained. While young men often have responsibilities to herd animals within the zone, they do not take an active role in policing it. Elders characterize young men (~20+), who are starting to assert their independence, as generally being unresponsive to their authority.

Fodder cultivation, harvest and conservation, important intensifications in pastoral production, are primarily the responsibility of male heads of households, but they draw substantially on male children's labor. Adult women and girls support these activities by bringing food and water to the fields, which are often distant from households. Women and girls may also help in transport of the harvest back to the households, which is most often done by transporting bundles on the tops of their heads, as there are few carts available in the area.

Older women in Sondré Est report significant and increasing contributions to adaptation practices relating to fodder harvesting and agriculture in general, going against cultural norms that Fulbé women shouldn't engage in manual labor. However, younger women are described as being more resistant to agricultural activities. While fodder cultivation and harvesting may be materially adaptive, it also represents quite some hard physical work. Young women perceive this hard manual labor and the muscular bodies it creates, as a threat to their cultural ideals of femininity and thus worry that it makes them less attractive as a marriage partner. While older women recognize young women's concerns, they claim that as younger women mature and establish their own families, the practical material demands of contributing to their families' wellbeing will eclipse concerns about idealized femininity.

### *Ethnicity*

The study sites in both Kenya and Burkina Faso were ethnically homogenous, focusing on Maasai and Fulbé communities respectively. However, ethnicity is still apparent as a factor that influences the pursuit of adaptation to climate change. Maasai and Fulbé have traditionally been iconic pastoralists of East and West Africa respectively, with cultural norms and values, as well as social organization, in both groups heavily organized around pastoralism as a core reference point. While both cases illustrate the demise of extensive pastoralism as a livelihood practice, they also show how pastoralism maintains a certain continuity in the face of change.

Both Sondré Est and Il Ngwesi were initially established as dedicated pastoral zones for ethnically homogenous communities. Sondré Est was comprised of Fulbé who migrated from northern Burkina Faso to their new home in Southern Burkina in direct response to the devastating droughts of the 1970s and 1980s. This relocation was facilitated by the national government and supported by the village chief of Sondré, who donated the land. Subsequently, development interventions in Sondré Est have been focused around livestock-oriented activities – including intensification of fodder production and wild harvesting (ongoing) and dairy processing (now defunct due to technical maintenance issues) – appealing to Fulbé knowledge, interests and values in livestock-based livelihoods even when becoming agriculturalists could have been a potentially viable adaptation pathway.

The conversion of Il Ngwesi from a group ranch to a nature conservancy stimulated an exodus of a large portion of the population to outside of the conservancy, a diaspora who relocated to communities adjacent to Il Ngwesi. Subsequent adaptation strategies have varied significantly depending on where they moved to. Some members of the Il Ngwesi diaspora migrated to an area which was endowed with good soils and irrigation infrastructure for market gardening. Recognizing the opportunity afforded by access to irrigation, they set to learning how to farm,

which involves not only hydrology and agronomy, but also marketing. Research participants reported that the learning curve on this was very difficult because not only did the Maasai diaspora not have the knowledge and skills for farming, but they didn't have the socio-economic networks that enabled them to effectively market their harvest.

Agricultural knowledge and skills can be gained through experience, but they can also be gained by marrying people with needed knowledge and skills. Maasai intermarriage with other ethnicities with more agricultural backgrounds is not a new phenomenon, but field reports from Il Ngwesi indicate that it is being done strategically in response to their new sedentary circumstances. One elderly man tells the story of when he first relocated from the conservancy to a relatively small plot in an agricultural area. His first wife, a Maasai, was unmotivated to convert to an agricultural livelihood and preferred to stay near the grazing zone in the conservancy. Consequently, he chose to take on a second wife, a Kikuyu, who would know how to farm, thus enabling him – through her labor – to capitalize on his new agricultural property. This personal anecdote highlights that knowledge and skills appropriate to specific livelihoods is learned within cultural contexts. Integrating those skills and knowledge into a household strategy can sometimes be more easily achieved through intermarriage than through training or through trial and error.

For Il Ngwesi diaspora who moved or remained in pastoral areas, the most prominent and prevalent adaptation practices continue to be oriented toward supporting livestock keeping. Cultivation of fodder grasses has been taking off in recent years as a way of getting more productivity from the pastoral zones. While this also involves new practices, skills and knowledge, people are motivated to do what they can to support livestock keeping as a central livelihood activity rather than converting to agriculture.

### **Discussion and Conclusion**

Gender, age and ethnicity are three key dimensions of social variability that help explain differentiated patterns of adoption and benefit from climate change adaptation practices. Cultural gender norms prescribe “proper” behavior for men and women, which can shape how they evaluate, pursue and benefit from new practices. Understanding how age affects access to material resources, social standing and knowledge networks will help adaptation efforts account for hierarchies commonly found in agrarian and pastoral communities. Ethnic identity – and all of the norms and values that accompany it – can be an important factor in how people evaluate and pursue various potential adaptation pathways, as well as how a community interacts with other ethnicities around them in landscape level politics.

It needs to be emphasized here that while these dimensions of social differentiation *affect* people's behaviors, they do not *determine* people's behaviors. Cultural norms relating to gender, age and ethnicity are dynamic and there is always some degree of variability in how closely people adhere to or deviate from them. Rather than being deterministic, cultural norms relating to gender, age and ethnicity are simply frameworks within which individuals assert their own agency. The assertion of agency within dynamic and contested cultural frameworks is

a key element of how cultural change occurs, which is particularly important during processes of rapid or extreme change which are often characteristic of climate change adaptation.

Although social variables can have some degree of causality regarding how adaptation processes unfold, they are not static. The pressures that drive and interact with adaptation processes can also contribute to changing social norms and relationships. The increasing adoption of agricultural activities and intensification of livestock keeping practices in both Burkina Faso and Kenya speak to this dynamism, especially as they relate to ethnic ideals of and preferences for extensive pastoralism.

The social differentiation component of the LGACC has examined aspects of gender, age and ethnicity in order to unpack how they act as mechanisms that shape adaptation processes. A next step for this kind of research would be to do a fully intersectional analysis, which would treat gender, age and ethnicity as overlapping and interacting variables instead of independent ones (Thompson-Hall et al. 2016, Djoudi et al. 2016). However, whether intersectional or not, research on social differentiation in pastoral and agricultural communities should be useful in planning and implementing programmatic interventions for climate change adaptation so that they can account for the various dimension of social heterogeneity.

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