Conflict Management, Decentralization and Agropastoralism in Dryland West Africa

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Summary. — This paper reports on a four-site study conducted in the Sahelian zone of Niger. The study takes a novel mixed methods approach for understanding conflict management from the perspective of rural peoples by not only describing past highly publicized conflicts but also by analyzing the steps rural peoples follow to management disagreements that arise in their everyday lives. This "bottom-up" approach reveals both a capacity and preference among our informants to manage disagreements informally without involving village or extra-village authorities. Decentralization initiatives, by reworking the authority and responsibilities of authority-based systems, affect the role that these informal mechanisms, as mediated by social norms and relations, play in conflict management. © 2011 Elsevier Ltd. All rights reserved.

Key words — Africa, Niger, common property, governance, legal pluralism, social capital

1. INTRODUCTION

While development agencies and governments are variously pursuing decentralization in the management of natural resources in semi-arid Africa, questions about the appropriate mix of governance responsibilities accorded to extant customary institutions and more formalized government institutions remain unresolved (Agrawal, 2005; Agrawal & Ribot, 1999; Painter, Sumberg, & Price, 1994; Platteau, 1992). The mixed livelihood strategies (dryland agriculture, livestock husbandry, and labor emigration) pursued by members of multiethnic communities in semi-arid West Africa operate at different spatial scales, are highly responsive (and vulnerable) to climatic variability, and involve competitive land uses. In such areas, effective governance must facilitate flexible access to productive resources while limiting and managing conflicts that may arise as people and resources necessarily shift in space and time. Poor governance, whether at local or national scales, will result in misallocation of resources, increased vulnerability of rural peoples, and environmental mismanagement.

This paper reports the findings of a study of how rural people in Niger manage disagreements as they pursue their everyday livelihood activities. In doing so, this study addresses conceptual and methodological gaps that exist in the literature on resource-related conflict management and decentralization. The study adopts a "social networks" optic for understanding conflicts and their management by: (1) Tracing the social relationships upon which rural people's livelihood practices rely. (2) Identifying the disagreements that may arise among partners in these social relationships. (3) Describing the social relationships that are successively mobilized to avoid and manage conflicts of variable magnitude and resolution. This approach is different than that adopted by most studies of resource-related conflict and governance in the region that have tended to focus on public conflicts managed by formal and informal authorities. We investigate not only disagreements that escalate into more public conflicts but also disagreements that are managed without escalation. This work provides a stronger empirical basis to identify how livelihood interests, social identity, formal and informal authority status, and community membership shape the ways in which disagreements develop and are managed.

While this study was concerned with the management of all livelihood-related conflicts, informants at the four study sites in Niger focused their responses primarily on disagreements developing from the competition between cropland and pasture (livestock-induced crop damage). As a result, our analyses of quantitative and qualitative data are dominated by this type of disagreement. As will be further developed below, this reflects not only the often public nature of these disagreements but also their frequency and importance within agropastoral communities. As a result, our review of prior work on resource-related conflict in semi-arid West Africa will be concentrated on studies of farmer-herder conflict. These studies dominate the regional literature on resource-related conflict.

2. RESOURCE-RELATED CONFLICT IN SAHELIAN WEST AFRICA

Social identity in West Africa (caste, ethnicity) is tied to livelihood pursuit, with most ethnicities or castes identifying themselves as farmers, hunters, herders, or fishermen (Grayzel,

1977). Despite this, social groups historically (Bonfiglioli, 1988) and currently (Mace, 1993; Toulmin, 1983) pursue livelihood strategies that involve a mix of these activities, along with an expanding dependence on seasonal labor migration. Recent trends are associated with a shift in livestock away from "traditional" herding peoples, a decline in livestock mobility, and the increased presence of livestock in cropping zones (Blench, 1994; Bourn, Denda, de Ridder, Wagenaar, & Wint, 1987; Boutrais, 1986; Habou & Danguioua, 1991; Raynaut & Lavigne Delville, 1997). Moreover, there are reports of growing land shortage (cropland, pasture, hunting lands) in many areas associated with the growth of population, protected areas, and/or cash cropping (Raynaut, Lavigne Delville, & Koechlin, 1997). Boundaries among fields and pasture areas are often unmarked, registered, and unfenced. This coupled with the necessary shifting of fields and livestock in response to growing land shortages and to variable rainfall, leads to situations where divergent interests and disagreements are commonplace within and across Sudano-Sahelian communities.

Thus we view resource-related conflict as part of the everyday politics that exist within and between small-scale communities where social relations have cooperative and competitive aspects that emerge within particular contexts (Raynaut, 2001). The high variability of resource availability necessarily leads to the movements of people, fields, and livestock—movements that are socially mediated through flexible institutions governed as much by political negotiation, cooperation, and conflict than by rigid rules and boundaries (Ostrom, 1990; Turner, 1999b). The dynamics of conflicts are not structurally determined by resource scarcity or institutional failure—two particularly popular accounts of the genesis of conflict in the region (Bennett, 1991; Homer-Dixon, 1999; Kaplan, 1994; Ki-moon, 2007; Sinclair & Fryxell, 1985). Both are not lacking within a rural West African context and do influence the nature of conflict, but neither alone explains the evolution of conflict (Cleaver, 2000; Moritz, 2010; Peluso & Watts, 2001; Peters, 1994). Conflicts occur over a range of population densities and land-use pressures (Hussein, Sumberg, & Seddon, 1999; Moritz, 2006a; Turner, Ayantunde, Patterson, & Patterson, 2011) and when centered on questions of resource access, are more likely concerned with perceived injustices, social identity, or questions of precedent than over struggles for the last remaining resource increment (Breusers, Nederlof, & van Rheenen, 1998; Ngaido, 1996; Turner, 2004).

Institutionalist accounts, present conflict as a result of institutional failure of commonly-held resources (land, pasture, water). Nonexistent, vague or overlapping rules (e.g., legal pluralism) are seen to result in disagreements that are never resolved and which sometimes escalate into violent conflict (Benjamin, 2008; Gado, 2000; Granier, 2008; Lund, 1998; Moritz, 2006b; Ngaido, 1996). Formalization and clarification of the boundaries and rules of resource access are seen as the solution to conflict (Barrière & Barrière, 2002; Bromley, 1992; Feeny, Berkes, McCay, & Acheson, 1990; Ostrom, 1990; Swallow & McCarthy, 2000). Not only might such formalizations make the agropastoral systems more vulnerable to change (Niamir-Fuller, 1999; Painter et al., 1994) but more fundamentally, they promote formal rule-making at the somewhat abstract level of the "community" ignoring the important web of social relations that play important roles, particularly for conflict management, within communities. Cleaver (2000) persuasively argues that the dominant institutionalist treatments of common property tend to overly dichotomize public from private interests and "traditional" informal from "modern" formal institutional structures. She argues that to understand

governance, there needs to be greater attention directed at the web of bilateral and multilateral relationships that mediate interest, obligation, and responsibility within communities not simply the set of usufruct rules more easily recognizable to the western eye:

> Incentives to co-operate are based on the exigencies of daily life, on the primacy of reproductive concerns and on complex and diffuse reciprocity occurring over lifetimes. Although subject to structural constraints, individuals adopt varying strategies in relation to resource management and reciprocity; gender, age, kinship relations, and wealth are key factors in shaping such strategies.

{Cleaver, 2000 #2880, pp. 362)

This perspective is particularly useful when considering how communities address conflict situations as they arise in daily life. There are multiple paths through which conflicts arise and are managed—many of which do not involving government or customary authorities. If we recognize the social and economic costs to smallholders of drawing attention to a particular conflict, it is understandable that informal mediation by neighbors and kin are part of the same process as more formal mediation (administrative and judicial) that may be involved, as conflicts escalate from unvoiced but recognized divergent interests to openly-voiced disagreements to more serious verbal or violent conflicts requiring redress {Moritz, 2010, #2869}. Therefore, to understand the effect of institutional change on the conflict management, one needs to understand how it influences the reliance of rural peoples on the whole suite of conflict management options. For instance, change that leads to greater reliance on formal administrative mediation may lead to improvements in the clarity and enforcement of mediation measures but if it also degrades informal mediation networks, overall conflict management capacity may actually decline.

3. DECENTRALIZATION AND CONFLICT MANAGEMENT

It is within this context that programs to decentralize resource management authority and democratize local government positions are taking place (Kassibo, 2001; Ribot, 2002; Toulmin, 1993). There has been significant debate among scholars about: the degree to which the state willingly devolves authority (O'Bannnon, 2006; Ribot, 2002); the degree to which local authorities are accountable to their subjects (Agrawal & Ribot, 1999); the capacity of local authorities to govern (O'Bannnon, 2006; Zakane, 2008); and the appropriateness of the local institutions to govern access to resources whose spatial distribution transcends local jurisdictions (T.A. Benjaminsen, 1997; Painter et al., 1994; Turner, 1999a). Decentralization initiatives involve the shifting of responsibility, powers, and accountability across the range of informal and formal institutions involved in resource and conflict management peopled by family members, neighbors, village chiefs, and government officials. Much of the prior work on decentralization has focused on the effects of shifting characteristics of formal authority—primarily, appointed, or elected government authority—on the distribution of resource access, representation, and accountability (Agrawal & Ribot, 1999; Benjaminsen, 1997; Ribot, Lund, & Treue, 2010). There has been much less work on how decentralization influences the relationship between government and community institutions (Benjamin, 2008; Poteete & Ribot, 2011) and where these relationships are addressed, community institutions are generally treated as singular, unchecked, hereditary positions of author-

ity—for example, chiefs (Ribot, 1996). Yes, indirect rule of various forms since the colonial period have worked to reduce poles of authority at the community level to land-controlling chieftancies (Mamdani, 1996; Ribot, 1999). Moreover, these forms of authority often lack accountability and reinforce unequal distributions of power (Agarwal & Gibson, 1999). Still, these are not the only institutions that operate within communities to address various social concerns. The mediation and management of conflicts as they arise in communities is one area in which various members of the community play important roles as shaped by community norms and obligations. Such roles are highly contextual with neighbors, mutual friends, and family members often playing important roles as intermediaries, negotiators, witnesses, and agreement enforcers. Many conflicts are managed without the involvement of the village chief or extra-village government authorities. To a certain degree, the disputants and their mediators decide whether customary (chief) or formal government authority are called to mediate, witness, or rule on a disagreement. In this way, decentralization, by affecting the characteristics of the suite of institutional options, can influence decisions and the dynamics of local conflict. To understand this relationship, one must go beyond the conflation of customary institution and chieftancy that prevails in the decentralization literature and study conflict management as practiced at multiple levels of social organization and social proximities to disputants.

4. CONFLICT MANAGEMENT AND RESEARCH METHODS

The empirical study of conflict management and environmental governance in West Africa has largely relied on documented court cases or administrative hearings where land or resource disputes are described along with the particular rulings made by judges or government administrators (e.g., Benjaminsen & Ba, 2009; Lund, 1998; Ngaido, 1996). Such work has revealed important insights about the ambiguities within and the contradictions among customary rules, administrative rules, and law as well as the confusions and delays that arise under conditions of legal pluralism. Still, they are necessarily dominated by cases where customary institutions have failed and therefore ignore their roles in successfully managing other conflicts that because of their resolution, do not enter the official records. Other work, relying on the village-based interviews that document past conflicts, reveal public conflicts at the community level not necessarily captured in court or administrative records and in doing so reveal more about the strengths and weaknesses of customary institutions to manage conflict (Benjamin, 2008; Breusers et al., 1998; Gray, 2002; Heasley & Delehanty, 1996). Still, these studies have generally focused on the large public conflicts that necessarily have been adjudicated by customary authority (village chiefs). Respondents' memories and their interpretation of the reference to "conflict" during interviews tend to bias accounts against those disagreements that are managed without the involvement of customary authority.

It is understandable that prior research has focused on large-scale public conflicts—not only are these most tractable in the written record but they arguably are the most socially-corrosive and, therefore, of most concern. Still, by adopting methods that only escalate into broader public conflict, one develops a very one-sided view of conflict escalation and management as processes (Moritz, 2010). Everyday disagreements are numerous and therefore a purely qualitative approach

might lead to a very small sample of what rural peoples experience with respect to disagreements and their management. It is for this reason that we adopt a mixed methods approach (qualitative and quantitative analysis) that seeks to go beyond simple invocations of "social capital" and empirically measure respondents' views of not only past conflicts within the community but of the social relationships on which they depend to help manage disagreements as they arise in everyday life. Rather than treat discord as an unusual event in peoples' lives, this approach recognizes these as part of day-to-day life, treating their management by community members as a process to understand through empirical investigation.

5. METHODS

(a) Study sites

This study was conducted at four study sites in Niger from August to December, 2004 (Figure 1). Each study site is composed of a village along with any pastoral encampments within its territory. The study sites were chosen to reflect contrasting social and physical conditions among sites where the researchers have had prior working relationships (Table 1). All include a mix of ethnicities composed of those with identities tied to dryland farming (Djerma and Haussa) or livestock rearing (FulBe). All experience the trends for the region with the vast majority of residents, no matter their ethnicity, engaged in a mix of farming, animal husbandry, and seasonal labor emigration as means of income.

The study period coincided with an important time in the political history of Niger. The first successful municipal elections were held in July, 2004. In these elections, mayors were elected to serve as officials for rural communes that coincide with preexisting cantons which have been led by customary authorities (chefs du canton). The creation of the communes and the election of mayors and "conseillers communaux" (representatives in commune commissions) represent initial on-the-ground steps of decentralization and democratization of governance that have a legislative history tracing back to Code Rural reforms.[1] At present, the relative powers and responsibilities of the canton chiefs (customary authority) and the commune mayors are not fully delineated. In general the canton chiefs will continue to be occupied with tax collection, managing conflicts, and resolving tenure problems while the mayor is involved in civil affairs (births, deaths, marriage, etc.), the taxing of commerce, and the management of commune's program of development. As part of the reform, administrative units above the level of the communes/cantons will be given greater fiscal autonomy with renaming of these from arrondissements to départements and from départements to régions.

Given the fact that these reforms were only introduced to rural inhabitants midway through our study, our informants had little experience with communes, mayors, or departments. Therefore, when referring to administrative levels, informants continued to refer to cantons (led by canton chiefs) and the arrondissements (led by subprefects) as the two levels of supra-village authority involved in dispute management. These two levels diverge not only with the spatial breadth of jurisdiction but also by the fact that the canton is led by a customary, largely hereditary, authority (still answerable to the subprefect) while the arrondissement is the most local seat of government-appointed authority where the offices of the subprefect, technical services, police, and judge of the peace are located. This distinction persists since the canton chief remains the major authority dealing with conflicts at the
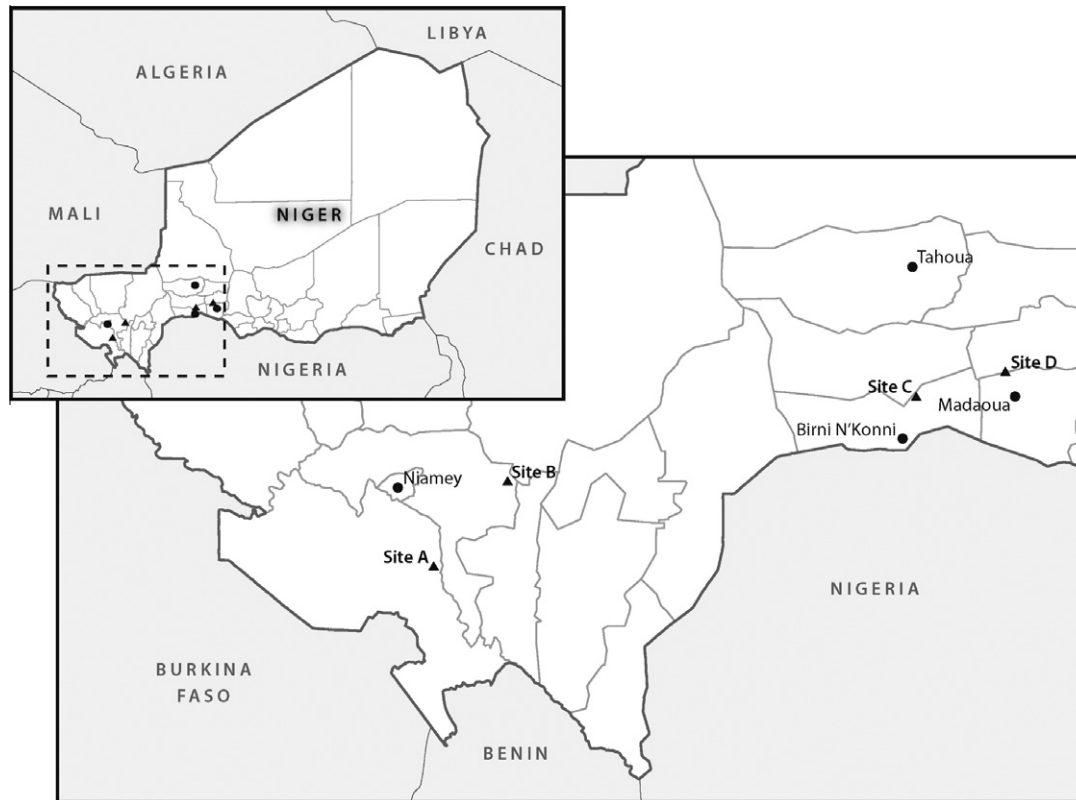
Figure 1. *Location of study sites in southern Niger.*

Table 1. *General characteristics of the four study sites (A–D)*

Characteristic	Study sites			
	A	B	C	D
Administrative district (*département*, formerly *arrondissement*)	Say	Kollo	Birni N'Konni	Bouza
Population (approximately)	2500	450	880	750
NGO and government development programs[a]	High	Low	High	Medium
Ethnic diversity	High	Medium	Medium	High
Ethnicity of village-based authority[b]	*FulBe*	*Djerma*	*FulBe/Haussa*	*Haussa*
Cropping pressure	High	Medium	High	Medium
Dry season gardening	Yes	No	Yes	No

[a] This is a qualitative measure of the degree of community development infrastructure that is in place within each study site. In study site (SS) A there is a primary school (1975), a medical dispensary (2003), a Friday mosque (2001) and an active savings and loan bank. In SSB there is a primary school (2002). In SSC, there are two primary schools (2000, 2002), a Friday mosque (2001), the presence of Peace Corps volunteers (1996–2002), and a government-built health dispensary, which was constructed in 2003, but had yet opened at the time of the research. In SSD there is a primary school (1993) and the community (2000) along with SSC (1997) has benefited from CARE International's *Mata Masu Dubara* program that establishes women's savings and loan accounts.
[b] This generally refers to the ethnicity of the village chief which is in turn tied to the founding lineage for the village. In the case of study site C, while formally, the village chief is the *FulBe*, the position is shared with a man who is *Haussa*.

canton/commune level and the subprefect, remains at the level of the *département* (formerly, *arrondissement*). Still, these events are important to this study since the campaigns leading-up to these municipal elections (and the ill-fated February, 1999 elections overturned by the April, 1999 coup) has influenced how rural inhabitants view issues of governance and customary authority (village and *canton* chiefs).

(b) *Individual interviews about social relations of production and mediation*

One hundred and thirty-nine adults—composed of husbands and one of their wives from 72 randomly-chosen households

sampled across the major social groups of the four village sites (e.g., a stratified random sample)—were interviewed. [2] In these interviews, informants were asked to: (1) List the productive activities in which they are involved. (2) Identify people that influence these activities and how best to characterize these relationships (cooperative or competitive). (3) For those relationships described as primarily competitive, the informants were asked to describe the steps (including the people involved) in succession (after failure of previous step) they go through to resolve or manage disagreements that arise. These questions were asked in an open-ended fashion with limited prompting by researchers except to ask for the names of any additional people implicated in described steps (e.g., as mediators).

Table 2. *Extra-household social relationships implicated in day-to-day productive activities of 72 informants from four study sites. The relationships are classified as within and outside the informants' social group as well as the percentage described as primarily competitive (rather than cooperative)*

Relationship category	Within social group		Outside social group	
	Number	Comp (%)	Number	Comp (%)
1. Access to land to crop	9	0	11	0
2. Access to manure	5	0	19	2
3. Access to necessary labor to manage cropped fields	42	2	47	6
4. Adjudication of boundaries between fields	15	73	14	50
5. Buying and selling of agricultural production	6	0	11	0
6. Access to livestock through loans and confidence	31	0	22	0
7. Access to herding labor to manage livestock on pastures	34	3	32	6
8. Buying and selling of livestock	13	0	10	0
9. Access to pastures and problems of crop damage	7	14	60	48
10. Buying and selling of milk	10	0	24	0

There was significant variation in the number of activities named by respondents (1–12). Activities named by respondents were classed into one of ten categories[3] and aggregated to the household level (only one mention of an activity allowed per household).[4] Using the census lists of households in the study villages, individuals named as influencing productive activities and implicated in the management of disagreements were tied to social group membership, community memberships, and any position of authority within or outside of the village.

(c) *Small group interviews about past conflicts*

Interviews of small groups representing the major social groups within each study site (30 groups of 2–3 individuals each) were conducted to gather information of important conflicts that have occurred over the previous three years. These interviews focused on the causes of the conflict, individuals involved, presence or absence of violence, the nature of their relationships prior to and after the conflict, the individuals/institutions involved in its mediation, and how the conflict was "resolved." The narrative information about 72 unique conflicts were coded with respect to key characteristics including: the season of the dispute; whether confrontations between disputants occurred at onset; the social group and community of disputants, their prior and subsequent relationships; the mediators of conflict; and how resolution was resolved.

The data processed in this way were largely categorical variables. Simple counts of the number of cases that hold a particular value are presented. For understanding the factors affecting dispute management approaches and experiences, statistical analyses were conducted focusing on the association of various independent categorical variables such as study site, social group membership, community membership, and relationship to local authority to dependent categorical variables describing dependence on different actors as mediators in conflict management for conflict management (e.g., community members without authority, local authorities, or nonlocal authorities). Contingency tables and logistic regressions were utilized where appropriate.

6. RESULTS

A fuller understanding of the means by which rural peoples seek to manage conflicts as they arise in their every-day productive activities under conditions of institutional change was obtained in this study by documenting and analyzing: 1. The steps followed by interviewees to manage conflicts that arise during particular productive activities. 2. The public conflicts that have occurred within the four study sites over the past three years. 3. A pasture-cropland conflict at study site B that reveals the changing dynamics of conflict with decentralization and democratization of village chieftancy. Together, these analyses present the full conflict management strategies by rural peoples as conflicts escalate and they provide a basis for understanding how these may be affected by decentralization.

(a) *Management of disagreements*

The 117 respondents list 423 unique (within household) activities for which 659 individuals (or groups) were implicated.[5] Four hundred and sixty of these relationships were with people outside of informants' households of which 40% were with other members of their social group within the village and 60% outside of their social group. As shown in Table 2, the distribution of these relations is unevenly distributed across activity types.

All of these relationships could be seen as in part cooperative and competitive. As shown in Table 2, two relationships stand out as being described by informants as particularly competitive: field boundaries and access to pastures, both of which are related to land-use competition.[6] Competitive relationships are attributed to those relationships outside of informants' social group in the case of pasture/cropland competition while in the case of field boundaries, competition is seen as occurring primarily within the informants' social group.

Informants described steps they follow to resolve or manage 116 disagreements that may arise in relationships that are strongly competitive.[7] Across all types of disagreements, informants state that their preference is to resolve or manage disagreements without involving customary or government authorities, particularly at supra-village levels (*canton, arrondissement*). There are multiple reasons given for this including:

1. Some skepticism as to the effectiveness of authorities to resolve the disagreement in any lasting fashion with some stating that authorities do not have a financial interest (see 2 below) to make rulings that definitively assign rights. The only exception is informants' reference to rulings made by the judiciary to be of lasting effect.
2. The expenses required to involve authorities, which tend to increase as one moves from local to supra-local levels of authority. These expenses range from nominal to quite

large gifts in order to compensate authorities for their time and in some cases, to influence their decisions.

3. The increased level of risk associated with rulings by authorities ignorant of local history and social relations.

4. The general risk associated with more scrutiny of local affairs by extra-local authorities.

As a result of these concerns, the general pattern for the management of disagreements is to follow a number of steps with failure at a certain step leading to the pursuing of the subsequent step:

1. Disputants seek to manage disagreements between themselves. This may involve others, but disputants speak directly to each other. A major factor affecting the success/failure of direct negotiation is whether the disputants have a good relationship prior to the dispute; when direct contact between disputants occurs in relation to when the transgression occurs (time for cooling down); whether one party or the other feels insulted; the abruptness of the onset of the disagreement (crop damage being abrupt); and the perceived magnitude of the material harm experienced by one or both parties.

2. Disputants seek mediation among friends and family members who may have stronger prior ties among themselves than do the disputants to each other. The distinction between step 1 and 2 is not always entirely clear since there are often others present when disputants directly discuss their disagreement but often there is a point in disputes when mediation is intentionally sought.

3. Disputants seek resolution and management of the disagreement through local customary authorities most particularly the village chief but also Islamic priests and pastoralist leaders. This step is most often relied upon in disagreements where one or both disputants seek compensation for a wrong (e.g., crop damage, stolen livestock).

4. Disputants seek resolution and management of the disagreement through a extra-local authority. The *canton* chief, who in Niger is best viewed as a customary authority, is tied to a lineage of high social status at the level of the smallest administrative district called the *canton*. The *arrondissement* is the next largest administrative district which is administered by the subprefect, a position filled through appointment by the government. Local courts also exist at the *arrondissement* where some serious conflicts are adjudicated. According to local informants, most disagreements first go through local authorities before reliance on extra-local authorities. The only exception to this is when disagreements turn violent. These cases often move directly to the *arrondissement* level (but with involvement of the village chief). Conflicts that involve multiple jurisdictions (e.g., multiple villages or multiple *cantons*) are more likely to be adjudicated at a higher administrative level.

Table 3 presents the frequency that different actors are implicated in the steps outlined by informants to manage different types of disagreements. Except in the case of livestock management disagreements, all show a higher prevalence of accommodation (avoidance/prevention) and direct or mediated negotiation to manage conflict than actions relying on local or extra-local authorities. Despite this general pattern, different types of disagreements are managed in different ways. In the case of livestock management, local authorities are most heavily relied upon. These are most often disputes between the owners and managers of livestock (stolen/lost livestock, use of milk, disputes over livestock loans, salaries for herding, etc.) which often implicate not only the village chief but the "*garso*"—a local pastoralist leader whose customary role in *FulBe* society is to adjudicate disputes over livestock loans (*haba nai*). The lower frequency of accommodation/negotiation to manage such conflicts may have to do with the fact that these disputes involve protagonists from different social groups (pastoralists and farmers) over purported infractions with few witnesses occurring distant in time and space from when and where the grievance is first voiced (e.g., when livestock are away on transhumance). Disagreements over land access (loans, leases, sales, etc.) and commerce show a strong reliance on accommodation/negotiation, reflecting the greater potential for witnesses and arguably a broader recognition and understanding across social groups of the social norms and rules that govern these transactions. While it is true that many disagreements tied to commerce could be called "small stakes" and, therefore, not worth the expenditures to involve authorities, this is not the case for land access which has a fundamental impact on peoples' livelihoods.

Table 3. *Major types of problems that can develop in the course of day-to-day production relationships as reported by 72 informants at the four study sites and the mediated actions and actors relied upon to resolve or manage these problems. Problems include those that develop between the owner and manager of livestock (livestock management) and of land (access to land); between buyer and seller of goods and services (commerce); and over the boundaries between adjacent cropped fields (fields) and between pastures and croplands (field/pasture). Ninety-seven problems were mentioned with a variable number of steps taken to address them described. The actors implicated in these steps are listed including those with: no formal authority at the level of the village (avoid/ prevent problems, direct negotiation, mediation by local citizens); formal local authority (Islamic priest, village chief and pastoralist leader); and extra-local formal authority (canton chief, subprefect and the judiciary)*

Number	Livestock management	Access to land	Commerce	Boundaries	
				Fields	Field/pasture
	16	12	17	11	41
Mediation actions/actors mentioned					
Avoid/prevent problems	1	3	3	1	11
Direct negotiation	2	6	9	4	10
Mediation by local citizens	2	5	6	8	9
Local Islamic priest	0	0	1	5	0
Local pastoralist leader (Garso)	8	0	0	0	0
Village Chief	9	3	6	8	26
Canton Chief	4	2	0	5	9
Subprefect	0	0	1	1	10
Judicial system (Judge)	2	1	2	3	4

Boundary disputes show a more even distribution in the management of disagreements across the three different institutional categories of Table 3. Informants still prefer to manage conflicts first through accommodation/negotiation followed by local customary authorities and then by extra-local government-sanctioned authorities but they are more likely to mention adjudication by authorities as a recourse later in the process of conflict escalation than for other types of disputes (e.g., commerce and land access). There are differences between the types of boundary disagreements in the types of authorities relied upon. Disagreements over the boundaries between fields implicate not only village chiefs but also Islamic priests due the latter's role in dividing fields at inheritance. *Canton* chiefs are also strongly implicated in such disputes, reflecting the respect for their knowledge of customary land tenure law. Land-use competition between croplands and pastures is seen in different ways. For the herder, it is the growing encroachment of fields into pastures and livestock corridors. For the farmer, it is crop damage caused by livestock in his fields. Given that planning to protect pastures at the local level is rare, disagreements are most often evidenced in the form of livestock-induced crop damage. The high prevalence of outside mediation for crop damage disputes is likely to reflect the fact that these are often between members of different social groups and even with different ethnic identities (*FulBe–Djerma*, *FulBe–Haussa*). In this context, local mediation is more likely to be seen as biased toward one party in the dispute.

The procedure to manage crop damage described by informants involves a number of steps. If damage is small, the farmer will simply notify the herder (if known) and warn him to avoid future transgressions. While it is difficult to document these cases, qualitative interviews suggest that the vast majority of disagreements are managed in this way. If the damage is more significant, the most accepted procedure is that the owner of the crop will ask two or three others to come to the field to verify the crop damage before going to the village chief who will listen to their complaint and choose, if he feels that the owner has a valid claim, to send an advisor to verify the damage. The owner of the field is asked what he thinks the value of the damaged crop is and then the village chief consults with his advisor as to the proper amount for damages. Once the fine is set, the field owner and herd patriarch are brought to the chief's compound and the final agreed upon fine is negotiated. Most typically, these negotiations will result in the fine staying the same or going down. It is not uncommon however, especially when damage is not particularly heavy, for the crop damage not to be estimated directly by village representatives. In these cases, damage is estimated based on the number of livestock that entered the field with a charge assessed per head. Major difficulties for recouping damages are identifying herders and once identified, ensuring that they are involved in negotiations and pay fines. This is especially the case for outside herders passing through who may not readily accept the authority of local village chiefs. In these cases, a successful strategy of farmers is to confiscate animals found in their fields and hold the animals in the village (usually at the chief's compound) until their owner comes to retrieve them. If these local actions to manage disagreements stemming from crop damage leave one or both of disputants dissatisfied, solutions can be sought involving more formal channels extending outside of the village.

(b) Social identity and reliance on customary authority to manage disputes

Different types of disputes influence protagonists' choices to pursue different strategies to manage or resolve them. Still, the management process is political and, therefore, it is important to understand how protagonists' social identities with respect to those of local authorities influence their proclivity to seek mediation through local customary authorities and or government-sanctioned authorities.[8] To fully analyze the factors influencing the proclivity to name more formal authorities (local or extra-local) in the steps to resolve different types of disputes, a series of logistic regressions were performed with the dependent variables being: 1. Whether formal local authorities (e.g., village chiefs, Islamic priests, pastoralist leaders) are named in the steps to resolve disputes $(0, 1)$. 2. Whether extra-local authorities (e.g., *canton* chiefs, subprefects, judge) are named in steps to resolve disputes $(0, 1)$. Given the low number of cases where steps to manage disputes involving livestock management, access to cropland, commerce, and field boundaries were outlined, separate analyses for these disputes could not be analyzed. Logistic regression analyses for these grouped data were not found to be significant. The number of cases of pasture-cropland competition was sufficient to perform logistic regressions for this type of dispute alone.

Table 4 presents the results of the best logistic models of pasture-cropland competition for each of two dependent variables. Informants having a social identity tied to farming (*Djerma* or *Haussa*) and informants with membership in social groups holding local political authority (e.g., village chief) were found to positively affect the informants' proclivity to name local authorities in dispute mediation steps. The greater reliance by farmers of local authority to mediate disputes is consistent with their cases of pasture-cropland competition being almost entirely crop damage cases with compensation usually requiring involvement by local authorities. The finding that those informants who share social identity (farmer *vs.* herder) with local authorities are more likely to name these authorities as mediating actors can be interpreted simply that individuals are more likely to rely on local authorities if their

Table 4. *Coefficients (b), standard errors, standardized coefficients (β) and significance levels (p) of logistic regression models used to estimate whether local or extra-local formal authorities are mentioned in steps outlined to manage pasture-cropland disputes. Independent variables include: informant has farming identity (Farming Identity); informant shares broad social identity with local authority (Local Authority) and informant with farming identity and not a member of group holding local authority (Farming Identity × No Local Authority)*

Independent variables	Reliance on local formal authority[1]				Reliance on extra-local authority[2]			
	b	SE	β	p	b	SE	β	p
Constant	−0.93	0.59	−1.6	0.12	−0.85	0.40	−2.13	0.03
Farming Identity	1.93	0.84	2.3	0.02	—	—	—	—
Local Authority	2.06	0.84	2.4	0.01	—	—	—	—
Farming Identity × No Local Authority	—	—	—	—	1.41	0.74	1.89	0.06

[1] The chi-square statistic of the logistic regression model is equal to 12 ($p = 0.003$). The Cox and Snell pseudo R-square equal to 0.22.
[2] The chi-square statistic of the logistic regression model is equal to 4 ($p = 0.05$). The Cox and Snell pseudo R-square equal to 0.07.

Table 5. *Characteristics of important pasture/cropland disputes occurring over the previous three years as described in group interviews at four study sites. Of the 62 disputes described, 10 were duplicates and therefore excluded. For each characteristic, the number of cases where the dispute is sufficiently described to determine whether it has this characteristic followed by the percentage of these that have the characteristic (% of cases)*

Characteristic of dispute	Cases	% of cases
Dispute occurred during cropping season	50	94
Dispute tied to damage to crops by livestock	52	98
Dispute between members of different social groups	51	88
Dispute between members of different communities	52	46
Dispute involved violence	52	12
Disputants with good relations prior to dispute	44	36
Confrontation at moment of transgression	48	33
Disputants with good relations after dispute	39	36
Mediation primarily through direct interaction of disputants	52	12
Mediation through fellow villagers with no formal authority	51	45
Mediation by formal village authorities	52	92
Mediation by external authorities	52	27
Mediation resulting in a fine	51	90
Crop damage fine determined by animal head count	28	32
Dispute described as resolved	52	92

group holds local power. Informants' proclivity to name extra-local authorities when outlining mediating steps was found to only be related to situations where informants hold a farming identity and do not share a social identity with local authorities. This finding is consistent with the first finding that farmers are more likely to rely on formal authority in these disputes and that only in the case where farmers do not hold local power, do they seek extra-local mediation. [9]

(c) *Major pasture/cropland disputes at the study sites*

Informants were also asked to describe major disputes occurring within their community over the previous three years. Rather than perceptions of the steps that one would follow when disagreements occur, this line of inquiry focuses on actual disputes that have occurred and escalated sufficiently to be seen as public conflicts. Of the 72 disputes described, 62 were disputes involving competition between pastures and cropland with 98% of such disputes specifically expressed as crop damage by livestock. This not only reflects the importance of this form of land-use competition (see above) but also the fact that these types of conflict tend to be more public and, therefore, more easily remembered and recounted by informants. Informants were simply asked to describe these disputes. Table 5 presents key characteristics of these disputes that were extracted from these accounts in a post-hoc fashion.

As can be seen in Table 5, most of these disputes occur during the cropping season and involve active mediation by customary authorities at the local level (primarily village chiefs but also pastoral leaders and Islamic priests), resulting in a crop damage fine after which the dispute is seen as resolved by informants. Crop damage fines are paid either by the herding family or livestock owner. About a third of crop damages are simply estimated based on the number of livestock entering the field. Charges were 500 FCFA and 1500–2000 FCFA per head of small stock (sheep or goats) and large stock (cattle, donkeys), respectively. Crop damage disputes, even when serious, do not tend to implicate authorities outside of the village (only 27% of disputes implicated authorities outside of the village). There is no statistical association between the involvement of external authorities in the mediation of these disputes with any one of the following variables: the dispute involved violence, disputants were members of different social groups, or disputants were members of different communities (Pearson chi-square < 2.6, $p > 0.10$).

Approximately, 10% of the described disputes were associated with some level of violence (e.g., personal injuries). There is no statistical association between the incidence of violence and either of two variables: disputants were members of different social groups or members of different communities (Pearson chi-square < 0.91, $p > 0.34$). The only significant statistical association was found between violence and cases where the farmer directly discovers livestock and confronts the herder in his field (Pearson chi-square = 7.7, $p = 0.005$). A significant fraction of these confrontations occur after the farmer waits for herd, which has caused damage in previous nights, to return to the field.

Virtually all of the pasture-cropland conflicts described were initiated by crop damage. The descriptions of these conflicts were fairly straightforward. Livestock wander into unharvested fields with conflicts "resolved" by the fining of livestock herders or owners. The fuller complexity of pasture-cropland conflict is revealed in the description of cropland encroachment into a livestock movement corridor at study site B. This conflict was described by the two major protagonists (former village chief and *FulBe* leader) along with two other informants. In the next section, the conflict is described with divergences in the narrative duly noted where they exist.

(d) *Pasture-cropland competition: the case of a livestock corridor at study site B*

FulBe pastoralists, many of which had lost most of their livestock during successive droughts, have immigrated to the population-sparse region surrounding study site B to settle (farming and raising livestock) since the 1970s. The *FulBe* settling in the area borrow fields from the land-owning *Djerma*, paying field owners one-tenth of their harvest each year. The study site B, in particular, has proven attractive to the *FulBe* because of its proximity to plateau areas that, due to their poor cropping potential, are good pastures. From 1992 to 2004, recurrent conflict between farmers and herders developed over a livestock corridor running east of the *Djerma* village of study site B (pseudonym: *Belel*) into the neighboring village territory to the east (village pseudonym: *Tambo*). Local *FulBe* depended on this corridor to access plateau pastures and a key ephemeral pond used to water their livestock during the cropping season. Up until the early 1990s, there existed very little reason to define a corridor—areas of fallow and uncultivated land existed in the area through which livestock

moved from the village to the plateau area for pasture during the cropping season. The location of fields shifted from year to year but there was sufficient area to navigate through them. Moreover livestock moved across an ill-defined and disputed boundary between the territories of the two villages.

In 1992, villagers of *Tambo* dramatically extended their fields into the area through which livestock moved. The *FulBe* protested to the chief of *Tambo* who opened a corridor on the *Tambo* side of the ill-defined boundary. In 1996, the corridor was closed due to the extension of fields from *Tambo* and another village. The *FulBe* notified the *Tambo* chief again as well as *Tambo*'s *canton* chief (*Tambo* and *Belel* are in different cantons). In 1998, negotiations and informal payments (to the canton chief) led to the scheduling of a meeting to delineate the corridor in the area of question.

Prior to this meeting, the *FulBe* notified the chief of *Belel* village, who, after showing initial surprise, expressed opposition to the plan. It is difficult at this point to understand his reasons. In his account of the dispute, the *Belel* chief stated that he recognized the need for a corridor but that the local *FulBe* had not sufficiently consulted with him up until that point; they had chosen a poor time to advance their claim (cropping season); and that it felt like they were attempting to go around his authority and the interests of the village. Somewhat consistent with his statement are the accounts of other informants that point to *Belel* concerns about the implicit territorial claims by the *Tambo* chief through the act of delineating a corridor. According to *FulBe* informants, the *Belel* chief demanded money to delineate the corridor on the *Belel* side of the border. The *FulBe* refused and in so doing implicitly threatened to seek authority from *Belel*'s *canton* chief. Members of the *Belel* chief's family, sought to mediate the standoff in a meeting at which they persuaded the *FulBe* to give the chief a small gift of 10,000 FCFA or $20 (to save face). The following day, the corridor was walked off on the *Tambo* side but when the contingent (*FulBe* representatives, *Tambo* chief and notables, *canton* guards) approached *Belel* territory, they were met by farmers (from the *Belel* chief's family) who refused to allow them to proceed further. After hours of failed negotiation, the *Tambo* chief backed out stating that if *Belel* does not delineate a corridor, why should he. As a result, negotiations completely fell apart and there were continual problems (difficulty of herd movements, sporadic violence and crop damage) until the death of the *Belel* chief in 2005.[10]

Soon after his death, an election was held to identify his replacement. In this region, these elections are largely pro forma with the eldest of the deceased chief's sublineage generally chosen. In this case, a rich emigrant from a different sublineage (still part of the large chieftancy lineage) funded the campaign of his brother. Even with this influx of money, his alternative candidacy was far from assured. Both candidates courted the *Belel* *FulBe*, promising them their corridor. The *FulBe* distrusted the family of the former chief and, except for those farming fields loaned by the former chief's family, supported the alternative candidate (24 of 31 *FulBe* votes). The *FulBe* voting block tipped the election in the favor of the alternative candidate (the alternative candidate won 54 out of a total of 93 votes).

With the election of alternative candidate, the *FulBe* received their corridor but those who voted for the alternative were kicked off of the fields controlled by the former chief's family. The new *Belel* chief has proven not to be a strong leader. The family of the former chief claimed that many of the fields that were cleared under their chieftaincy actually belonged to the family and not the chieftaincy. This runs counter to customary law and in fact the canton chief first ruled that the vast majority of "their fields" actually should follow the chieftaincy and be managed on behalf of the village by the new chief. The former chief's family protested against this instruction which resulted in a village hearing. At this hearing, the *canton* chief requested input from the new village chief after the others had made their case. Much to the horror of the rest of the village, he reportedly hung his head and said very little in defense of the chieftaincy claim. As a result, the *canton* chief had little choice but to reverse his original ruling and award a significant fraction of the village fields to the former chief's family.

This case provides useful insights into the broader set of politics that surround pasture-cropland conflicts within which decentralization initiatives operate. Corridors represent narrow paths for livestock to move through cultivated areas whose protection, unlike in the case of crop damage disputes, requires local authorities to be proactive rather than reactive. It has proven difficult, unless forced by higher authorities, for village chiefs to adequately protect corridors particularly if communication between herders and the village chief is poor or untimely. Corridors typically cross multiple village territories and, therefore, represent public goods that transcend the interests of individual villages. For this reason, a common pattern observed across the four study sites was for livestock interests to seek protection of their corridors by going directly to extra-village authorities (e.g., *canton* chiefs) rather than negotiate with individual village chiefs. Moreover, corridor delineation is affected by relations between villages. In the case of *Belel* and *Tambo*, the corridor ran across an ill-defined and disputed boundary between the two villages, greatly complicating its delineation since each village chief felt he had jurisdiction over the disputed area.

National initiatives to decentralize authority and democratize local leadership positions affect these politics. Generally speaking, the elaboration and democratization of authority at the *canton/commune* level will tend to reduce the authority of village chiefs by providing additional poles of authority who are not ignorant of local situations. The case of the *Belel* corridor shows how the increased prevalence of electoral politics at the local level has led to a new politicization of the village chief position. Livestock management (the corridor) became an election issue where it never had before. This is a positive development which has made local leadership more downwardly accountable to all social groups within the village. Unfortunately, it also created a conflict over land rights held by the chieftaincy *versus* those tied to the former chief's lineage. This illustrates how opening-up the political process will create changes and associated conflict. In this way, conflict is not necessarily a problem to be solved but a necessary part of both day-to-day responses to climatic variability and institutional change.

7. DISCUSSION

The results of this study contribute to a deepening of existing portrayals of the relationships among conflict management, natural resources, and decentralization in West Africa. As outlined in Section 1 of this paper, the resource conflict literature has: emphasized the structural antecedents to conflict (resource scarcity and institutional failure); often relied heavily on using chieftancy as a proxy for community-level customary institutions; and championed the reduction of overlapping poles of authority, clear rules, and fixed social and territorial boundaries as solutions to institutional failure. Meanwhile, the decentralization literature has focused on the resource-access and accountability implications of the shifting of responsibilities among government-sanctioned elected and appointed authorities. To a lesser extent, work has focused on how decentralization influences the relationship between

customary local authority (generally defined as the chief) and poles of government-sponsored authority. These literatures have greatly increased and complicated prior simple understandings of the relationship between power, resource access, and governance (Sikor & Lund, 2009).

The findings of this paper don't contradict but add a much needed perspective to this literature—a perspective that seeks to empirically understand the choices and behavior of rural peoples as they engage in conflict management processes which necessarily span the range of informal accommodation/negotiation, adjudication by customary authorities, and the rulings by government-sanctioned authorities. This perspective is important given: the prevalence of conflict in dryland West Africa where resources shift constantly; the current limits among all authority-based systems to effectively manage rural conflict; the fact that disputants have choices in seeking redress; and the need to maintain or build from rather than replace certain customary systems of negotiated resource access. In the realm of conflict management, the reach of authority systems are necessarily limited and as such, are largely, at best, responsive to requests by dispute protagonists who can choose to pursue conflict management options outside and within authority-systems as conflicts escalate. Therefore, it is important that we understand how rural people navigate these different forums of conflict management (including those not implicating customary and government-sanctioned authorities). An erosion of the social norms and relations that are used to manage conflicts through accommodation/negotiation could easily lead to even greater stress on authority-based structures.

In thinking about demands on institutions that resource-related conflicts make, it is important to understand the fuller, multi-stranded relations of disputants. It is common to treat resource-related disputes as driven by dominant ideologies and interests. This is true not only by those approaches that elevate ethnic animosity as the driver of resource-related conflict in West Africa (Barrière & Barrière, 2002; Bernus, 1990) but even institutional approaches that implicitly treat social relations between people as governed by the dominant competing interests of their models (Ostrom, 1990). In this study, informants view the success of their livelihood strategies to depend heavily on relationships with people outside of their social group. These relationships are seen as both cooperative and competitive. Once controlled by activity type, we find no significant difference in the proclivity of informants to characterize a relationship as cooperative or competitive based on whether the individual is within or outside of the informant's social group (Table 2). This is consistent with an interpretation of the role of ethnicity in the competitive behavior leading to disagreements as not from deep-seeded animosity but from the different livelihood priorities of different ethnic groups. Simply put, FulBe and Djerma/Haussa compete for land not because they are of different ethnic groups but because each group prioritizes different land uses (pasture and cropland). Moreover, these same individuals may be linked through other production activities in cooperative relationships. Although one would expect a deterioration of the relations over time, informants state that disputants retain good relations after crop damage mediation especially in cases of no violence and shared community membership.

Disagreements are common but a large fraction of them are managed within the community and without the involvement of authorities. When disagreements arise, informants showed strong preference for attempting to manage them through a combination of accommodation, face-to-face negotiation, or mediation by other community members without involving formal authorities at the village or supra-village levels of governance. The importance of these steps is generally underestimated in our data (Table 3)

since many informants likely did not list these steps since, to them, a "disagreement" occurs when these steps fail. This was also revealed in descriptions of recent crop damage disputes where farmers state that it is only after repeated transgressions by herders that they sought remuneration for damage by bringing the case to the village chief's attention. Herders state as well that they much prefer either to flee or negotiate directly with the farmer. To flee is only an option for herders who are from outside the community—those who are only in the study areas temporarily. Therefore, accommodation/negotiation represents an important, although far from perfect, means by which conflicts are managed in agropastoral West Africa.

While there is a common understanding among informants of the series of steps to mediate conflict, there is evidence for "forum shopping" where disputants seek to bring the dispute to authorities who are more inclined to "resolve" the dispute in their favor (von Benda-Beckmann, 1981). Informants do uniformly express hesitancy to bring a dispute to higher levels of authority (e.g., canton chief, subprefect, or local courts) which are commonly described as last resorts due to the high potential economic and political costs of these venues. Still the level of trust in a local authority's mediation of conflict is highly variable and is influenced by social group affiliation. Those informants who are not members of the village chief's ethnic group are less likely to mention mediation by village authority as a step to resolve conflicts. The case of the conflict over the livestock corridor in Belel is an example of this. The FulBe sought to solidify rights to their corridor through mediation by canton chiefs rather than through their Djerma village chief.

Still, these results do not necessarily support the view that the problem of legal pluralism can simply be solved by reducing poles of authority and their spheres of influence. First, our results point to the fact that even in the sub area of governance focused on the management of resource-related conflicts, different types of disagreements are seen by our informants as being best managed by different institutions. Therefore, the overlap in authority over the management of resource-related conflicts management is not as large once it is unpacked into particular types of conflicts. Still, our analysis does show that social identity, as it relates to that held by customary authorities, does shape the proclivity of informants to seek adjudication at the community or supra-community levels. Still, we would argue that given the benefits of negotiated management of conflicts and the limited capacities of authority-based management systems, clarification of management authority should be clarified but not through a reduction in the actions by which people seek to manage conflict but through a focus on the relationship of these actions within the conflict escalation process (Moritz, 2010). This is particularly an issue for authority-based systems of conflict management relied on disputants once negotiated management fails. Skipping adjudication by village-based authority by calling on extra-village adjudication works to degrade village-based authority and benefit those that have the political and economic means to bring a dispute to higher levels. A clear hierarchy of appeal from rulings by village-based authority to those by administrators, elected officials, and judges is necessary for different types of conflict and legal issues.

8. CONCLUSIONS

Conflict is an inherent outcome of climatic variability, social, and institutional change. In this paper we focus on the multiple steps that rural peoples in Sahelian West Africa take to manage the conflicts that occur in pursuing their livelihoods. We find

that there is a strong preference and reliance on informal modes (avoidance, direct conversation, mediation by mutual friends or family) to manage small disagreements that arise. Informants view conflict management as occurring in a series of steps of increasing risk and cost to disputants. Conflicts escalate when damages to one disputant are seen as high and resolutions at earlier steps seen as inadequate. Unlike studies that rely solely on accounts of public conflicts (conflicts that have escalated), we find a capacity within communities to manage conflict informally without involving either local or extra-local authorities. It is due to the success of these informal modes that everyday disagreements do not become more serious conflicts managed by village chiefs or government authorities. Still, this capacity is mostly limited to disputes involving members of the same community (of multiple ethnicities) and where initial confrontations are under more controlled settings (rather than outside the village at the moment of transgression).

Programs to decentralize and democratize local authority promise to improve governance in rural areas of the developing world. As such, they involve the reworking of the relationships among hereditary customary authorities, elected government leaders, and appointed officials. This has been a major focus of decentralization research. Using data collected from four communities in dryland West Africa, this paper has shown that these reworked relationships are implicated in the conflict management strategies of community members. External programs to decentralize governmental authority will influence the degree to which particular social groups (in our case, farmers and herders) will seek to manage day-to-day disagreements informally among themselves, through village-based authorities, or through extra-village authorities. The nature of this influence is complex and depends on the relationship of these social groups to the holders of power within local-to-extralocal webs of authority. Decentralization programs that ignore the capacity of informal networks to manage disagreements may experience an upsurge of conflicts to adjudicate as people increasingly rely on more readily-accessible authority-based mediation. In many cases, this would be a positive development. Still the social relationships required for managing day-to-day disagreements need constant renewal (investment). Decentralization programs are likely not to be sustainable if the power shifts they cause lead to an erosion of these relationships (e.g., social capital). As shown in the case of *Belel*, the democratization of the chieftancy has contributed to reduced conflict management capacity and a greater reliance on confrontational strategies (managed by extra-local authorities).

NOTES

1. The Code Rural, as originally described in *Ordonnance* No. 93-015 (March 1993), was primarily concerned with land tenure reform but had significant governance implications. In the same month, *Loi* No. 93-28 (March 1993) was passed that outlined the powers of the customary authorities in rural areas. *Loi* No. 2001-32 (December 2001) broadly laid out the decentralized political organization followed by the *Loi organique* No. 2004-050 (July 2004) that further specified the organization and responsibilities of new administrative districts.

2. Social groups were defined among those viewed as important by inhabitants at study sites and which constituted at least 5% of all households within the study site. These social groups were largely defined by ethnicity but also caste and settlement location were important. At study site A, the major social groups were the *FulBe* (36% of households), *Djerma* of freeman ancestry (40%), *Djerma* of slave ancestry (7%), *Bella* (7%) and *Hausa* (9%). In study site B, the major social groups were the *FulBe* in the settlement to the east (30%), *FulBe* in the settlement to the west (21%), and *Djerma* (48%). In study site C, the major social groups were the *FulBe* of the village (36%), *FulBe* of an outlying hamlet (5%), *Hausa* Islamic cleric lineage (9%), other *Hausa* (49%). At study site D, the major social groups were the *Hausa* (77%), *Bella* (15%), and *FulBe* (8%).

3. These classes are: access to land to crop (through loans, rent, etc.); access to manure; access to necessary labor to manage cropped fields; establishment and adjudication of boundaries between fields; buying and selling of agricultural production; access to livestock through loans and confidence; access to herding labor to manage livestock on pastures; buying and selling of livestock; access to pastures and problems of crop damage; and buying and selling of milk.

4. Activities identified include: field clearing, seeding, weeding, harvesting, obtaining access to fields (loans or rent), herding, loaning/entrustment of livestock, watering of livestock, obtaining pasture for livestock, providing drinking water for the family, artisanal activities (weaving of mats, blacksmithing, tailoring), selling/buying agricultural products, selling/buying livestock, selling/buying milk, and general commerce.

5. Of those implicated, 416 were individuals that could be tied to a particular household within the village, 72 were individuals that could not be tied to a particular household, 76 were identified as individuals outside of the village, and 79 were only identified generally as a social group.

6. For both of these cases of land-use competition, cooperative relationships are attributed to those that assist the informant to avoid disagreements or to resolve disagreements when they occur.

7. The steps for managing 116 disagreements were described with 35%, 10%, 15%, 10%, 14% and 16% relating to: access to the pasture/cropland interface (relationship 9 in Table 2); cropped field boundaries (relationship 4 in Table 2); commerce for labor, milk, grain and livestock (relationships 2, 3, 5, 8, and 10 in Table 2); access to cropland (relationship 1 in Table 2); livestock management (relationships 6 and 7 in Table 2) and miscellaneous activities. Miscellaneous activities include: (1) those related to productive activities but that do not constitute a major class of disagreements (e.g., disagreements at well about the order of water collection; conflicts surrounding development projects); and (2) those unrelated to a specific productive activity (arguments among children).

8. No significant differences were found between study sites in the proclivity to rely on local customary or extra-local government-sanctioned authorities in managing conflicts.

9. One complication in the interpretation of this result is that this situation is only realized in one of the study areas where local authority is solely held by the lineage with a herding identity.

10. Before his death, the *Belel* chief described the relationship between the *Djerma* and *FulBe* as strained. Where in the past *FulBe* would provide gifts and loans to the *Djerma*, these gestures to solidify relationships had ceased. They participated in group prayers on holidays but friendship ties had deteriorated significantly.

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