



## Resource Conflict in the Rangelands: Evidence from Northern Kenya and Southern Ethiopia

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*Household-level survey evidence indicates that conflict over land and water among pastoralists in northern Kenya and southern Ethiopia is relatively rare. Resource conflict in this region appears to be associated more with the rise of nontraditional land uses, especially crop cultivation in streambeds and valley bottoms traditionally used for grazing and watering herds, than with any growth in herd sizes associated with livestock cycles or growing pastoralist populations. Traditional pastoral communities tend to have fewer resource-related conflicts than communities experiencing a rise in crop cultivation. And the incidence of resource conflict is unrelated to herd size. The traditional pastoral system appears more capable of mitigating resource related conflicts and of resolving them when they do occur. Such conflicts appear to be more frequent and less easily resolved where land use patterns are shifting away from traditional extensive grazing systems towards more diverse land use systems incorporating cultivation as well as grazing. Policies aimed at conflict management should focus on building effective institutional arrangements in such transition areas without undermining indigenous institutions that are crucial to the peaceful utilization of scarce rangeland resources in traditional pastoralist zones.*

### Background

Changing natural resources patterns in the east African rangelands, perhaps especially the rise of crop cultivation and demographic pressures that increase stocking rates per square kilometer, affect the evolution of the pastoralist systems of the Horn of Africa. Coupled with increasing reports of violent conflicts associated with political struggles and the introduction of semi-automatic weapons into traditional cattle raiding, concern about resource-based conflict has grown in recent years. Yet perhaps because of the emphasis in the media and in policymaking circles on a larger scale, more violent conflicts between ethnic groups, relatively little is known about how individual households respond to the growing challenges of resource competition and potential conflicts in the face of changing land use patterns. To what extent are pastoralists experiencing conflicts related to increasing competition for land and water? And do traditional institutions retain capacity to resolve resource disputes?

This brief explores these important, inter-related questions using survey data the PARIMA project collected in 2002 from 160 households in six sites representing different land use systems and market access: Finchawa, Dida Hara and Dillo in Ethiopia, and Dirib Gumbo, Suguta Marmar and N'gambo in Kenya. Of these, Dillo and Dida Hara have negligible crop cultivation and Suguta Marmar has a modest amount, while Dirib Gumbo, Finchawa and N'gambo have far more diversified land use patterns and better market access.

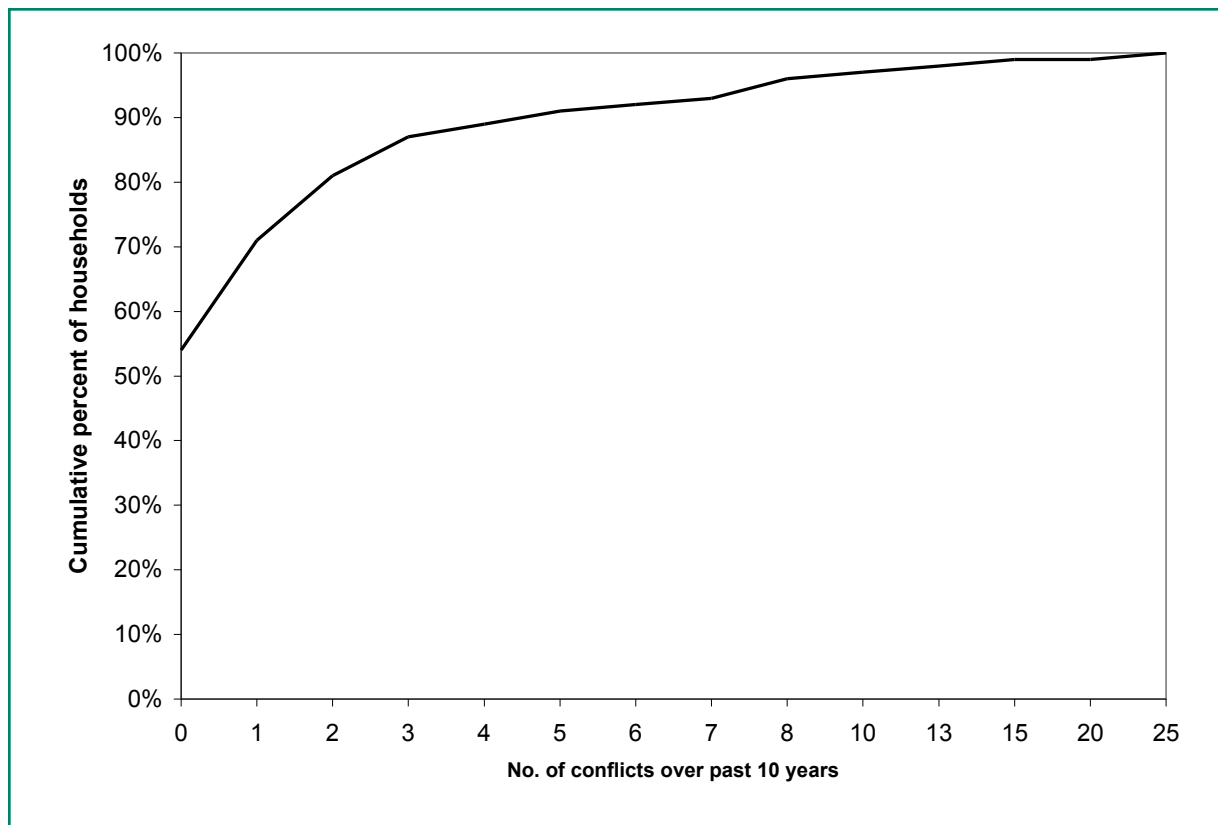
Resource competition resulting from increased human and animal populations and the resulting changes in land use patterns can lead to more conflict over the use of scarce rangeland resources like water and pasture. This may be especially true as non-traditional land use patterns – such as rainfed crop cultivation – emerge, uses that are not governed by established community norms and dispute resolution mechanisms. Strategies to manage such conflicts may require a different approach than is customary among migratory pastoralists.

### Major Findings

The survey asked households about inter-household conflicts over land or water resources for herding and cultivation activities during the previous ten years. Households reported fewer conflicts than many observers might anticipate after reading regular stories of raids and counter-raids in the Kenyan media, and 55% of all the households reported to have never experienced any natural resource conflict during the preceding ten year period. More than 85% experienced four or fewer conflicts over land or water in the past decade.

However, further disaggregation of conflict occurrence by source and across study sites reveals that (i) land related conflicts are more frequent than water related conflicts, (ii) conflicts in predominantly traditional pastoral areas — Dillo, Dida Hara and Suguta Marmar — are relatively

Figure 1. Cumulative distribution of conflict incidences reported by households



fewer compared to areas of more diverse land use patterns — Ngambo, Finchawa and Dirib Gumbo — in which cultivators and herders must co-exist (Table 1). Although a sharp minority of sample households cultivate crops, cultivators appear far more likely than herders to experience resource conflict. Overall, however, and especially between traditional pastoralist herders, resource related conflicts in these sites are not remarkably frequent.

We estimated a Poisson regression model to explore the relationship between resource conflict and household wealth, mobility patterns and resource competition. The results reveal no significant link between livestock numbers and incidence of conflicts. Thus increasing herd size is not correlated with increased frequency of conflict. This may be partly attributed to the fact that mobility to distant satellite camps appears to dampen the likelihood of conflicts over either land or water. However, resource conflict incidents over land or water were more likely to occur in communities characterized by diverse and changing resource use patterns.

Consistent with the regression evidence, when we asked households their perceptions of changes in incidence of conflict, they were split in their assessment as to whether resource conflicts between herders have been increasing or decreasing over the past decade, but they overwhelmingly perceive conflicts involving cultivators to have increased. More than three times as many people thought herder-

cultivator conflicts were increasing in their community as thought such conflicts were decreasing, while nearly twice as many thought conflicts between cultivators over land or water were increasing, as compared to those who believed cultivator-cultivator conflicts to have decreased locally. In summary, resource conflict appears to be associated more with the rise of nontraditional land uses, especially crop cultivation in streambeds and valley bottoms traditionally used for grazing and watering herds, than with any growth in herd sizes associated with livestock cycles or growing pastoralist populations.

All communities experience resource conflicts at some time and most have evolved mechanisms for resolving disputes over land and water. Yet institutions may evolve more slowly than land use patterns, in which case nontraditional conflicts, such as those between cultivators and herders, may take longer to resolve than more traditional disputes between herders. Conflicts involving cultivators were significantly less likely to have been resolved at the time of our survey than were conflicts between herders (Table 2). While less than three percent of herder-herder conflicts went unresolved, conflicts involving cultivators had gone unresolved more than five times more frequently.

We used a multivariate logistic model to examine resource conflict resolution mechanisms and the likelihood of resolving disputes bilaterally, without recourse to third party

Table 1. Conflict occurrence by type and across study sites (% of sampled households).

	Diverse Land use			Traditionally Pastoral			All Sites
	FW	DG	NG	DH	SM	DL	
<b>Cultivator-Cultivator over land (CCL)</b>	27	35	32	24	13	3	21
<b>Cultivator-Cultivator over water (CCW)</b>	0	5	5	3	6	0	3
<b>Herder-Herder over land (HHL)</b>	23	10	0	3	41	3	15
<b>Herder-Herder over water (HHW)</b>	17	0	0	7	9	17	9
<b>Cultivator-Herder over land (CH)</b>	20	15	47	21	0	0	15
<b>Any of the above conflicts</b>	57	50	68	41	44	23	46

*Finchawa (FW), Dirib Gumbo (DG), Ngambo (NG), Dida Hara (DH), Suguta Marmar (SM), Dillo (DL)*

Table 2. Observed frequency of conflict resolution (% of all reported conflicts).

	CCL	CCW	HHL	HHW	CH
<b>Not resolved at all</b>	6.5	40.0	0	4.2	14.3
<b>Solved bilaterally between two parties</b>	19.4	20.0	28.6	16.7	19.0
<b>Solved by third party</b>	74.1	40.0	71.4	79.1	66.7

intermediaries. Our statistical model indicates that familial or clan relations between the parties significantly increase the probability of a conflict being resolved, as well as the likelihood that the two parties can resolve their differences bilaterally. Traditional methods of resolving resource-related conflicts between herders within familial or clan groups and even across clans, using longstanding dispute resolution institutions, thus appear to remain reasonably effective. But traditional mechanisms appear somewhat less effective in coping with the growing number of conflicts associated with new land uses in crop cultivation, especially where these conflicts occur between clans. This may reflect, in part, the absence of any formal land use policy in the arid and semi-arid lands that accommodates recent diversification in land uses.

### Practical Implications

These findings underscore the importance and viability of indigenous resource management and conflict resolution mechanisms in pastoral dominated areas, the importance of maintaining pastoralist mobility so as to minimize conflict over land and water in the rangelands, and the challenge posed to pastoralist systems by the rapid emergence of crop cultivation in traditional grazing lands. The inherent spatio-

temporal flexibility of pastoralism enables herders to avoid conflict and to manage it when it does occur more effectively than do other, more sedentarized communities that rely increasingly on crop cultivation and the non-agricultural economy. Pastoral communities experiencing rapid changes in land use may well need assistance in adapting traditional dispute resolution mechanisms over natural resources as such conflicts appear to be growing in frequency, and are less likely to be resolved than the more traditional herder-herder competition over land and water.

### Further Reading

Yirbecho, A.T., Barrett, C.B., McPeak, J.G. and Gebru, G. 2004. Understanding Resource Conflicts in the Rangelands: The case of pastoralists in southern Ethiopia and northern Kenya. Cornell University working paper.

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The GL-CRSP Pastoral Risk Management Project (PARIMA) was established in 1997 and conducts research, training, and outreach in an effort to improve welfare of pastoral and agro-pastoral peoples with a focus on northern Kenya and southern Ethiopia. The project is led by Dr. D. Layne Coppock, Utah State University, Email contact: lcoppock@cc.usu.edu.



The Global Livestock CRSP is comprised of multidisciplinary, collaborative projects focused on human nutrition, economic growth, environment and policy related to animal agriculture and linked by a global theme of risk in a changing environment. The program is active in East Africa, Central Asia and Latin America.

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