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THE ROLE OF CUSTOMARY INSTITUTIONS IN MANAGING CONFLICT ON GRAZING LAND

A Case Study from Mieso District, Eastern Ethiopia

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Abstract
This paper examines interethnic conflict on grazing land previously accessed as common property. The study was undertaken in Mieso District of eastern Ethiopia where two ethnic groups experience different production systems – pastoral and agropastoral. Game theoretic approach and analytic narratives have been used as analytical tools. Results show that the historical change in land use by one of the ethnic groups, resource scarcity, violation of customary norms, power asymmetry and livestock raids are some of the factors that have contributed to the recurrence of the conflict. The role of raids in triggering conflict and restricting access to grazing area becomes particularly important. Socio-economic and political factors are responsible for power asymmetry and increasing scale of raids. The joint effect of an increase in trend of violence and a decline in capacity of customary authority in conflict management advances state role in establishing enforceable property rights institutions. This would be successful only if policies and intervention efforts are redirected at: 1) suppressing incentives for violence, 2) establishing new institutional structures, in consultation with clan elders of both parties and 3) building internal capacity to monitor conflict-escalating events.

Key Words: Property rights, conflict, grazing land, power asymmetry, access rights, customary institutions, Mieso, Ethiopia, Africa
JEL Codes: O17, Z13, Q15

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1 Introduction: *An Overview of Resource Conflict*

Scarcity driven resource conflict is often seen as an outcome of intense competition on natural resources in the context of environmental stress (Homer-Dixon 1994, 2001). In Africa, such conflict has continually weakened and reduced countries' capacity to achieve their development agenda. Those occurring at micro-level on specific resources prevent many countries from undergoing rapid social and economic change (Huggins 2003). Conflict on grazing lands in pastoral and agropastoral areas of the continent forms a subset of such event. As some have shown, change in conflict technologies (from use of spears to automatic weapons) cause significant instability (Otim 2002). The increasing trend of disputes within and between pastoral and agropastoral groups due to resource scarcity, the resulting tensions and the inadequacy of existing institutional frameworks for conflict management imply the need to search for an innovative approach to overcome the problem (Cousins 1996; Vanderlinden 1999).

Many have suggested that conflict on resource use should be considered as part of resource management. This is because effective community based management institutions can improve access for different users when there is variation in resource condition across space at a given time (Haro and Doyo 2004). They point out that in areas where there is high insecurity, grazing resources are either underused or completely unused. This implies that conflict causes environmental damages due to poor distribution of animals over larger area and more herd concentration in a limited space. Though diverse ecological systems produces appropriate environment for pastoralists to manage risk through spatial dispersion of their herd (Ahmed et al. 2002), conflict impairs pastoral mobility and access to different grazing patches (Coppock 1994).

Different points of view exist on the role of customary institutions in conflict management in Africa (Hussein et al. 1999). An extensive review indicates their failure to prevent or end violence between ethnic groups with distinct social and cultural norms (Cousins 1996). To overcome this problem, some favor a state to play a role in establishing grazing reserves and introducing new land reform in pastoral areas (Scoones 1994). Others support the state to advocate and strengthen customary institutions (Lane and Moorehead 1994; Opschoor 2001). A good example of interethnic conflict management through the state intervention comes from northern Kenya where the state encourages traditional authority to organize negotiation on use rights (Haro and Doyo 2004). Such an effort succeeds when it ensures sustainable distribution of rights and power to suppress the basic driving forces of conflict (Vanderlinden 1999). Another experience suggests the state to apply "procedural law" other than

"substantive law" in managing the conflict as the former provides a general framework within which various sources of claims obtain legitimacy (Vedeld 1998).

Moreover, integration of informal and formal procedures to transform conflict should address three aspects. First, it is essential to encourage conflicting parties to rely on a traditional way of conflict resolution as far as it helps develop trust and credibility to commitments (McGinnis 1999). There are two reasons for reliance on such an approach: 1) traditional mechanism considers local social and ecological contexts in which different communities live and 2) the immediate impact of conflict remains to be local, not national (Huggins 2003). Second, one has to further examine why or how those institutions succeed or fail to resolve conflicts among multiple resource users in a changing resource condition (Cousins 1996). The third aspect is enabling customary procedures to make distinction and linkage among root causes, triggers and sustainers of conflict. One of the basic problems in understanding conflict is overlooking such a linkage. Empirical works show that while raids activate conflict (Hendrickson et al. 1998), expansion of farming can sustain it (Gebre 2001). In general, the overall increase in ecological scarcity is the root cause (Huggins 2003).

To understand conflict better, there is a need to make distinction between conflict of interests on how and who should use resources, which is a source of dispute and violent conflict (Hussein et al. 1999). The former involves competitive demand over resources when they are scarce. Violence is one of the products of conflict of interest in which the two form a continuum and are not necessarily dichotomous. In situations where there is litigation (institutional means), conflict of interest may take a non-violent form (Hussein et al. 1999). Therefore, the meaning of conflict ranges from a simple dispute due to unfair distribution of benefits to violent conflict involving guns, killings and losses of properties. In pastoral and agropastoral regions, the key reason for conflict of interest to develop into violence is the gradual erosion of elders' authority and the state failure to provide security (Kratli and Swift 1999). Hence, violent forms of conflict may need a different institutional arrangement and political intervention compared to disputes. For eastern Ethiopia, little or no information is available on factors that have led to violent conflict and the challenge customary authority faces (Hagmann 2005).

The above review indicates variety of contexts in which resource use conflicts occur. Whether conflict takes the form of a dispute or is of a violent one, it can take place between internally divided groups or between large distinct groups. Causal wise, it could be related to some other external factors or entirely connected to competition over resource in the event of environmental change. Such possible complex aspects need to be emphasized in conflict analysis. The nature of the conflict between the ethnic groups in Mieso encompasses some of

these features. The fact that this conflict presently gets national attention and the need to understand the process that has transformed it to this acute stage are the central motives in undertaking the study and writing this paper.

This paper answers two questions: 1) what are the causes of the conflict? 2) What are the conditions that support (or inhibit) customary institutions in managing the conflict? It examines the conflict from different dimensions by heavily emphasizing on existing local institutional capacity and the challenge to transform it. The finding addresses how benefits from livestock raids, change in land use and increasing scarcity of grazing resources on communal grazing land have affected customary institutions in managing conflict. The formal model developed reflects the important role of raids in transforming distributional conflict on grazing resource into violence. Livestock raid is the principal cause for the failure of informal agreements to prevent conflict between the pastoralists and agropastoralists. Finally, the findings suggest the need for state intervention to devise mechanisms to control raids prior to delineation of the rights to the contested grazing land.

The remaining parts of the paper proceed as follows. Section two briefly describes the historical relationship among resource users. Section three introduces theoretical concept. The fourth section highlights on methodological approach. Section five narrates on the overall factors affecting conflict in an attempt to provide details for building a game theoretic model in section six. Section seven relates the insights gained from the model to existing literature in order to anticipate on the desirable property rights system to minimize the incidence of a violent conflict. The last part concludes and provides useful suggestions to improve the situation.

2 Overview of Multiple Users' Relations in Mieso District

Recurring drought in eastern Ethiopia has led to a declining grazing resource base (Baars and Mussa 1999). It has gradually intensified competition and conflict. The resulting instability to the common property rights of Ittu and Issa provides an attractive environment for conflict analysis. In this section, effort is made to capture the process of change in the resource users' relationship and the factors responsible for it.

The relationship among pastoral clans of different ethnic groups in eastern Ethiopia is increasingly complex and dynamic in response to change in resource settings and land use (Gebre 2001). Change in land use implies change in property rights, as some cultivate while others need it only for grazing. This is one important factor explaining the conflict between Ittu and Issa. Detailed account of this is given in section 5.1. In addition, change in their

relationship has been determined partly by their relation with neighboring clans. For instance, Afar and Arsi Oromo have historically been long standing common enemies for Karrayu, Ittu and Issa clans as they were fighting for best pastures (Gebre 2001). Karrayu enjoyed a peaceful relation with Issa, Hawiya and Ittu in sharing grazing land. As elders recall, the period prior to 1940s represented the condition when the Issa territory served as a bridge for proliferation of firearms to Ittu and Karrayu.

However, in response to certain developments, the Karrayu clan has resisted access for Ittu and Issa. These include expansion of irrigated agriculture, establishment of extensive conservation areas of a Game Park, occurrence of two major droughts in the mid-1970s and 1980s and population explosion (Kassa 2001). The restriction has become more severe for Issa than Ittu due to a close kinship and marital relation between Ittu and Karrayu. This condition has aggravated the hostilities among the three (Gebre 2001). Consequently, the encroachment and competition for resource that have affected primary users and their relationships with neighboring clans have brought an impact on the customarily established grazing rights of different clans. Therefore, the emergence and increase in property rights conflict between Ittu and Issa has not taken place in an isolated setting.

Table 1: Resource Users in Mieso and its Neighbors

Clans	Ethnic groups	Production systems
Karrayu, Ittu, Ala, Nole, Arsi Oromo	Oromo	Mostly agropastoral
Issa, Hawiya	Somali	Pastoral

Source: Field Inquiry and review of others' work (Gebre 2001; Kassa 2001).

3 Some Theoretical Concepts

Assets at the disposal of an individual affect his or her mental model through which the feasibility of certain desired actions is judged. They affect how one perceives and evaluates the situation in which he or she lives. This is because action resources are not only the means through which an individual makes a living but also they give a meaning to his or her 'life-world' (Bebbington 1999)

Action resources are also power resources. The nature of institutions depends on the power relations of actors bargaining for change (Knight 1992). According to Knight, to apply bargaining theory of institutional emergence, we need to allow for the possibility that some social actors are more powerful than others and then investigate the effect of those differences (ibid: 127). The success of an actor in bargaining is, then, directly related to the ability of an actor to produce strategic commitments (or threats) to the rules of the game that provides a

clue on actor's reputation in fixing the strategy of the other. Differences in action resources can strengthen or weaken actor's position and motivation in reproducing consistent behavior (Knight 1992). Strong actors (players) tend to show credible commitments to their strategic choice for two reasons. First, they are capable to manipulate benefits through altering own strategies if it is desirable. Second, the relative bargaining power embedded in resources available to strong players might always make weak players risk averse. It pushes them to avoid challenging the strong player unless the existing social networks, by providing a basis for cooperation, can create a space to combine forces and increase their countervailing power or bargaining position.

Therefore, differences in action resources bring about power asymmetry influencing the outcome of distributive bargaining (Knight 1992). When strong actors constrain others to choose a particular equilibrium strategy, the weak ones will comply whether they like or not. This is based on the implicit assumption that the weak lacks alternatives. Change to such an established institution by the weak comes at a greater cost. 'Change in informal rules of a society can be generated either through change in distributional outcomes of those rules or shift in relative bargaining power of the actors' (*ibid* p. 145). Improved bargaining power of the weak actor will lead to a gradual shift in strategy producing new equilibrium. This equilibrium might bring fair allocation of benefit from the commons over which distributional conflict exists.

Examining the role of customary institutions in managing conflict implies that resource conflict (users' disputes) is embedded in the pastoral-agropastoral resource use system and hence essentially unavoidable. However, customary institutions (norms, promises and moral rules) can reduce the cost of such conflict and prevent it from escalating into a destructive violence. In using the distributive bargaining theory as an analytical concept, the question is how far such institutions are able to create space for bargaining and negotiation to govern resource access by minimizing the costs of conflict.

4 Methodological Approach

4.1 Data Sources and Types

Different criteria (wealth, location, clanship and village size) were used to select a sample of 80 households from 12 villages of Mieso District. Data collection involved a household survey and two consecutive focus group discussions. Trained enumerators assisted during the survey. The survey focused on various themes: economic activities involving relations with

neighboring clans, pattern of competition for grazing land, reasons for conflict, number of animals raided, involvement in violent conflict and participation in negotiation meetings.

The focus group discussion was organized involving key informants before and parallel to the survey. Some of the issues addressed in the interview questions were recapped while discussing with key informants. The discussion emphasized on historical and current relations between Ittu and Issa, causes of violence, how negotiations are organized, cooperation of other clans with Ittu, tensions among Ittu clan members and reasons why Issa negotiates or attacks. The composition of the key informants varied in the two rounds. In the first round, mainly elders were involved, and in the second one, formal leaders of the peasant association and village leaders were involved. This was done purposely to understand how far customary efforts and formal procedures are integrated.

4.2 Analytical Tools

A game theoretic approach and analytic narrative were applied for analysis. Game theory helps structure actors' interaction and provides an analytical tool to build systematic explanation (Bates et al. 1998). Game theory is argued to be incomplete on its own as it fails to give a detail historical account of cases. It is thin in that a game model does not address complex social world. Instead, it focuses on certain elements of social situations to indicate how motivations and actions are interrelated though such seemingly simple models can help clarify complex situations (Morrow 1994). Analytic narrative, however, overcomes such limitation and provides a basis for iteration, which is required to improve the validity of the explanation derived from game theoretic model (Bates et al. 2000). This was done through comparing explanation of the model and the narratives built from historical accounts (case materials) (see Figure 1).

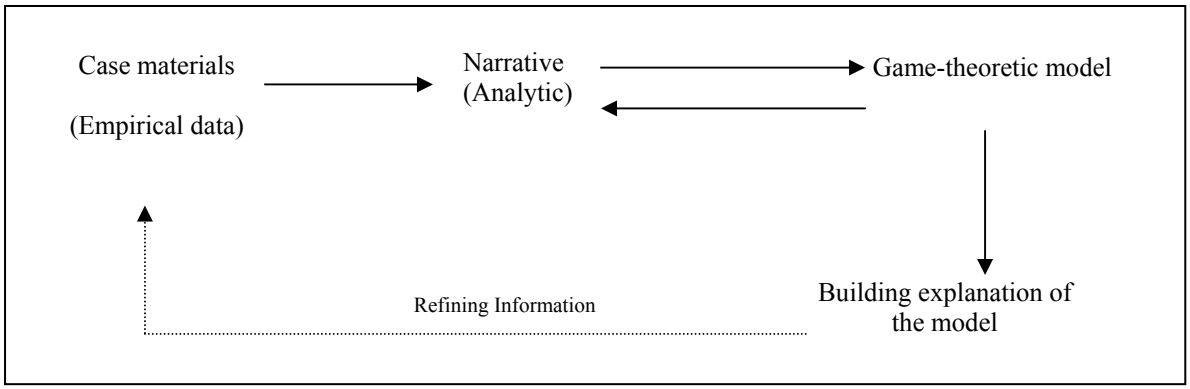

Figure 1: Procedure of Analysis

Source: Own presentation

An interesting aspect of combining methods was the development of new insights into conflict situation being investigated. The backward induction in solving the game makes iteration necessary. While building and explaining the model, the scenario it represents was considered seriously. Others have used similar approach in explaining the decision making institutional arrangements between shepherds and their leaders (Agrawal 1997).

To study behavioral uncertainty inherent in the resource conflict between Ittu and Issa, such an approach was useful. The analysis involved two steps. The first was to give a description of the essential factors determining the organization of the conflict. In this particular case, an analytic narrative gave a basis for constructing the game theoretic model. This includes contexts and stories showing why the customary institution is consistently challenged. The second step was to establish a game theoretic model that capitalizes on the narrative and gives a systematic explanation. Case materials were referred throughout in order to improve explanations of the model. Such iteration helped in filling the gap between the model and the available evidence.

5 The Nature of the Conflict: *The Narrative*

The conflict analyzed here represents the gradual transformation of communal grazing land into contested land. Many factors may be associated with this. In this case, four important factors remain central: 1) history of change in land use, 2) interclan cooperation and mobilizing conflict resources, 3) breakdown of customary institutions and 4) the economic incentive associated with livestock raids.

5.1 Change in Land Use as a Source of Conflict

Historic information from their ancestors indicates that the settlement of Ittu clan members in Mieso dates back to the early 1900s. They migrated from highlands of western Hararghe because the grasslands in the district were very attractive for livestock production. During this period, livestock were their main source of livelihood and they were pastoralists. In the early 1930s, the imperial government allocated land (about 500 ha) for two private investors to cultivate maize, sorghum and bean as well as to produce livestock by fencing large pastureland. These two activities competed with the pastoral communal grazing land. Investors employed armed guards to protect access to enclosed land. Both Ittu and Issa collaborated in destroying investors' farm and raided their animals in order to discourage them and block further encroachment of highlanders into their grazing area. The collaboration was strong and successful.

However, cooperation in sharing grazing resources has disappeared through time due to: first, a decline in resource base and demographic change as stated in section two, and second, the impact of land reform subsequent to political and ideological change in 1974. The reform brought a dramatic change in property rights to land in the country's history where all land came under state ownership. As a result, those landlords, who were allocated land during the imperial regime, were dispossessed and forced to leave the area. This change in formal institutions resulted in the allocation of the enclosed land to the Ittu clan members who were previously expropriated and marginalized. Since then, private land use for cultivation has become common. Many clan members of Ittu started to till the land while livestock still remained the basic source of livelihood. To the contrary, such event has become a source of conflict as Issa has increasingly resisted expansion of cultivation. Field inquiry shows that Issa has never been involved in crop farming activity. One mechanism of resistance to land use change was to organize attacks during planting and harvesting seasons. This has been designed to secure extensive communal grazing land.

As time goes, attacks have become even more frequent. At present, frequent attacks are resulting in reduced benefits for Ittu from communal grazing land. Many clan members have the fear that this may cause displacement from their settlement area in the long-term. As the resistance from Issa increased through time via restricting access to communal grazing area to discourage crop farming from the other end of the vast grazing land, elders of Ittu started to negotiate for access to the land they once enjoyed as common property with Issa. Among those agropastoralists who combine cultivation and herding, the claim to presently contested grazing area is based on the fact that it has been common property. To sum up, this evidence

reveals that change in land use by some users of common property, as income diversification strategy, has become a threat for others who wish to sustain pastoralism as a livelihood leading to distributional conflict growing to violence.

The basic problem here is not the evolvement of co-users of the grazing commons into 'disputants' by virtue of pursuing different production systems. However, it is a lack of a legal institutional framework through which claims for access can be negotiated, settled and sustained. In Ethiopia, the existing tenure policy of the country supports private use of land for cultivation as stated in the 2005 land use and administration proclamation (FDRE 2005). At a local level, allocation of land for cultivation favored by such policy environment contributes to the shrinkage of the grazing area putting the pastoral Issa in a disadvantageous position.

Furthermore, while the state policies support crop production via the supply of agricultural technologies, extension services and training to agropastoralists, there is little or no legal backing in place to alleviate insecure property rights to the communal grazing land. As demographic change in agropastoral systems results in large tract of land coming under cultivation, tension arises when pastoralists try (at least) to exercise mobility. This tension will be acute as the latter group increasingly holds land in private from one end while claiming for access to communal land for livestock production. This can be conceived as the struggle between diversification and specialization. A wide range of similar evidences exist in the empirical literature indicating that claims for access and use of resources are often contested, negotiated and settled at different levels involving different individuals and groups, directly or indirectly (Babiker 2001).

5.2 Group Identity, Cooperation and Resource Mobilization

There is a general agreement that a state is the ultimate supplier of security to fruits of one's investment. Where no one has invested but claims to be the right holder, as it is the case here, who should give protection? The case presented here points out that where both state and customary system fail to secure property rights for various reasons, it appears legitimate for each claimant to invest in conflict to secure access through a violent strategy. To elaborate on this, I give emphasis to the influence of two major factors: 1) the link between group identity and cooperation as access strategy, and 2) the role of mobilizing resources in conflict prevention and the challenge faced in doing so.

5.2.1 Interclan Cooperation

Historically, when conflict was started, Issa divided the three clans of the district (Ittu, Nole and Ala) in resisting Ittu's access to communal grazing land. The first step taken was to form alliance with Ala and Nole clans to use the communal grazing land in harmony. These two clans were long involved in crop growing unlike the Ittu. The second step was to resist Ala while sharing the resource with Nole alone. Unexpectedly, this step resulted in alliance among the three clans (belonging to one ethnic group) to resist against Issa (Table 1). In this case, emphasis is being given to Ittu-Issa conflict for they share long geographical boundary making the scale of exposure to conflict higher. The other two clans are usually conditional co-operators.

The nature and extent of cooperation between clans affects the decisions of parties in conflict. When both clans cooperate, Ittu enters to use the contested resource without negotiation because of lower marginal costs of conflict per additional person cooperating. This condition undermines the intimidating trait of Issa. Thus, the credible threat from Issa encourages interclan cooperation, which in turn improves access for Ittu due to increased capacity of self-protection. An important observation is interclan cooperation increases security of rights to the contested grazing land. Others have indicated that such cooperation cannot be sustainable if there is variation in settlement patterns and geographical locations (Gebre 2001; Hagmann 2004).

Under repeated interaction, interclan cooperation causes a different behavioral outcome (preventing conflict) only if the stronger actor is willing to negotiate over rights. At the same time, sustainability of interclan cooperation influences the perpetuation of this behavior. Similar to others' observation, cooperation is determined by resource condition (Bogale and Korf 2005; Vanderlinden 1999). Ittu secures cooperation from Ala and Nole whenever they face shortage of grazing resource in their area. When Issa's resistance reduces under persistent interclan cooperation, Ittu begins to use the grazing area without being accompanied by the cooperating clans. Ittu - as a constrained group - follows this path when Issa migrates farther from the contested land or when Issa is thought to get no information. Issa observes such a move but keeps quiet to plan for massive raids and attacks. This will force Ittu to retreat and begin negotiation.

A recent study in eastern Ethiopia shows that poor agropastoralists cooperate with outsider pastoralists in permitting access to their grazing area in exchange for livestock and other benefits. They rent out access rights to common grazing land that improves their wellbeing. Where cooperation involves mutual gains, differences in production system do not necessarily lead to violent conflict (Bogale and Korf 2005). The case examined here is different. For the

strong actor, greater power resource (physical) creates a mechanism to constrain the weak. In this context, institutional arrangement favoring cooperation to stop attacks does not bring additional gains. This may tempt the weak to mobilize power resources.

5.2.2 Resource Mobilization

In the absence of the complete assignment of enforceable property rights, the capacity to mobilize conflict resources remains to be an alternative to secure access to grazing resources. Conflict, like any human activity, requires an investment. However, its reward 1) might vary based on a group competence and choice of strategy and 2) is interpreted on economic, moral and psychological grounds. Mobilizing more resources in conflict is considered as one form of collective effort to reduce the cost of conflict. This becomes realistic only if resource mobilization leads to decline in power asymmetry and ultimately motivates Issa and Ittu to shift from violence to compromise and negotiation. From the perspective of Ittu, resource mobilization is believed to produce deterrent effect to Issa other than giving rise to warfare where one wins and the other loses the battle. Successful resource mobilization increases efficient use of pasture when it creates such an incentive.

Comparing both, Issa can easily mobilize and possess more weapons than Ittu for two reasons. First, Issa as pastoralist moving freely across international borders having better access to modern weapons. Second, weak control of firearms proliferation created a suitable environment for Issa. Prior to change in government in 1991, Ittu owned more weapons than today during which customary rights were relatively enforceable. Many Ittu clan members were armed during the border war between Ethiopia and Somalia and got support from the state to fight Issa. At present, the existing state disarms Ittu for political reasons such as a suspected link with opposition movements. Elders of Ittu stated such intervention as ‘unfair’ as far as nothing has been done to the Issa. This has created power asymmetry. Experience from Niger reveals that where an unbalanced power relationship between pastoral and agropastoral groups exists, the weaker party’s need is considered as illegitimate and the dominant one becomes inflexible and averts outcome of negotiation (Nagido 1999).

5.3 Breaching of Customary Institutions

Customary leaders played a role in managing conflicts in the past through imposing fines. A group that provokes conflict sacrifices bulls. Since recently, there has been a change in the nature of the conflict in relation to socio-economic and political factors (e.g. ethnic based

federalism[1]). This has increased participation of state representatives though their task is limited to facilitation of elders' meeting. They play simply a mediating role. In those meetings, elders from the two ethnic groups 1) investigate the reasons for conflict, 2) identify a group who initiated the conflict, 3) pass a resolution on mechanisms of compensations for properties and livestock lost during conflict and 4) agree to avoid further attacks. Indeed, payment of compensation is very unlikely. Important questions including how grazing resources should be used, who has the right to graze where and under what conditions remain marginal. Most of the interviewees felt such questions being less important as the grazing area has been communally used.

Passive state involvement has undermined the potential of local efforts from producing positive outcome in reducing the incidence of conflict. Negotiations usually lead to promises to refrain from further raids and killings. However, the effect is usually short-lived. The actual practice often turns out to be the other way round. An outbreak of livestock raid-related violence is observed some time after mediation and negotiations. Such violation of commitment is one of the reasons for recurrence of the conflict. For Issa, the opportunity cost of not raiding is high even if this creates access insecurity for the other. An alternative choice for Ittu is to shift to confrontation as described in section 5.2 rather than going for another round of negotiation. This experience augments the extensively documented evidence on the limited capacity of customary institutions in managing resource conflict among several pastoral groups (Vedeld 1994).

The key lesson from this is that conflict resolution efforts concentrate more on compensation and punishments of the wrong doer other than developing clear rules of resource access. The victim of the conflict attaches more values to the compensation to be made for the lives and livestock lost. But this has a temporary remedial effect. Some authors argue that such palliative processes by attempting to promote interaction between conflicting parties divert attention away from the underlying structural causes of protracted conflict (Cousins 1996). One of these structural causes is the difference in power and unclear property rights arrangements for the different land use systems evolved over time.

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[1] The change of government in 1991 introduced ethnic based regional administration that reinforced the conflict since this area is located at new administrative boundary between the two ethnic groups. Due to the vast nature of the grazing land and absence of permanent settlement in the area, this boundary is unfixed. Moreover, pastoral groups do not recognize state ownership of land. They put claims by referring back to circumstances that existed long ago. Thus, there is contradiction between state administrative intervention and history of customary rights to grazing land.

5.4 Benefits from Livestock Raids

Livestock raid produces a threat to the weak actor in using communal grazing land. There is a direct link between fear of raids and avoidance of the grazing area. The gradual increase in the scale and severity of conflict is partly associated with the ever-worsening livestock raiding. Raiding has been organized on a commercial basis, involving accumulation of wealth by one group at the cost of impoverishing the other. As there is retribution, this practice is expected to be reciprocal among different resource users. However, Issa's benefit from raids is different from what is expected. The robbed animals can be instantly sold at local market or are trekked for informal export to neighboring Djibouti. Moreover, informal export arrangement ahead of raiding is another reason for engagement in raids, which shows the trans-boundary flow of benefits from raids. Meanwhile, such arrangement helps as a means to escape from the repossessing efforts of Ittu.

Raid stimulates conflict since part of the revenue generated from it is invested on conflict technology. Access to better conflict technology generates an incentive to perpetrate further raids. There is always a temptation to violate customary institutions. Hence, the higher the benefits from raids, the more frequent the violence will be. This puts a challenge to transformation of conflict and emergence of customary arrangements improving access. Some speculate that when property rights are unassigned, power asymmetry compounded over time encourages actors to invest in coercive activities in order to gain an advantage over their opponents (Skaperdas 1992). Though livestock raid is often high while grazing on the contested land, in exceptional cases it occurs at grazing places close to the villages. This is an indicator for agropastoralists that more losses could occur during extended mobility away from permanent settlement.

Issa's gain from raids is closely associated with strategic land the group occupied. Ethnic affiliation with political power holders in Djibouti, the fact that the group inhabits the main trade route (railway) connecting the capital city to major port and uncontrollable import of firearms due to open cross-border movement are important factors creating a suitable environment. Some of the interviewees indicated that the reason for the conflict goes beyond questions of grazing land and raids. They perceive these as short-term economic gains but the long-term goal being expulsion of agropastoralists from their permanent settlement. However, this paper emphasizes on the short-term interest, which is clearer, and largely sensible, given the opinion of district experts. In situations of the on-going food insecurity, socio-political volatility and ecological variability, raiding between herding groups is practiced as a strategy to defend and acquire access to vital resources (Hendrickson, et al. 1998).

6 Explaining Ittu-Issa Conflict: *Game Theoretic Model*

A move from informal understanding to the use of formal game statement is an important step in examining the strategic behavior of conflicting parties. As displayed in Figure 1, by making use of a case study materials from the actual field setting described above, I assign three strategic choices for each player. In defining strategies of each player, I assume that decisions for engagement in conflict are collective due to close social relationships. I further assume that their strategic behavior reflects their power positions, incentives and goals.

6.1 Strategies and Outcomes

Assignment of players' strategies is as follows. Ittu can either avoid entry into contested area (A) or enter without negotiation with Issa (E) or enter after negotiation (N). Entry into contested land means appropriation of pasture. Issa has different strategies against Ittu in that the game is asymmetric. Attacks can be frequent (AF), seasonal during planting and harvesting (AS) or ceased in response to negotiation or any other reason (NA). In general, one's choice of a strategy determines that of the other since moves are sequential (Figure 2). Table 2 provides the description of each payoff (i.e. total utility for a player) and the strategic choice (conditions) under which it is realized.

Table 2: Specification of Payoffs and Strategies

Payoff	Descriptions	Conditions
$+b$	Total benefit for Issa from entire contested grazing area	If Ittu avoids (A)
0	No benefit for Ittu from the contested area	If Ittu avoids (A)
$-c$	A reduced payoff of Issa	If Ittu enters (E)
$+c$	Payoff of Ittu	If Ittu enters (E)
$-d$	A reduced payoff of Ittu	If Issa's frequent or seasonal attack causes prolonged uncertainty (AF, AS)
$-e$	A reduced payoff of Issa	If seasonal attacks do not discourage entry, rather encourage further use of pasture (AS, E)
$+f$	Gains for Ittu (better access, confidence, safety)	If Issa commits to NA after N (NA, N)
$-f$	Losses for Ittu (restricted access, loss of confidence, livestock and lives)	If Issa violates agreements after N (AF, N) or Ittu enters while still Issa attacks occasionally with the hope that negotiation will succeed (AS, N)
$+j$	Gains for Issa (raids)	If Issa raids N (AF, N)

Source: Own interviews

It should be noted that the value of these payoffs and players' preferences might shift in a finitely repeated game. According to Morrow (1994), preferences can change only in the long

run. This view is shared here given the nature of the relationship between the two players. Allocation of payoffs to the different strategies, specified in Table 2, is based on three factors: 1) discussion with key informants of both groups, 2) considering power asymmetry between both players and 3) a closer look at ethnic ties of Issa with neighboring countries.

Furthermore, there are four assumptions essential to the assignment of payoffs.

1. Investment in conflict technology remains fixed for both players and costs of attack for the strong player is too negligible to consider compared to that of the weak.
2. The loss for Issa is limited to the reduced pasture. Human death is rare, as they are locally believed to be reputable fighters.
3. There is high level of uncertainty as far as attacks exist, which tends to remain unchanged. But, it will be insignificant under full cooperation when the powerful player stops attacks.
4. Interclan cooperation improves the self-protecting capacity of Ittu, thereby reducing the risk to be raided. However, raid is significantly high subsequent to negotiation in case of breaching agreements.

Figure 2 presents an extended form of the game by emphasizing on the sequence of moves. The story from the previous section tells us that the first player started attacks as designated by the two major branches emerging from the first node where the move begins. Let us take the first branch of the initial move where Issa attacks frequently (AF). The payoff resulting from this move depends on the decision of Ittu. If Ittu avoids (A), Issa will get *b* but Ittu gains nothing. However, if Ittu prefers negotiation, the next round move will begin where the decision of Issa becomes important. Hence, if Issa keeps promises in accordance with the agreements made, Ittu may decide to enter the contested grazing area. This move produces a payoff of *b-c* for Issa, whereas Ittu gains *c* by grazing on communal pasture. On the other hand, if Ittu avoids entry for any other reason other than fear of attacks, his payoff from appropriation of common pasture will become again zero while Issa enjoys exclusive access to the whole grazing resource[2].

However, when seasonal attacks are experienced after negotiation, Ittu's decision determines the payoff of both. If avoidance is chosen, Issa will maintain exclusive access. This is not always feasible for Ittu particularly when there is inadequate supply of pasture at the nearby grazing land. The other option for Ittu will be to continue negotiation retaining the decision path while trying to access the resource with the expectation that Issa changes his behavior. Since Ittu is an agropastoralist allocating labor to herding and farming, less labor is

[2] Merely for the sake of convenience, I use the pronouns 'he' or 'his' representing the players.

allocated to herding during peak farming seasons. This could cause exposure to more losses. Issa expects this event to constrain Ittu's entry so that he will choose avoidance. However, if Ittu reacts against the expectation of Issa, the benefit of Issa and Ittu will decline by *e* and *f* respectively. In this case, $f > e$ since the cost of breakdown is expected to be high for the weak player showing credible threat (Knight 1992). Part of *f* is not available for Issa since violence in this situation involves killings of livestock rather than raiding.

The second branch of the initial move begins with Issa's seasonal attacks, after which Ittu may choose to enter or negotiate. If Ittu decides to play enter (E), his payoff will remain the same irrespective of Issa's decision to play seasonal or frequent attack, i.e. Ittu earns positive outcome (*c-d*), where $d > 0$ and stands for retained uncertainty (Table 2). This is because interclan cooperation during frequent attacks keeps Ittu to hold similar payoff under both decision paths (combining assumptions 3 and 4). However, the payoff of Issa reduces by *e,* not *c,* where $e > c$ because occasional attacks encourage Ittu to stay longer and move further into the contested land compared to the period when there is frequent attack, indicating appropriation of more pasture.

A very decisive move is when seasonal attacks urge the agropastoral Ittu to negotiate rather than playing enter. Recall that elders of both groups organize negotiation meetings during which the state serves as a mediating agent. The decision Issa takes after negotiation is either to attack frequently or to stop it in favor of peace and security. If Issa respects the agreement that forces him to share *c*, Ittu's gain will not be restricted to *c*; in addition, he will gain extra utility from increased confidence and safety. This is specified by *f* and distinguished to be a strictly best reply strategy for Ittu. In general, how to uphold this strategic move has been the challenge for the less powerful Ittu and the mediating agent.

Nevertheless, the decision of Issa to breach agreements in order to play AF will expose Ittu to significant asset loss bringing the payoff to negative ($c-f < 0$). This is observed since access to pasture cannot compensate for asset losses and resulting tensions. On the other hand, there is an asset gain for Issa from livestock raided in such sudden attacks and utility increased from gaining reputation as a fighter. Part of *f* is now available for Issa and represented by *j*. Hence, it is a strategy with strictly best reply since it always brings the maximum payoff. This move tends to repeat as Issa uses raids as a strategy to limit access to pasture and Ittu negotiates to gain *f* besides *c*. Consequently, the sub-game perfect that carries Nash Equilibrium with maximum payoff for Ittu is shaky.

Moreover, the strategy with strictly best reply for the strong player (AF) brings the lowest payoff for the weak player. It can be anticipated that repetition of assets loss after negotiation due to unilateral defection born by the strong player may tempt the weak to leave this decision

path in order to play enter (E) instead of negotiation. From above, the decision to enter generates larger gains from access to pasture than the condition under which Issa breaches customary agreement. In short, this means $c - d > c - f$. To sum up, the preceding explanation produces an ordering of payoff parameters as $b>f>e>c>d>0$.

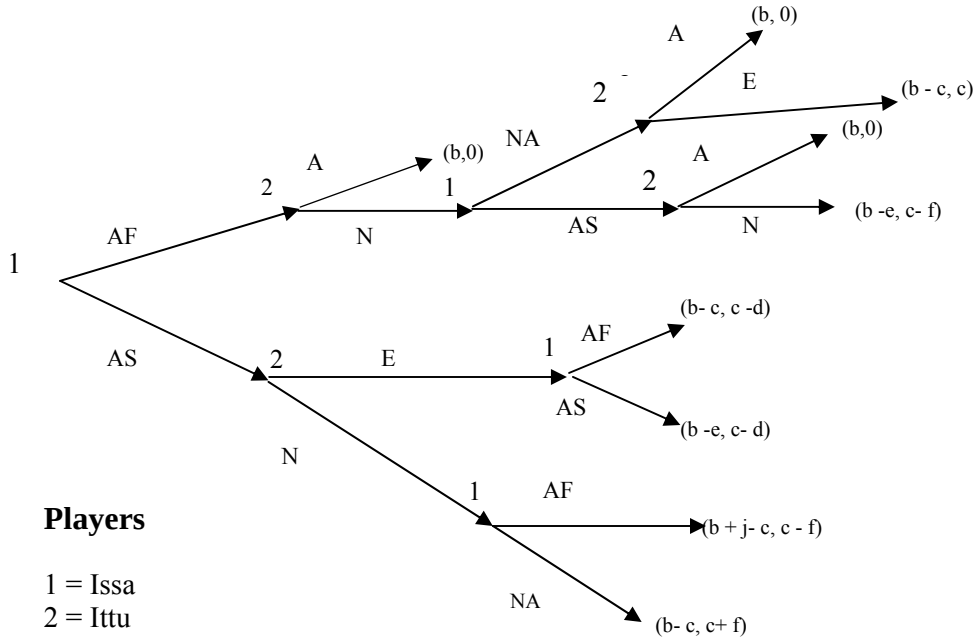

Figure 2: A Game Tree Illustrating Sub-Games

Source: Own presentation

A reduced form of extended game is presented in Table 3 in strategic form signalling the presence of multiple equilibria. To locate these, the focus should be on rows and columns producing positive payoff for both players. From the table, it is clear that the second column and part of the third row fulfil this condition. According to Morrow (1994), the strategy combination that yields mutually best outcome represents the Nash Equilibrium (NA, N). However, the above explanation about the sequence of moves confirms the weakness of this equilibrium, which is a major characteristic of non-cooperative game.

Table 3: Game with Pure Strategies

		Ittu		
		A	E	N
Issa	AF	(b, 0)	(b-c, c-d)	(b +j –c, c-f)
	AS	(b, 0)	(b-e, c-d)	(b-e, c-f)
	NA	(b, 0)	(b-c, c)	(b-c, c + f)

Source: Own presentation

6.2 Mixed Strategy and Probabilistic Choices

Mixed strategy probabilistic elements were added in order to take account for the intermediate values for each player's pure strategies. By doing so, this section complements the task that could not be accomplished using the pure strategic representation of the game. It is guided by the assumption that players do mix strategies continuously in their search for optimal gain. Decision paths shift quickly in an unpredictable manner. Hence, the utility generated from specific strategic move by one player depends on the probability with which the other player chooses a specific strategy. For example, Issa's probability of choosing any of his three strategies affects Ittu's payoff (Table 4).

Table 4: Non-cooperative Game with Mixed Strategies

		Ittu			
		A	E	N	Probability
Issa	AF	(b, 0)	(b-c, c-d)	(b +j -c, c-f)	α
	AS	(b, 0)	(b-e, c-d)	(b-e, c-f)	1 - 1.16 α
	NA	(b, 0)	(b-c, c)	(b-c, c + f)	.16 α
	Probability	X	1 – 1.5x	0.5x	

Source: Own presentation, probabilities based on own interviews

In finitely repeated games, determining equilibrium probability is an important mechanism to explain interdependency (Morrow 1994:188-209). At equilibrium, both players are indifferent to their pure strategies, as they produce equivalent expected utility (Morrow 1994; Gibbons 1992; Agrawal 1997). Based on the field data, certain probabilistic values were assigned to each pure strategy. In this case, AF, AS and NA have probabilities of α (66.7%), β (22.2%) and σ (11.1%) respectively. Similarly, A, E and N carry x (50%), y (25%) and z (25%) probabilities respectively. This does not contradict the increasing frequency of conflict due to various reasons elaborated in section 5. The assumed probability values take this into account. They represent current state of affairs and local understandings. To determine equilibrium probabilities for both players and simplify the analysis, it is necessary to express one in terms of the other such that $\alpha = 3\beta = 6\sigma$ and $x = 2y = 2z$. Further deriving leads to the values indicated in the last row and column of Table 4.

For a player, expected utility ($E(US_i)$) from pursuing specific set of strategy S_i producing outcomes (C_i) is expressed as:

$$E(USi) = \sum_{i=1}^{n} CiPj \tag{1}$$

Where *Pj* is the probability with which the opponent chooses strategy *j* and there are n outcomes.

Taking the notion of utility indifference at equilibrium in a mixed strategy, i.e. for Issa,

$$E\ (U_{AF}) = E\ (U_{AS}) = E\ (U_{NA}) \tag{2}$$

Equation number (2) is simplified using the expression in equation (1). This gives an equilibrium probability for avoiding of entry (x*) into the contested grazing land as expressed in terms of Issa's payoff:

$$x^* = \frac{c - e}{(c + j) - e} \tag{3}$$

where 0<x*<1. This is to find certain probability distribution for the three strategies and allow the player to mix his strategies. Given the restriction on the value of x^* to fall between 0 and 1, the value of *j* must be greater than 0 but less than $e - c$. From this, if *j* is equal to or exceeds $e - c$, higher risk of asset loss may always discourage the use of pasture. As a result, Ittu tends to stop mixing his strategies and plays avoidance most of the time. This is based on the theoretical understanding that a weak player is risk averse (Knight 1992).

To capture the complexity of strategic interdependence, interpreting the expression in equation (3) requires a careful consideration. Having a look into payoff arrangements leading to an increase or a decline in the values of x* is necessary. Both *c* and *e* are losses for Issa if Ittu grazes on the contested pastureland (Table 3). Even if the occurrence of raids depends on Ittu's appropriation of pasture from contested grazing land, both are not observed simultaneously as *j* usually occurs after *c*. Issa compensates for the common pasture lost to the appropriation of Ittu (*c* or *e*) by being engaged in raids *j*. If this is always the case, there will be little or no benefit for Ittu from the contested land. This will have significant negative effects on the economy of agropastoralists increasing vulnerability and poverty. Of course, the extent to which this occurs is determined by the size of Ittu, his capacity to protect his herd and the extent of mobility as conditioned by resource scarcity.

Another typical feature that can be explained by expression (3) is the possibility that Issa suspends attacks temporarily with intermittent raids (lower *j*) for a certain period. This is devised to encourage Ittu clan members to use the resource. However, to make the expression in equation (3) valid, *j* should always be positive though infinitesimal. Lower raids or attacks mean more *c*. This increases the likelihood of entry for Ittu where x* gets closer to 0. Since

the economic gains from raids become attractive and the strong player is expected to think reasonably, he will be careful in manipulating the level of raids not to discourage entry into contested land. This is what is expected given the story showing Issa's involvement in commercial raiding.

The next step is to determine the equilibrium probability with which Issa attacks and explain how this affects the payoffs of Ittu. Similarly, for Ittu,

$$E(U_A) = E(U_E) = E(U_N) \tag{4}$$

Therefore, using payoffs of Ittu given in Table 3 and expression in equation (1) above, the equilibrium probability for Issa to attack frequently is given by:

$$\alpha^* = \frac{d - f}{0.16d - 0.32f} \tag{5}$$

where $0 < \alpha^* < 1$ for similar reason stated above. Loss is a function of the rate of attacks. In interpreting the equation, the value of *f* as well as the difference between *d* and *f* matters a lot. Greater likelihood of attacks (α^*) results in large-scale losses (higher *f*) holding uncertainty *d* constant based on assumption number (3). The value of α^* can be 1 only if $d \approx 0.81f$. In this context, Ittu puts efforts in negotiation (first best reply) or avoidance in order to reduce the maximum possible risk of assets loss. However, to satisfy the restriction imposed on the value of α^* that allows players to mix their strategy, $d > 0.81f$, but, it must be less than *f*. If α^* is closer to 0 (a lower likelihood of attack), *f* will be closer to *d*. Here, we find a loss being reduced to a simple increase in uncertainty, which is expected to tempt Ittu to play E other than A[3].

6.3 Equilibria with Mixed Strategies

While explaining the game in its extensive form, it has been underlined that asymmetric distribution of costs from the conflict motivates the most beneficiary to violate customary institutional arrangements. Hence, the dominant strategy equilibrium produces sub-optimal outcome and unstable Nash Equilibrium. The reason is the powerful player refrains from it since deviation yields better outcome. On the other hand, the cost of breakdown is higher for powerless actor (Knight 1992). The mixed strategy has shown how the common conjecture of players on each other's payoff creates a system where they persistently mix their strategy to

[3] As livestock is a basic source of livelihood, one time loss of animals through raids can induce persistent uncertainty.

improve their payoff. This is expected to occur given the assumption that repeated interaction creates an environment in which players learn about each other's benefits from making choices.

Figure 3 provides a simple relationship between payoff parameters of the two players under different rates of attacks. It illustrates the situation in which the payoff of a player declines whereas that of the counter-player increases that resembles what is called 'linear altruism' (Taylor 1987) but represents totally different phenomenon. It is considered as players' path as they mix their strategies. There are intermediate rates of attacks. This rate (α*) declines as one moves to the right. An infinite number of payoff combinations corresponding to these values may occur along this path.

$$S1 = \frac{j - c}{c - f} \qquad \text{and} \qquad S2 = \frac{c}{d - c} \tag{6}$$

There are various slopes showing this. The first slope (S_1) displays a condition that Ittu tries to increase herd security. Declining values of *f* along the path represents the trend in which the number of animals raided and lives lost reduces in a repeated interaction. At the point (b, 0), the gains from pasture compensate for losses bringing the payoff of the agropastoralists to zero. This happens when agropastoralists mobilize resource or secure interclan cooperation. Meanwhile, the loss in that context is expected not to add to the gains of the pastoral group due to livestock death while fighting (wealth lost). This situation could be sustained in the second phase (S_2), but with increasing appropriation of common pasture by agropastoralists. There is a difference between the two slopes. In S_1, a smaller decline in pastoralists benefit makes a larger increase in the payoff of agropastoralists since they give more value to livestock lost to raids. However, this trend alters in S_2 due to interclan cooperation leading to better self-protection, which further causes a sharp reduction in Issa's benefit.

After S_1 and S_2 end, a path showing partial cooperation (no raids) begins and the cost for agropastoralists will be reduced to uncertainty *d*. This occurs as a result of state mediation, temporary effect of customary agreements or any other reason. The payoff combinations in the shaded part (henceforth interior) found above L1 and right of L2 show mutually beneficial outcomes. This is where benefits of pastoralists could fluctuate between points ($b - e$) and ($b - c$), but the gains for agropastoralists from the common land extends as much as $f + d$ until the extreme right margin at which the attack rate is infinitesimal. From the sequence of moves displayed in Figure 2, the pastoral group uses it as a tactic for undertaking considerable raids. Thus, the stronger player slowly (or abruptly) moves to the point where α* nearly equals 1 leading to the disappearance of outcomes with payoff possibilities in the interior. Any other

point at which α* is significantly different from zero, but falls in the interior represents constrained efficient outcomes characterized by partial cooperation.

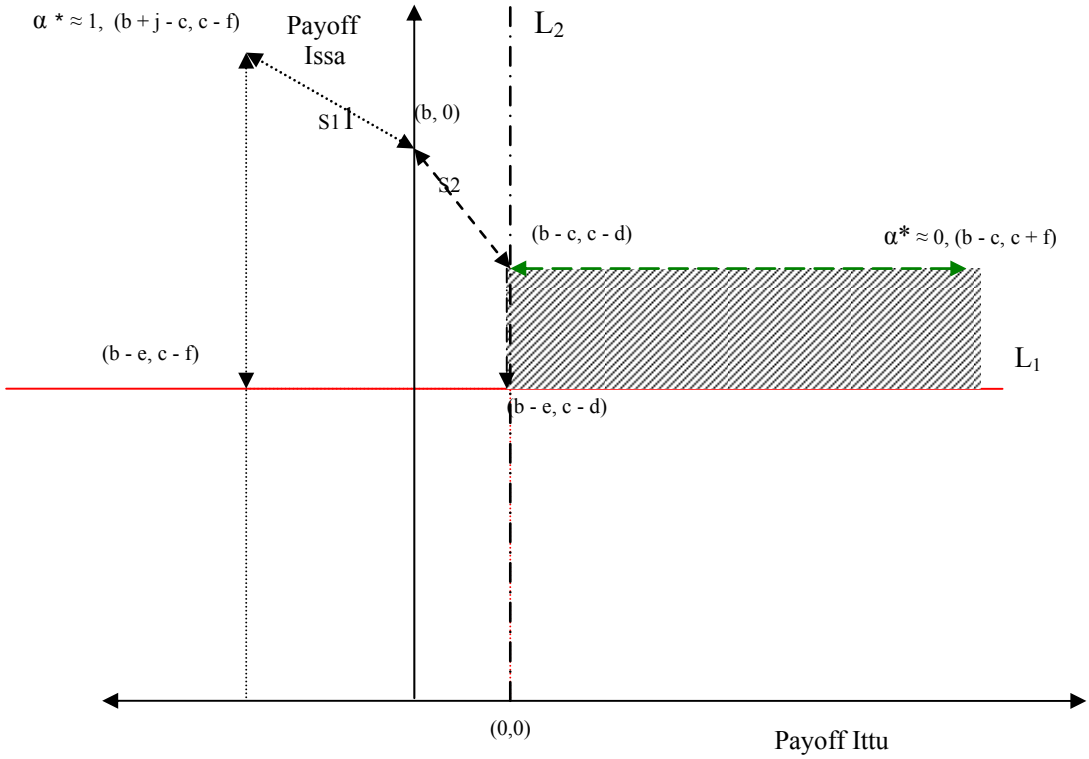

Figure 3: Equilibria for Intermediate Rates of Attacks [4]

Source: Own presentation

If we assign the range of payoff parameters for agropastoralists under partial cooperation to be γ and that of pastoralists as μ, there is multiple equilibria under repeated game that combines payoffs for different values of γ and μ in the interior; in short, $c - d \leq \gamma \leq c + f$ and $b - e \leq \mu \leq b - c$. Whatever effort is made by agropastoralists, partial cooperation under power asymmetry can be sustained if γ < μ for every possible combination of payoffs. The reason is pastoralists, as they are specialized in livestock production, depend on the resource more than agropastoralists who integrate crop with livestock. They put higher value on access to common pasture than others.

To retain this or find more efficient outcome, there has to be more endeavor to improve the bargaining position of Ittu. What could be those efforts and from where do they originate?

[4] Just for convenience in drawing, the first entry goes to Issa and then Ittu (Issa, Ittu).

The analysis from the model and, to an equal extent, the descriptions in section five generally point towards the fulfillment of some preconditions. These include: 1) efforts made by Ittu to achieve persistent cooperation from other clans in the district, 2) avoiding incentive for raids because benefit from raids can be invested in conflict resources shifting equilibria to the right and 3) strong initiative of Issa to negotiate on property rights. Moreover, the findings show that unless the pre-conditions stated in number (2) and (3) are addressed through state intervention, the bargaining power of the agropastoralists will remain lower or nil. As a result, inefficient use of grazing resource continues.

7 Delineation of Rights to the Grazing Land

The previous sections explain the detrimental effect of insecure property rights in which insecurity constrains the conversion of pasture into wealth. What type of property rights arrangement is required to ensure security of rights? There are some insights from empirical and theoretical literature. While some emphasize on the establishment of formal institutions for negotiation (Scoones 1994), others suggest it to be left to the pastoralists themselves given that they are self-organized (Sylla 1994). There are cases indicating the success of customary institutions in avoiding exclusive rights to a resource by arranging access year round and undermining the incidence of conflict (Thebaud and Batterbury 2001). However, when conflict becomes acute and internal capacity is limited, the creation of new institutional structures supporting the co-existence of formal and informal rules can be effective (Cousins 1996).

There is no obvious and easy answer to the question posed above. But there are some theoretical views as well that provide some hints. Two of them are pertinent to the situation being examined here. The first suggests establishing “a clearly defined boundary” because rights granted along with observable and unchanging boundary will reduce enforcement costs of those rights (Ostrom 1990). The second view puts conditionality under which this is practical. That is, a well-defined boundary applies when flow of benefits is predictable and groups relying on a resource are stationary. However, when there are large variations in benefit flows and the group relying on the resource system is mobile, then resource boundaries should be fuzzy to accommodate variations in group needs and resource flows (Agrawal 2001). The implication of this is that rights have to be defined in accordance with the resource condition each time when claims are made. This second view coincides with the idea of the new rangeland ecologists that proposes territorial boundaries to remain fuzzy in order to provide margins of maneuver (Behnke, et al. 1993; Behnke 1994).

These lessons have an implication for delineation of rights to the contested land. While the first view implies a need for the state to establish group rights, perhaps based on identity, the second concept implicitly carries the assertion that the state has to enhance the capacity of customary institutions to define various kinds of rights based on resource users' need, i.e. flexibility, as suggested in most empirical works (Goodhue and McCarthy 1999). If institutions for flexible access options are not in place, the excluded group suffering from increased vulnerability at a point in time encroaches upon the other with relatively better pasture. To induce flexibility, the findings suggest involvement of the state or any third party to improve the relative bargaining position of the weak group, as persistence of power asymmetry has become a threat to stability. Unstable Nash Equilibrium from the game theoretic model reflects on the embeddedness of this attribute.

8 Concluding Remarks

Resource use conflict is neither the outcome of one time interaction nor typical and costly when the domination of one party over the other is low. The paper examines causes of conflict and identifies factors supporting or inhibiting customary institutions in managing resource conflict. Evidence from the narrative shows embeddedness of interdependent situational variables that are central to development of the conflict. Some of these are economic incentive associated with livestock raids, power asymmetry, changes in land use through the state intervention and breaching of customary norms. An increase in level of raids is explained by power asymmetry. In traditional pastoral societies, livestock raiding was believed to play a crucial role in redistributing wealth provided that groups undertake retribution. This would create system stability. However, the findings of this study indicate unidirectional flow of benefits from raids under condition of power asymmetry. For instance, the game theoretic model explains how the powerful group systematically exchanges livestock raids with benefits of the weak group from the grazing land. In that sense, livestock raid is not necessarily meant to discourage resource use by agropastoralists. This leads to the conclusion that livestock raids are unpredictable.

The findings also showed that a rise in the level of raids prevents the weak party from using contested communal land. As far as the agropastoralists rely mainly on livestock as livelihood source (direct source of food, soil fertility improvement and traction power), raids can increase vulnerability to food insecurity and poverty either through asset losses or by restricting access options and causing localized range degradation. As a result, livestock production remains constrained. For the strong party, flexibility between violence and

negotiations secures economic gains. Meanwhile, this condition limits the capacity of customary institutions to manage the conflict.

Therefore, in a mobile (agro) pastoral resource use system where distinct ethnic groups are characterized by power asymmetry, traditional authority has limited capacity to enforce property rights to grazing resource and manage conflict. The narratives and models have shown that the difference in users' attributes does not open much room for bargaining and negotiation to lead to stable rules of resource use. In addition, the costs and benefits from conflict are not equally distributed between the two.

Can the state do anything? Insights from the findings show that delimiting strict boundary between the two has little meaning. The state can play a central role in facilitating the definition of property rights, by building the capacity of clan elders, through which local level negotiations will create a means for flexible access to the grazing resource. This is desired as different patches of range resources have different economic values for a set of users in different periods depending on livestock species kept. This may not be realized without devising step-wise effective political measures. The first step should be to discourage livestock raid that frequently happens to be a conflict trigger. These measures may break or, at least weaken, the link between dispute and violent forms of property rights conflict. The second measure needs to be a change in the state role from mediation to facilitation of rule enforcement and internal negotiation of rights.

As stated earlier, the pastoral group claims access to grazing land based on historical and customary basis without considering state allocation of land for the agropastoralists because the state intervention in this aspect has put pressure on the grazing commons. However, the establishment of internal negotiation on rights, as suggested here, can affirm the recognition of customary rights of both ethnic groups. The success of this is determined by the extent to which the state law gives a backup and enables local state agencies work closely with customary leaders. The experiences from many countries have indicated the success of such an approach in managing resource conflict among different groups (Haro and Doyo 2004; Vedeld 1998; Hussein et al. 1999).

References

Agrawal, A. (1997). Followers and Leaders among Raika Shepherds in Western India: A Principal-Agent Perspective. *Journal of Theoretical Politics* 9 (2), 235-63.

Agrawal, A. (2001). Common Property Institutions and Sustainable Governance of Resources. *World Development* 29(10), 1649-1672.

Ahmed, M., Azeze, A., Babiker, M. and Tsegaye, D. (2002). The Post-Drought Recovery Strategies among the Pastoral Households in the Horn of Africa: A Review. Development Research Report Series No. 3. Organization for Social Science Research in Eastern and Southern Africa (OSSREA). Addis Ababa.

Babiker, M. (2001). Resource Competition and Conflict: Herder/Framer or Pastoralism/Agriculture. In: In: Mohamed, M.A., Dietz, T. and Ahmed, A. G (eds.). *African Pastoralism: Conflict, Institutions and Government.* OSSREA,135 –167.

Baars, R.M.T and Mussa, Said (1999). Pastoralists' Perception Towards Rangeland Degradation: A case study in Shinille Zone, Eastern Ethiopia. Workshop Proceedings. *Ethiopian Society of Animal Production.* Addis Ababa, Ethiopia.

Bates, H.R., Greif, A., Levi, M., Rosenthal, J. and Weingast, B. (2000). Analytic Narratives Revisited. *Social Science History* 24 (4), 685-696.

Bates, H.R., A. Greif, M. Levi, J. Rosenthal and B. Weingast (1998). *Analytic Narratives*. Princeton: Princeton University Press.

Bebbington, A. (1999). Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty. *World Development* 27(12), 2021 – 2044.

Bogale, A. and Korf, B. (2005). To Share or not to Share: (Non-)Violence, Scarcity and Resource Access in Somali Region, Ethiopia. Institutional Change in Agriculture and Natural Resources (ICAR) Discussion Papers No. 10. Humboldt University of Berlin.

Collier, P. (2000). *Economic Causes of Civil Conflict and their Implication for Policy*. World Bank: Washington DC.

Coppock, D.L. (1994). The Borana Plateau of Southern Ethiopia: Synthesis of Pastoral Research, Development and Change 1980-91. ILCA Systems Study 5. Addis Ababa: International Livestock Centre for Africa.

Cousins, B. (1996). Conflict Management for Multiple Resource Users in Pastoralist and Agropastoralists Contexts. *IDS Bulletin* 27(3), 41-54.

FDRE (2005). Federal Democratic Republic of Ethiopia Rural Land Administration Use Proclamation. Proc. No. 456/2005. Addis Ababa, Ethiopia.

Gebre, Ayalew (2001). Conflict Management, Resolution and Institutions among the Karrayyu and their Neighbors. In**:** Mohamed, M.A., Dietz, T. and Ahmed, A. G (eds.). *African Pastoralism: Conflict, Institutions and Government*. OSSREA, 81 – 99.

Gibbons, R. (1992). *Game Theory for Applied Economists*. Princeton University Press. Princeton, New Jersey.

Goodhue, R.E. and N. McCarthy (1999). Flexible Access: Modeling Grazing Rights. In: McCarthy, et al. (eds.) *Property Rights, Risk and Livestock Development in Africa.* International Food Policy Research Institute. Washington, D.C., 191 – 211.

Hagmann, T. (2004). The Rationality of Political Instability in The Somali Region of Ethiopia, 1991-2003. Paper Presented At The African Studies Association (Asa) UK Biennial Conference "Debating Africa", Goldsmiths College, University Of London.

Hagmann, T. (2005). Confronting the Concept of Environmentally Induced Conflict. *Peace, Conflict and Development*. Issue six. January 2005.

Haro, G.O. and Doyo, G.J. (2004). Linkages between Community, Environmental and Conflict Management: Experiences from Northern Kenya. *World Development* 33(2), 285-299.

Hendrickson, D., R. Mearns and J. Armon (1998). The Changing Nature of Conflict and Famine Vulnerability: The Case of Livestock Raiding in Turkana, Kenya. *Disasters* 22(3), 185 – 199.

Homer-Dixon, T. (1994). Environmental Scarcity and Violent Conflict: Evidence from cases. *International Security* 19 (1), 5-40.

Homer-Dixon, T. (2001). *Environment, Scarcity and Violence*. Princeton: Princeton University Press.

Huggins, C. (2003). Ecological Sources of Conflicts in Sub-Saharan Africa: Linking theory to practice. *Eco-conflicts Policy Brief*. Vol. 2, No.3. African Center for Technology Studies (ACTS) Press. Nairobi, Kenya, 8 pages.

Hussein, K., Sumberg, J., Seddon, D. (1999). Increasing Violent Conflict between Herders and Farmers in Africa: Claims and Evidence. *Development Policy Review* 17, 397-418.

Kassa, G. (2001). Resource Conflicts among the Afar of North-East Ethiopia. In: Mohamed, M.A., Dietz, T. and Ahmed, A. G (eds.) *African Pastoralism: Conflict, Institutions and Government*. OSSREA,145 -167.

Knight, J. (1992). *Institutions and Social Conflict*. Cambridge: Cambridge University Press.

Kratli, S. and Swift, J. (1999). Understanding and Managing Pastoral Conflict in Kenya: a Literature Review. Mimeo. Institute for Development Studies. University of Sussex.

Lane, C. and Moorehead, R. (1994). New Directions in Rangeland Tenure and Policy. In: I. Scoones (ed.) *Living with Uncertainty: New directions in pastoral development in Africa.* London: Intermediate Technology Publications, 1- 36.

McGinnis, D.M. (1999). Conflict Dynamics in a Three – Level Game*: Local, National and International Conflict in the Horn of Africa*. 33rd North American meeting of peace science. The University of Michigan. Ann Arbor Michigan, 17 pages.

Morrow, J.D. (1994). *Game Theory for Political Scientists*. Princeton University Press. New Jersey.

Ostrom, E. (1990). *Governing the Commons: the Evolution of Institutions for Collective Action.* Cambridge University Press.

Opschoor, J.B. (2001). Towards Security, Stability and Sustainability oriented Strategies of Development in Africa. In: Mohamed, M.A., Dietz, T. and Ahmed, A. G. (eds.) *African Pastoralism: Conflict, Institutions and Government*. London: Pluto Press, 23 – 38.

Otim, O.P. (2002). Scarcity and Conflict in Pastoral Areas: A look at the other Side of the Coin. In: Babiker, M. (ed.). Resource Alienation, Militarization and Development: *Case studies from east African drylands*. OSSREA: Addis Ababa, 105 – 117.

Scoones, I. (1994). New Directions in Pastoral Development in Africa. In: I. Scoones (ed.) *Living with Uncertainty: New Directions in Pastoral Development in Africa.* London: Intermediate Technology Publications, 1 – 36.

Skaperdas, S. (1992). Cooperation, Conflict and Power in the Absence of Property Rights. *American Economic Review* 82 (4), 720 – 739.

Sylla, D. (1994). Pastoral Organizations for Uncertain Environments. In: I. Scoones (ed.) *Living with Uncertainty: New Directions in Pastoral Development in Africa*. Intermediate Technology Publications. London.

Taylor, M. (1987). *The Possibility of Cooperation*. New York: Cambridge University Press.

Thebaud, B. and S. Batterbury (2001). Sahel Pastoralists: Opportunism, Struggle, Conflict and Negotiation: A Case Study from Eastern Niger. *Global Environmental Change* 11, 69-78.

Vanderlinden, J. P. (1999). Conflicts and Co-operation over the Commons: A Conceptual and Methodological Framework for Assessing the Role of Local Institutions In: McCarthy, N., Swallow, B., Kirk, M. and Hazell, P. (eds.) Property Rights, Risk and Livestock Development in Africa. International Food Policy Research Institute, 276 – 296.

Vedeld, T. (1994). The State and Rangeland Management: Creation and Erosion of Pastoral Institutions in Mali. Dryland Networks Programs. IIED Paper No. 46.

Vedeld, T. (1998). State Law versus Village Law: Law as Exclusion Principle under Customary Tenure Regimes. Paper presented at "Crossing Boundaries," the seventh annual conference of the International Association for the Study of Common Property, Vancouver, British Columbia, Canada, June 10-14, 1998.

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