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Conflict between farmers and herders in the semi-arid Sahel and East Africa: A review

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CONFLICTS BETWEEN FARMERS AND HERDERS IN THE SEMI-ARID SAHEL AND EAST AFRICA

A review

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Abbreviations

CNRA	Centre National de Recherche Agronomique
CIHEAM-IAM-M	Centre International des Hautes Etudes Agronomiques Méditerranéenes-Institut Agronomique Méditerranéen
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CPR	Common Property Resources
CPRM	Common Property Resource Management
EU	European Union
ICRA	International Centre for Research in development-oriented Agriculture
IDS	Institute of Development Studies, Sussex
IEMVT	Institut d'Elevage et de Médicine Vétérinaire des pays Tropicaux
IFAD	International Fund for Agriculture and Development
IIED	International Institute for Environment and Development
ILCA	International Livestock Centre for Africa
ILRI	International Livestock Research Institute (formerly ILCA)
INRA	Institut National de Recherche Agricole
IRAM	Institut de Recherches et d'Applications des Méthodes de Développement
NAFCO	National Agriculture and Food Corporation (Tanzania)
NGO	Non-governmental organisation
NRI	Natural Resources Institute
NRM	Natural Resource Management
ODI	Overseas Development Institute
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer
PENHA	Pastoral and Environmental Network in the Horn of Africa
SODEPRA	Société de Développement des Productions Animales (Ivory Coast)
ZAGROP	Agro-Pastoral Action Areas

PREFACE

This document is based on a report presenting the results of research undertaken by the Overseas Development Group, School of Development Studies, University of East Anglia through a grant from the Livestock Production Research Programme of the UK Department for International Development. The research was conceived and directed by Dr James Sumberg and Professor David Seddon of ODG.

The study could not have been completed without the cooperation of a great many individuals and institutions world-wide. While these cannot all be listed here, we wishes to thank all those involved for their helpful cooperation. It is appropriate, however, to register here particular acknowledgement of the assistance received from the following individuals and institutions.

First, the following institutions in the UK and overseas provided facilities and access to their documentation centres to ensure that the literature reviewed was as full as possible: the International Livestock Research Institute for Africa provided accommodation and full access to research staff and documentation in Addis Ababa, Ethiopia; the field director of Swedish Save the Children in Addis Ababa provided access to documents and helpful contacts; several development research institutions in Montpellier, France allowed access to their documentation centres and provided material support (the International Centre for Research in development-oriented Agriculture; CNEARC; CIRAD; ORSTOM; the SYFIA network; la Maison du Tiers Monde); IFAD in Rome provided office space and access to project and other documents; and finally, in the UK, IDS, Sussex, IIED, London, and the Overseas Development Institute, London, provided access to their documentation.

Second, certain individuals entered into a very fruitful dialogue which informed many of the arguments put forward in this paper. In particular, I wish to thank the following individuals for their concerned assistance and contributions to the development of the arguments in this report: Dr. Abate Tedla of the ILRI Highlands Programme, Addis Ababa; Per Tamm, Field Office Director, Swedish Save the Children, Addis Ababa; Dr. Alula Pankhurst of Addis Ababa University; Dr. Jeremy Swift and Dr. Ian Scoones of the Institute of Development Studies at the University of Sussex; Dr. Camilla Toulmin of the International Institute for Environment and Development, London; Dr. Nour Eddine Sellamna of ICRA-Montpellier; and André Marty of IRAM, Montpellier.

Lastly, it is necessary to add an important disclaimer. In spite of the crucial assistance of all those noted above, the authors take full responsibility for the content and analysis contained in this draft study. None of those mentioned is in any way responsible for the content of the report, and indeed, some will be disappointed that it has not been possible here to do justice to all the issues they raised in discussion with the authors.

INTRODUCTION

The core problem

This study is concerned with conflict and competition over natural resources between crop farmers and livestock keepers in semi-arid Africa, in particular the Sahel and East Africa. Relations between crop farmers and livestock keepers in Africa have been the subject of academic and development policy interest since the establishment of colonial rule in Africa (see Webb 1995). Relations between these groups have been characterised by some as mutually beneficial and complementary, by others as competitive and by yet others as inherently conflictual. Several analysts see tensions, competition and conflict around natural resources as present throughout the region (e.g. Mathieu 1995). There is a general perception that conflict between these groups has increased, especially since the droughts of the 1970s and 1980s.

Much of the recent literature argues that this "increasing conflict" is largely due to two factors: (i) changing patterns of use and increasing competition for resources, and (ii) the breakdown of "traditional" mechanisms governing resource management and conflict resolution. These arguments have been used to support claims that development policies need to address and mitigate conflict, with recommendations including grazing reserves, pastoral associations and wide ranging land tenure reforms (see Bassett 1986; Scoones 1994; Vedeld 1994). Most of these recommendations are based on a view that herding populations have been marginalised in a policy environment that is biased towards sedentary agriculture. Recommendations also advocate a shift in powers and responsibilities to local management of resources by strengthening or adapting traditional institutions (e.g. Lane and Moorehead 1994), limiting the role of the state to general enabling functions, such as land reform, mediation and conflict resolution.

Two perspectives

The literature reveals two perspectives on farmer-herder relations. The first notes that relations between farmers and herders have always moved between cooperation, competition, and conflict. This apparent paradox was neatly summarised by Gallais in his detailed studies of relations between farming and herding communities in Mali. In much of the Sahel, farmers and herders retain their distinctive identities, compete for limited natural resources, but also rely

on each other for the provision of essential services and products. This interdependence results in close socio-political relations between communities.

> *"La condition sahélienne traditionelle repose sur l'opposition sédentaires-nomades. Il a été bien observé qu'à l'intérieur de chacune de ces deux humanités, les relations socio-politiques intègrent des groupes variés: des villageois paysans chez les nomades, de petits nomades associés chez les sédentaires. Cependant la dualité est nette et elle se traduit à la fois en termes de relations conflictuelles et d'échanges économiques traditionels".* (Gallais 1975:219)

Conflict over natural resources between farmers and herders is noted to be a chronic problem in many countries (Adams and Bradbury 1995:37), yet close social and economic relations have also been historically present, thus *"...distrust and dislike are.....as much part of their relationship as mutual appreciation..."* (van Raaij 1974:23). As with most social relations, there are multiple facets to the coexistence of herders and farmers, which evolve over time and as circumstances change.

The second perspective sees conflict as a central concern for development research and practice (see, for example, Swift (ed.) 1996; Adams and Bradbury 1995), and environmental scarcity is being promoted as a main explanatory variable for violent conflicts in Africa (e.g. Homer-Dixon 1994; Bennett (ed.) 1991). Major donor countries such as the USA are now concerned with the degree to which violent conflict and war in Africa are caused by environmental degradation and resulting conflicts of interest over natural resources (Greenhouse 1995). The way in which this theme is becoming dominant in policy discussions is illustrated by an impressive series of international workshops and conferences, for example: northern non-governmental organisations have organised workshops, conferences and commissioned studies on the importance of conflict issues in development (Adams and Bradbury 1995:66); the Food and Agricultural Organisation of the United Nations organised an E-mail conference involving hundreds of academics world-wide which addressed natural resource conflicts within the context of community forestry; and the "Third International Technical Consultation on Pastoral Development", hosted by the European Union (EU) in Brussels in May 1996, at which policy responses to natural resource conflicts were discussed. In addition, governments of African countries in semi-arid Africa have shown mounting concern over the disruptive and destabilising effects of such conflicts by organising high profile consultations on farmer-herder relations. For example, the

Governments of the Ivory Coast and Mali independently organised national level workshops in 1994 on farmer-herder conflicts and possible policy responses (République de Côte d'Ivoire 1994; République du Mali 1994). It is thus widely believed that farmer-herder conflict is now more acute and action to reduce it is required from policy makers.

The second perspective is rapidly taking on the character of a "conventional wisdom". Assertions that conflict has been increasing in recent times are used to promote "new" rural development policies: for example, the establishment of pastoral associations, securing land use rights, and the establishment of new structures for conflict resolution.

This idea of "increasing conflict" implies a changed state of relations between farmers and herders which demands new policy responses. However, if relations normally change between cooperative, competitive, and conflictual due to a mix of factors, then changes in development policies may be misguided and may even have adverse consequences.

Structure and focus of this study

The two main hypotheses that will be tested in the study can be summarised as follows:

(i) The level and type of farmer-herder conflict have significantly changed and increased over time in semi-arid Africa;

(ii) Existing or "traditional" mechanisms for dealing with natural resource disputes are less and less able to resolve disputes between herders and farmers, prompting the need for new policy approaches.

This study assesses whether the claims of increasing conflict are supported by an analysis of the empirical data and research available from both the francophone and anglophone areas of semi-arid Africa. The view that increasing conflict can be explained by the gradual breakdown of traditional mechanisms for dealing with natural resource management and disputes will also be analysed.

Such an analysis requires an empirical study of relations *over time* between particular farming and herding groups. As Adams and Bradbury (1995:36) note, conflict must be understood as a "*historical process that is mediated by*

socio-political and economic structures, at a micro and macro level". Thus, this study is based on the proposition that any theoretical approach to explaining farmer-herder relations in semi-arid Africa must be drawn from the analysis of the empirical evidence available. Given that scarcity of natural resources is only one of many factors mediating farmer-herder relations, an attempt will be made to analyse the multiple causes of conflict between farmers and herders. This will be supplemented by selected case studies where historical data on the evolution of farmer-herder relations are available. Finally, implications of this review for the policy debate will be discussed.

The study does *not* examine those areas of semi-arid Africa beset by long term political conflicts (e.g. Somalia, Sudan, Chad) as these conflicts cannot easily be causally linked to competition for natural resources between users. These are conflicts involving complex local, national and international interests, and such complexity would detract from the central objectives of this study. In addition, case study material from the arid areas of North Africa and the Maghreb has not be studied in detail. However, unlike many studies of farmer-herder relations in Africa, the study draws on the literature and experience from both francophone and anglophone countries of sub-Saharan Africa.

BOUNDARIES OF THE STUDY

Farmers and herders

The literature on African agriculture and livestock production systems shows the difficulty of trying clearly to separate farmers and herders into two distinct groups. For example, research has shown that there is an on-going homogenisation of production systems in semi-arid Africa, with farmers increasingly keeping livestock and herders increasingly engaging in crop cultivation (Toulmin 1983a and 1983b: 37-3). Zuppan (1994) points out that while farmers and herders retained broadly separate identities in colonial times, the differences between farmers and herders were exaggerated and their relations often wrongly explained in terms of ethnic conflict. Diallo (1995) goes further by arguing that farming and herding production systems are so mixed today that all can be called agropastoralists.

Gallais (1975:185-190) provides a detailed analysis of the various ways in which researchers have tried to classify farmers and herders into a multiplicity of categories depending on the degree of sedentarisation of populations and the relative importance of cultivation and livestock keeping to their livelihoods. Common classifications have been summarised by Woldemichael (1995):

> *nomadic pastoralism*: farmers who depend largely on animal production for their livelihoods, have no fixed residence due to a need for mobility to search for grazing and water resources, and practise crop production only as a supplement to livestock-raising;
>
> *transhumant pastoralism*: farmers who practise both livestock rearing and crop cultivation, who follow a particular movement with their herds over fairly regular routes, but maintain a "home area" where they settle for part of the year;
>
> *agro-pastoralism*: farmers who gain their livelihoods from crop production and animal husbandry in about equal proportions, live in semi-permanent settlements, and supplement farming activities with other income earning activities as required;
>
> *sedentary farmers*: farmers living in permanent settlements gaining their livelihood mainly from crop production, with domestic animals providing supplementary income.

While these distinctions may be useful in a theoretical analysis of production systems, many have pointed to the practical difficulty of differentiating between groups in this way. In his detailed study of farming and herding in the Inland Delta of the Niger River in Mali, Gallais (1975) shows the difficulty of classifying people as farmers or herders given that herders have often moved between sedentary lifestyles (including cultivation) and nomadic herding. Woldemichael himself argues that a process of homogenisation of production systems, from nomadic pastoralism to sedentary farming, is occurring naturally due to various pressures (population increase, drought, government policies, inter-ethnic rivalry...). This view is supported by Pelissier (1977) who observes a deep process of cultural and technical blending between crop cultivation and livestock production systems in the Sahel, and by Bourn and Wint (1994) who show that with a general movement of livestock from northern to southern regions of the Sahel an initial coexistence has been followed by a "*...gradual integration of animal husbandry within local farming systems*" pointing to an autonomous intensification of agriculture. In semi-arid regions of East Africa the distinction between groups practising herding and farming may at first appear to be more meaningful, but as Fre (1992:162-163) points out, even in East Africa, farming and herding are often pursued at the same time by a particular group: the two systems therefore "*...coexist or interdepend*". Finally, Winrock International (1992), in a report for the World Bank, portray the process of integration between crop and livestock systems in semi-arid Africa as a natural evolution, an inevitable response to rising population pressures to increase off-take from a fixed area of land in a more efficient and sustainable way.

Thus, we must recognise that the terms "farmer" and "herder" are not static, and that there are varying combinations of crop cultivation and livestock rearing hidden within these categories.

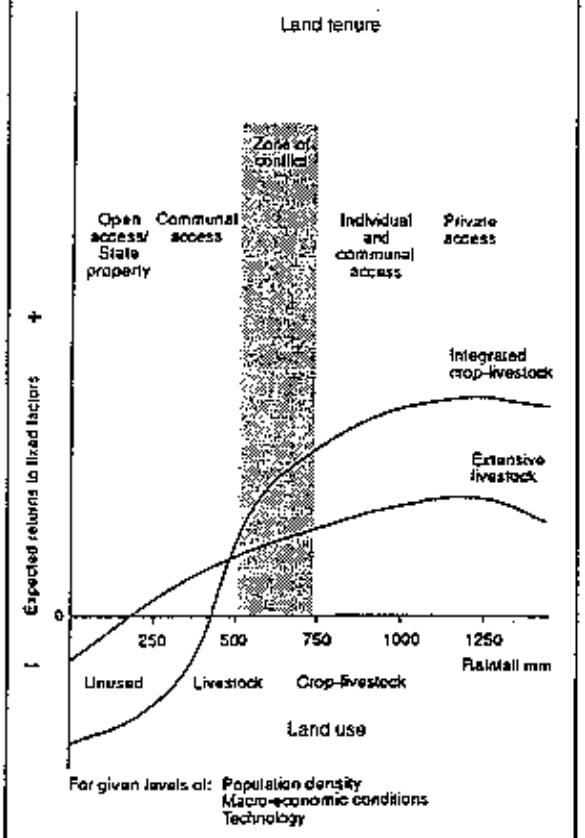
In this report the terms "farmers" and "herders" will generally be used, but where further clarification is necessary to identify precisely which parties are in conflict or where nuances of production systems contribute to conflict, more specific terms will be used.

Semi-arid Africa and the Sahel

This study sets out to investigate farmer-herder conflicts in arid and semi-arid Africa, which is estimated to contain about 60% of all ruminant livestock and represents up to 60% of Africa's total land mass (Scoones 1994:2; Helland

1990). Scoones argues that farmer-herder conflict is likely to be most acute in the semi-arid zone (500-750mm average rainfall per year), which falls between the arid lands where only livestock-based production systems[1] are possible, and more humid zones that can support crop-livestock production systems (see Figure 1) (1994:24-26).

Figure 1. The Swallow model



Source: Scoones 1994:24

It is, according to Bernus (1974), this region between the Saharan and Sudanian zone that favours contact between farmers and herders as it is prime ground for both finding new pastures and expanding crop cultivation.

These areas often contain strategic resources on which pastoral production systems depend during dry seasons or droughts (e.g. dry season grazing, salt licks and permanent or seasonal water sources); they are also areas that tend to exhibit both communal and individual land tenure and access regimes.

An important characteristic of semi-arid regions that affects the livelihood strategies of crop and livestock farmers is the low level and *unreliability* of rainfall, bringing a short rainy season and recurrent droughts during which the rains have sometimes totally failed (e.g. 1910-1914; 1940-44; 1968-74; 1979-84) (Bennett 1991:13). Other characteristics include the fact that grazing resources are found in different places at different times, which profoundly affects herders' strategies: thus, pastoral-

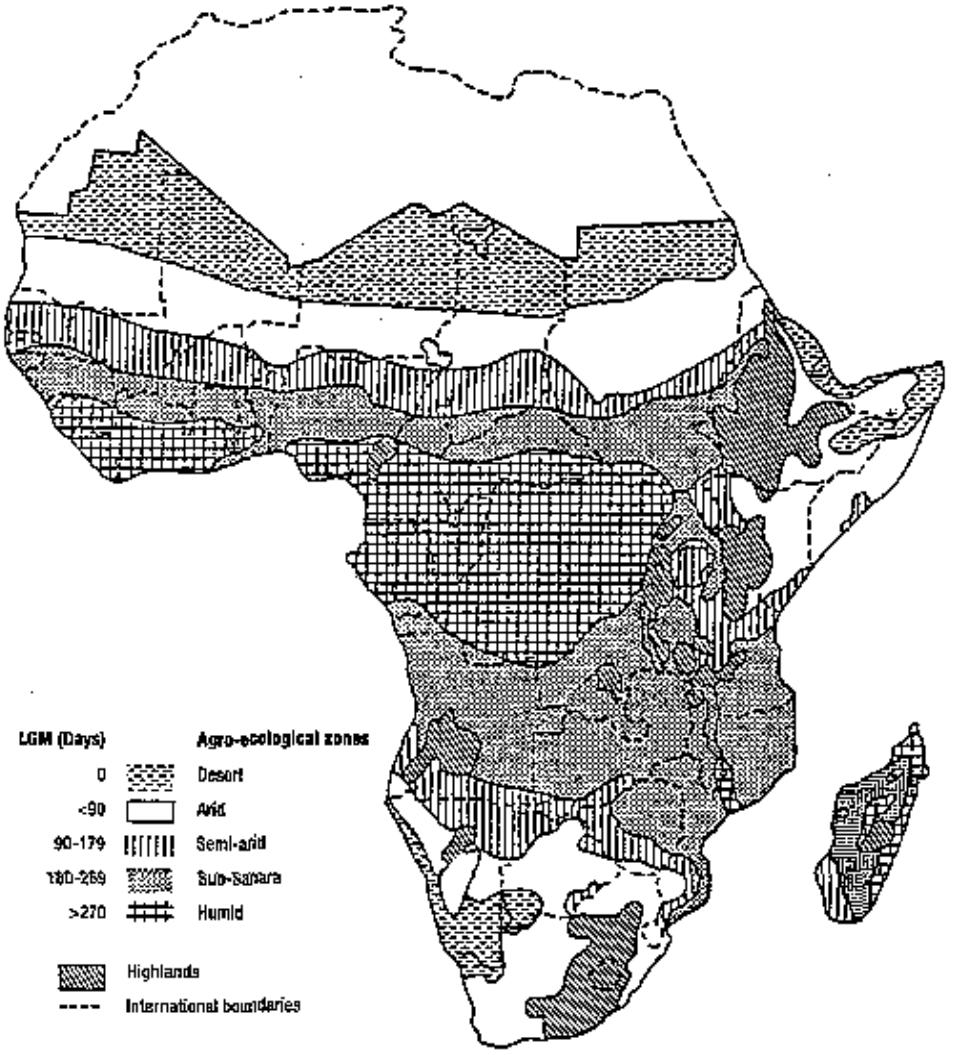
1 A "production system" is considered to include both the levels of the individual farm and of a group of producers (what is sometimes distinguished in the literature as a "farming system"). Thus it refers both to 'an ensemble of products (crops, livestock) and of factors of production (land, labour, capital) at the level of the farm, which the producer manages to satisfy his socio-economic and cultural objectives' *and* 'the production and consumption decisions common to a group of farms with similar environmental conditions which are farmed in a similar manner with regard to types of enterprise and farming practises' (Mettrick 1993).

ists tend to prioritise mobility and opportunistic resource use, which may produce conflicts with sedentary crop farmers. Earlier literature referred to these pastoralist strategies as highly adaptive and based on a "profound symbiosis" (Toupet 1975:463) between herders and environmental conditions of risk and uncertainty, which have ensured the persistence of pastoralism over centuries. Finally, many semi-arid regions of Africa have experienced a consistent expansion of cultivated land over the last twenty years which has eaten away at the area available for grazing (Bennett 1991:12).

Definitions of the "semi-arid zone" differ between researchers. McCown *et al.* describe semi-arid Africa as the strip north of the equator, but below the Sahara desert, stretching from coast to coast across sub-Saharan Africa and characterised by an annual rainfall of 250-800 mm. While it is accepted that East and West Africa have different rainfall patterns, it is argued that interactions between cultivation and livestock are not affected (McCown *et al.* 1979). Those areas with below 250 mm annual rainfall are classified as "arid" and those with more than 800 mm as "sub-humid" (see also Christiansson *et al.* 1991). Sidahmed (1996) quotes the somewhat different definition used by the Food and Agricultural Organisation of the UN: semi-arid areas are those with annual rainfall of 300-600 mm; arid areas are those with less than 300 mm rainfall. Finally Jahnke (1982:17) and Winrock International (1992) both present the following definition: less than 500 mm: arid; 500 mm -1000 mm: semi-arid; 1000 mm -1500 mm: sub-humid.

While this study accepts that semi-arid regions are the most likely arena for resource disputes between farmers and herders, there are also important examples of farmer-herder conflict in more humid areas (Winrock International 1992). It is especially relevant to include these areas in a study of recent trends in farmer-herder relations given the general migration south of herds in the Sahel since the 1970s (Bourn and Wint 1994). Thus, this study will analyse farmer-herder relations in regions of Africa with rainfall ranging from 250 mm to 1500 mm – using the broadest interpretations of semi-arid and sub-humid areas presented above (see Figure 2). The area of study therefore includes, but is larger than, the area known as the Sahel, or the border of marginal land 500-100 km wide separating the Sahara from the tropics, stretching from Senegal to the Red Sea (Bennett 1991:9). It includes areas of the sub-humid zone in the strip below the Sahel (those with 1000-1500 mm rainfall per year) and northern areas of Tanzania and Kenya with semi-arid climates, and drier areas of Ethiopia as they provide important case study material of tensions between farmers and herders, herders and herders, and between herders and the State.

Figure 2. Sub-Saharan Africa: main agro-ecological zones



Interaction between farmers and herders

Interaction between crop and livestock production systems

There is not only competition at the level of the production system for key natural resources, but also complementarity. Barth (1973) compares the two production systems and finds the following similarities and differences which, depending on the context, can contribute to competition or can be factors encouraging complementarity:

similarities:
* both systems require the same production factors
* normally no expenditure of capital for the right to use land.

differences: * capital requirements for subsistence higher in pastoralism (herds) than in crop cultivation (seeds, equipment and draft animals).

McCown *et al.* (1979) see both "positive" and "negative" historic relations between crop and livestock-based production systems. Positive relations include *ecological linkages* (crop residues may be worth little to farmers but a valuable source of fodder for herders; manure has great value to farmers; while there are benefits to farmers of grazing animals breaking up ridges in fields) and *exchange linkages* (herders exchanging milk, meat and hides for millet and sorghum; herders tending farmers' herds; payment for crop residues and manure). Pelissier (1977) notes the strong interdependence between cropping and livestock rearing production systems illustrated by the prevalence of Acacia albida stands throughout the Sahel: plantations of Acacia albida trees are intended to attract herds to eat the foliage and fruit of the trees – a rich source of nutrients in the dry season – while at the same time ensuring the deposit of manure on surrounding fields to improve soil fertility.

By contrast, *competitive linkages* are characterised as negative. Where a resource is suitable to both agricultural and pastoral production, the relative political power of farmers and herders determines the pattern of natural resource use. Given recent trends of increasing land scarcity due to increasing population in semi-arid Africa, McCown *et al.* (ibid.) conclude that political power has favoured cultivators who have increased cultivated land area at the expense of the best dry season grazing lands. Farmers are also challenging "free" or "controlled" access land tenure regimes common in traditional grazing areas to establish their own exclusive access to land. This, it is argued, has led to tensions and legal conflicts arising between farmers and herders, especially in the post-harvest period because of damage caused to late maturing crops. However, competition does not necessarily produce violent conflict. Competition can result in the *adaptation* of livelihoods, particularly in terms of specialisation, *reducing* the likelihood of conflict. Barth (1973) notes that adaptation is likely under certain conditions: successful farmers are likely to invest surplus in livestock; and unsuccessful pastoralists are likely to resort to farming, leading to the homogenisation of crop and livestock production systems in semi-arid Africa.

Symbiosis, cooperation, and complementarity

"Les agriculteurs et les éleveurs, nous sommes liés et inséparables." (comments of Sahelian farmers and herders cited in Marty 1993:338).

"Fulani and Hausa are like man and wife; they supplement each other." (comments of Hausa farmers and Fulani herders in Nigeria, cited by van Raaij 1974:23).

As already noted, farmer-herder relations have in the past often been characterised as "symbiotic". The term "symbiosis" has also been used to describe the closeness of pastoral production systems to their natural environment (Toupet 1975). "Symbiosis" also implies that herders and farmers cannot survive without each other. In his study of Fulani pastoralists in northern Nigeria, van Raaij adds an important nuance to the concept, stating that symbiosis implies mutually beneficial relations, while enabling both farming and herding communities (sedentary, nomadic or semi-nomadic) to preserve their separate culture and physical identities (1974:23). The preservation of separate identities is a factor that can produce various degrees of social conflict between farmers and herders and therefore states of symbiosis and conflict are not necessarily mutually exclusive.

Examples of symbiotic farmer-herder relations are given by a variety of authors. For example, Bassett (1988:458) shows how Fulani herders have only been able to move south into northern areas of the Ivory Coast (areas avoided in the past due to the presence of tsetse flies) due to the presence of settled farming communities, which has reduced tsetse infestation. It has also been remarked that in Mali herders have traditionally depended on farmers to secure their year-round food supply, given that grains make up a large part of their diet and they often cannot produce sufficient grains themselves (Cissé 1980:319). Van Raaij (1974:22) notes for West Africa how after the Jihad (or religious war) of the early nineteenth century, Hausa farmers and Fulani herders were encouraged to become *more* interdependent: dairy produce, meat, skins and manure were exchanged for grains and implements. This reduced the economic autonomy of both groups, but also enriched both, encouraging some Fulani to settle and integrate with farmers.

Symbiotic relations do not exclude conflicts of interest. In her study of relations between various groups of herders (Fulani, Shuwa, WoDaaBe) and farmers (sedentary Kanuri), Bovin (1985a; 1990) points to a seasonal dimension.

Relations between these groups are symbiotic in the dry season (fields grazed upon are manured. Kanuri buy milk from and employ herders; Fulani buy millet and other agricultural products) but conflictual in the wet season due to crop damage by herds. Some have argued that farmer-herder conflict is becoming *less* likely:

> *...the Sahel seems more and more like the theatre of a genuine economic symbiosis between modes of production that were previously more specialised.* (Pelissier 1977:80)

For Pelissier, increased economic symbiosis between farming and herding production systems is likely to reduce conflicts between farmers and herders.

Other types of relations between farmers and herders occur without there being such a relationship of dependency between the two. The ecological complementarity of farming and herding production systems was described above (see Pelissier 1977). Further evidence of cooperation between the two groups is shown by Bernus (1974, Niger), Basset (1988, Ivory Coast), Moorehead (1991, Mali) and Gallais (1975, Malian Gourma). These traditional forms of cooperation include complex dung/water contracts, entrustment of farmers' cattle to hired herders (Toulmin 1992, Mali) and loan of draught animals to farmers to prepare fields at the start of the rainy season (Moorehead 1991, Mali).

Some of those who argue that conflict between farmers and herders is increasing explain this phenomenon as a result of the breakdown of such traditional ties. There is evidence that, for example, in some areas the practice of entrusting cattle to herders has broken down (southern Burkina Faso, personal observation), or, as in northern Nigeria, only settled Fulani are entrusted with farmers' cattle as the nomadic or semi-nomadic Fulani are less trusted (van Raaij 1974). Marty (1993) argues that with a changing external environment in which meat prices have persistently fallen in relation to grain prices (see also Bernus 1974), cultivated areas have increased, herders have lost access to critical "terroirs d'attache" and the modern State has overtly given more support to crop farming. As a result, farmers' dependence on herders has decreased, leading to the marginalisation of herders and the disappearance of old complementarities. The increasing insecurity of herders' livelihoods has, he argues, fuelled tensions between the two groups (Marty 1996).

In contrast, however, much of the literature still makes reference to these

exchange relations continuing, albeit evolving (e.g. from barter to market relations), in much of semi-arid Africa. Indeed, with the gradual homogenisation of farming and herding production systems, and the increased proximity of the two groups noted previously, it is reasonable to expect that as Pelissier (1977) predicted, these types of cooperation will increasingly displace conflict as a mode of farmer-herder interaction. Even if it is accepted that certain forms of traditional cooperation are breaking down, this may not necessarily lead to more conflict, but, as Ormerod (1978) argues, may result in peaceful adaptation to new circumstances.

Bernus (1974) also illustrates that complementarity does not prevent frequent tensions and occasional conflict between farmers and herders over critical resources, especially when farmers expand cultivated areas and exclude herders from water sources, or when herds damage crops. Further, such complementarity has been a strong feature of farmer-herder relations in the Sahel even in the eighteenth and nineteenth centuries, periods characterised by violent wars between groups and herder domination of farmers in many areas (see Webb (1995) on the Western Sahel). During this period, despite the political domination and enforced slavery suffered by farming populations at the hands of herding populations from northern areas of the Sahel, very deep exchange relations persisted between the two groups. The desert herders depended on savanna farmers for calories, exchanging salt for grain, and for the provision of essential needs such as tent poles, cloth and cooking utensils (Webb 1995:54-55).

Summary

Farmer-herder relations in semi-arid regions of Africa have been historically characterised by close reciprocal ties, so close that at times they have been referred to as symbiotic, or likened to the relations between family members: in some cases as husbands and wives; in others like disputing brothers (i.e. Cain and Abel (van den Brink *et al.* 1991)). It has been argued that such synergistic relations have been disappearing due to breakdown of traditional social ties, with herder-farmer relations becoming more a relationship between equals (Toulmin 1992). However, it is sometimes necessary for farmers and herders to compete for survival, a situation that can lead to conflict becoming the predominant feature of relations between farmers and herders.

Complementarity has always co-existed with competition and conflict. As Guèye argues in his study of Fandene village (Senegal, 1994), farmer-herder

relations move periodically between conflict and alliance depending on changing circumstances. Thus, as in any set of human relations, those between farmers and herders are complex, changing across varying degrees of domination and oppression, exploitation and powerlessness, symbiosis and conflict, trust and fear.

CONFLICTS OF INTEREST, COMPETITION AND VIOLENT CONFLICT

The meaning of conflict

Those who hold that conflict over natural resources is increasing in the developing world, and that conflict between farmers and herders in particular is increasing, rarely provide an adequate definition of the types of conflict to which they are referring (see, for example Oba (1992) on Turkana, Kenya and Moorehead (1991) on the Inland Niger Delta, Mali). This is also true for many of those currently stressing the need for policy interventions to address natural resource conflicts (e.g. Responding to Conflict 1995). "Conflict" is, however, most often used by these authors to imply violent, destructive conflict.

However, conflict has been used to describe a wide range of interactions between farmers and herders over natural resources, interactions that are qualitatively different to each other, often of a distinct nature, and clearly of different degrees of severity. Thus, the umbrella term "conflict" has been used to cover tension between resource users, simple arguments between individuals, disputes between individuals or groups, or with the State, legal proceedings between resource users, political action to evict certain resource users, theft, raiding of livestock, beatings, killing of humans or livestock, and large-scale violence between groups involving multiple killings. However, if claims of worsening conflict are to be properly assessed against empirical evidence it is essential first to disaggregate the notion of conflict. This is a necessary precursor to understanding the causes of conflicts between farmers and herders.

Western notions of conflict classically carry a negative, destructive connotation. Thus authors such as Grimble *et al.* (1995:11) try to separate the concepts of conflict over natural resources from what they refer to as "trade-offs" between different actors wanting access to similar resources. "Trade-offs" are the different positions taken by different interest groups in natural resources in

a particular context: trade-offs "*...between objectives, and the costs and benefits of change and intervention at both macro and micro levels*" (Grimble *et al.* 1995:3). The assumption here is that conflict is negative whereas trade-offs represent the different interests of different stakeholders and can be managed to achieve positive outcomes. However, as several authors have noted, conflict can be positive, indeed a necessary element to achieving change. In contexts where certain individuals or groups are clearly disempowered or oppressed by others, conflict may indicate that the disempowered groups are challenging the prevailing power balance (see Waters-Bayer and Bayer 1995). Further, conflict may be a tool for changing dysfunctional institutions for natural resource management (Mathieu 1995a:3; see also Cousins 1996; Swift 1996). Some form of conflict may be inevitable with change, and it does not always need to be avoided (Bradbury *et al.* 1994).

Conflict is therefore another form of interaction that should not necessarily be seen as negative. Indeed, some argue that it is a form of communication (Mathieu 1995b) and can even be creative. Hence, representatives of local pastoral NGOs in Tanzania attending a workshop on conflict resolution themselves defined conflict as a "*relationship* between two parties who have/think they have incompatible goals" (Bradbury *et al.* 1994; emphasis added).

Natural resource conflict, then can be seen as *"...l'expression normale de la diversité des intérêts en jeu entre différents groupes d'acteurs, faisant appel à des sources de droit différentes"* (Delaloy 1993:7). It can have positive results (e.g. new institutions, new rules, empowerment...) or negative results (e.g. unmanageable change resulting in social breakdown and destructive violence) depending on the context (see also Swift 1996:4).

In this study, conflict is taken to refer to violence of a physical nature so as to clearly distinguish it from conflicts of interest, competition, and their non-violent outcomes. What is now essential is to disaggregate the term conflict to reflect the different types of conflict that take place over natural resources in semi-arid environments so that in the analysis of cases we can distinguish between types of conflict and understand their effects without over-generalisation.

Conflicts of interest

Conflicts of interest[2] must be conceptually distinguished from violent conflicts. "Conflicts of interest" refer to the normal, sometimes oppositional, relationship between actors who have different objectives and interests in the use of resources. Any individuals or groups who co-habit an area and/or use similar resources will potentially have conflicts of interest over the use of patches of land and water. Where such parties have a conflict of interests this may be resolved amicably, through normal channels and systems of arbitration, including litigation. Conflicts of interest however *can* lead to disputes and violence where attempts to resolve the conflict have not satisfied one or other party. As Pelissier points out, a process of increasing "economic symbiosis" between farming and herding in the Sahel can, for some time, be accompanied by increasing conflicts of interest between farming and herding, but not necessarily increasing violent conflict (1977:81).

Conflicts of interest over the appropriation of resources (see Mathieu 1995b) may exist between any resource users (farmers and farmers, herders and herders, herders and farmers or among mixed farmers) using the same resources in a defined area, and may be intra-household, inter-personal, intra-group, inter-group or in some cases involve local users and outside interests such as corporations and the State. Hence Mathieu (1995b) presents different levels of conflicts of interest: between neighbouring village communities; within farmer or herding groups (i.e. between ethnic or socio-economic groups; between individuals or between individuals and a whole village; between villages); between a village community and migrants, later settlers, urban populations or with large-scale herdsmen; and finally, disputes over competence, legitimacy and authority between different centres of decision-making in a local community (e.g. between village chiefs, "chefs de terre", local delegates of the State administration, male household heads, women and younger generations. See also de Leener and Sow 1995).

Moorehead (1991) provides a similar and useful summary of the types of conflict of interest he observed *within* the production systems in the Inland Niger Delta, Mali (Table 1).

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2 What de Boer and Kessler (n.d.) in their study of Fulani herder and Gourounsi farmer relations in Burkina Faso refer to as "domaines d'intérêt" in French

Table 1. Intra-production system conflicts of interest over natural resources: Inland Niger Delta, Mali

Types of producer	Conflicts of interest
Farmers vs. farmers	• high productivity fields (e.g. flood pool resources)
Herders vs. herders	• dry season grazing (Tuareg vs. Fulani)
Farmers vs. herders	• use of wetland resources
Source: Moorehead 1991: 163-166	

The existence of such conflicts of interest implies that competition for the use of key resources is likely to develop between different actors, producing a variety of outcomes.

Conflicts of interest do not always lead to more violent forms of conflict. Lane (1991) describes the gradual expansion of farmland by the Iraqw mixed farmers in Tanzania, into areas previously used by the Datoga herders belonging to the Barabaig group. The Datoga seem to have accepted the Iraqw expansion and have migrated to other areas. A factor preventing a more violent response appears to be the traditional, historic links between the Iraqw and Datoga groups. However, this apparent "acceptance" may just reflect the real dominance of one group over the other and the latter's acknowledgement that they have no recourse.

In summary, then, conflicts of interest exist between *any* resource users (farmers and farmers, herders and herders, herders and farmers) using the same natural resources in a defined area, and may be inter-personal, intra-group or inter-group. They can be seasonal (i.e. access to wetlands in dry season). They are likely to result in competition for resources, but do not necessarily lead to other forms of conflict.

Competition

"Competition" in relation to natural resource use refers to a competitive relationship between two or more parties to acquire access to or control over a resource. No violence is implied. Likely areas of competition between farming production systems and livestock production systems were raised earlier. They include factors on which both groups' livelihoods depend in semi-arid regions: for example, access to and control over land; access to rare and seasonal water resources; and access to dry season grazing. Competition between resource users in the same area is to be expected if the resources necessary to more than one group of users are in short supply. While there is no necessary continuum

from competition to conflict, the outcome of competition can sometimes turn into one of conflict in a given context, depending on the intensity of competition.

Toulmin (1983b) presents an image of competitive demand for pastoral resources in contemporary semi-arid Africa as originating from three users: cultivators; other pastoral groups; and new livestock owners. According to Toulmin, there has been an increase in competition between farmers and herders in this region due to such factors as encroachment of agriculture, or pastoralists' inability to protect key grazing resources due to their lack of influence on the post-colonial State's decision-making apparatus. The degree of competition depends on seasonal and regional factors. For example, there is an increase in competition between herders and farmers in the critical cultivation season (after the rains) and less competition during the dry season, when it is to the advantage of both farmers and herders that livestock graze on post-harvest stubble so that fields are fertilised with manure, a point that is confirmed by Gallais (1972). Competition between herders for access to the stubble may, of course, be intense. Competition for permanent water resources also occurs between farmers and herders and between herding groups in the dry season.

Conflicts of interest and competition lead to a variety of *outcomes*. These outcomes can be non-violent (e.g. arbitration, litigation, adaptation of production system, retreat of one of the groups...) or violent. The distinction is important as references to natural resource conflict in the current literature tend to use "conflict" liberally when referring to many different situations, such as conflicting interest, competition over natural resources and litigation. This creates an unhelpful conceptual muddle.

Non-violent outcomes of conflicts of interest and competition

Non-violent outcomes of competition for resources, are often associated with the role that can be played by indigenous institutions for resource management, in particular the management of common property resources. Such institutions define and enforce complex and different rights of access to resources for different types of user. Gallais (1994; 1967), Swift (1991) and Lane (1990; 1991) give examples of the development and functioning of such institutions.

Litigation refers to legal action taken by one party against another to clarify who has access to a resource or to obtain compensation for "misuse" of resources. Litigation provides evidence that there are serious conflicts of inter-

est and competition over resources. Increasing levels of litigation indicate increasing levels of competition and tension, which may produce conflict if litigation fails to bring about an acceptable solution.

There is a complex set of pathways by which to pursue litigation in semi-arid Africa which include both customary institutions (traditional rulers), and rulings by state administrators together with the formal courts set up by modern African states.

Actors involved in such litigation range from individual farmers and herders to whole groups and the State. The best documented example of court cases brought against the State is provided by Lane (1993 and 1991) on the legal fight led by Barabaig herders in Tanzania against the State's alienation of grazing land for large-scale farming by a parastatal organisation.

In addition to large-scale land alienation for agriculture, other typical actions that result in litigation include farmers suing herders for compensation for crops being damaged by herds (see e.g. Harshbarger (1995) on Cameroon; Van der Valk-van Ginneken (1980) and van Raaij (1974:36-38) on northern Nigeria); and disputes to secure exclusive land tenure rights over land for which neither farmers nor herders could claim ownership under national legislation (see e.g. Mathieu 1995c on flood plain lands in the Inland Niger Delta, Mali).

Violent outcomes: conflict

Types of violent conflict

When farmer-herder conflicts become violent they can be violent at various levels which need to be separated for analytical purposes. Three key types of conflict have been identified and are summarised in Table 2.

Table 2. A typology of natural resource conflicts.

Type of dispute	Definition
Inter-personal violence (Intra-community violence)	• Fights between and attacks on individuals at a local level • Theft • Raiding of livestock • Murder
State violence	• The actions of the State, often on behalf of one group of resource users, against another group of resource users for political purposes. • Mass evictions
Political violence (Intra-community violence)	• Military violence to achieve control and subjugation of populations, and power and control over resources. • War (fighting between armies within or between States) • Raiding of livestock • Enslavement • Destruction of villages • Acts of random violence (see Webb 1995:39)

* *Inter-personal violence*

Inter-personal violence, or fights between and attacks on individuals, can include theft, raiding of livestock (common between herding groups in East Africa) and murder. The essence of these conflicts is individual disputes over rights of access to and control over specific natural resources. This type of violence may be common and may well occur without being recorded. It is therefore difficult to measure change in this form of conflict without using historical or anthropological research methods.

Such conflicts may exhibit an ethnic character, because farmers and herders often belong to different ethnic groups, and thus may turn into a form of violence between communities. As shown in at least one case (the Toda massacre in Niger as discussed later), where tensions are already running high, inter-personal violence can unleash more widespread and sustained inter-group violence.

* *State violence*

This refers to the actions of the State, often on behalf of one group of resource users, against another group of resource users. While it may not always be physically violent, it often involves forced eviction which results in severe hardship for whole groups. It may also damage livelihoods to such an extent that it becomes difficult for the victims of State violence to sustain themselves.

Three prime examples of such State violence will be cited here. First, the mass expulsions of Fulani herders from the Mauritanian side of the Senegal River in

1989 caused considerable hardship to the herder groups forced to resettle in Senegal and favoured powerful Mauritanian herder and farming interest groups (see Schmitz 1993 and 1994; Santoir 1990 and 1993). Second, the legal conflicts between the Tanzanian State and Barabaig herders have focused on the alienation of grazing lands customarily used by the Barabaig for farming (Lane 1990; 1991; 1993). In this process of alienation, intimidation and violence were used by a parastatal organisation to evict herders. Third, the Malian State's alienation of pasture-land for irrigated rice cultivation in the Inland Niger Delta has brought suffering to herders but benefits to State interests (Moorehead, 1991).

It is difficult to measure the increase in these types of conflict as they are usually related to the ascendancy of particular groups to positions of political power followed by the adoption of policies to deny resources to weaker groups.

* *Political violence*

Military violence to achieve control and subjugation of populations, has probably been the most destructive form of farmer-herder conflict. Where the State supports the violence of farmers or herders against their foes, this is also a form of political violence. Webb (1995:39) includes raiding, enslavement, destruction of villages and acts of random violence in his use of the term political violence.

Contemporary farmer-herder disputes rarely take the form of war, and where farmers and herders are involved in civil warfare, this is normally for more complex national, international and political reasons. However, in past centuries war was a more common feature of relations between farming and herding groups in semi-arid countries. Webb (1995) shows how, until the establishment of French colonial rule in the Western Sahel, war was a common form of political violence used mainly by herding groups from the northern Sahel to subjugate farming communities in the southern Sahel, thus obtaining secure supplies of grain and other tributes. The pastoral FulBe commonly used warfare to dominate other groups in the area of the Niger Bend in Mali up to the establishment of the Maasina Empire in 1818 (van Dijk 1996). The Maasina Empire was established by Seeku Amadu, leader of the pastoral FulBe, around the Inland Niger Delta of Mali after repeated, violent farmer-herder conflicts over access to natural resources in the Delta. It brought to an end the use of violence by pastoral groups such as the FulBe, by establishing an elaborate

code for the use of natural resources in the area, prioritising the needs of herders, and enforcing their partial sedentarisation (van Dijk 1996; Gallais 1967; Moorehead 1991). Herders' fields were still worked by farming peoples captured in previous wars (Riimaybe) and treated as slaves.

Enslavement is included here as a form of violence even though it no longer formally exists, having been outlawed by colonial regimes and post-colonial independent States in Africa. However, as Webb (1995) shows, enslavement was widespread in the Sahel up to the end of the nineteenth century, and was principally carried out by northern Sahelian "white" bidan herder populations (Arab and Berber) against southern "black" farming populations (Wolof, Tukulor, Soninke and Bambara). The latter were forced into various types of vassalage and an extensive slave trade involving transportation of "black" slaves to serve "white" herders in the northern Sahel. Webb claims that this slave trade involved more people and more brutality than the trans-Atlantic slave trade, and undeniably constituted an extreme form of political violence by herding peoples against farmers, a violence that only ended with the imposition of colonial rule and the abolition of the slave trade.

Raiding has already been included here as a form of inter-personal violence, principally drawing on material from East Africa. Raiding may also be used as a way for herders as a group to ensure the subjugation by terror of farming populations, as appeared to be the case in the Western Sahel in the seventeenth, eighteenth and nineteenth centuries (Webb 1995). A recent study of raiding between Pokot and Turkana herders in Turkana, Kenya, argues that "traditional" forms of redistributive raiding have changed into predatory raiding. This signals a change in the nature and intensity of violence from a wide-spread form of inter-personal or inter-group conflict to a political violence characterised by the use of modern weapons and banditry to attain power and resources (Mearns *et al.* 1996). Some associate this type of raiding with the interference of powerful, urban elites who pay herding groups to steal livestock for them.

While colonialism and independence have attenuated some of these extreme forms of violence between farmers and herders, Webb (1995) argues that the historical patterns still define farmer-herder relations in the Sahel. Van Raaij develops this theme in his study of northern Nigeria, concluding that farmer-herder relations are often still tinged with fear, and in particular, farmers' fear of herding groups and their former power (Van Raaij 1974: 16). While Webb claims that colonial rule and the abolition of slavery put farmers into a position

of relative equality with herders for the first time in centuries, others argue, that the balance of political power has now firmly shifted in the other direction in favour of farmers whose activities are promoted by African States at the expense of herding populations.

Assessing trends in conflict

The notion of "*increasing* conflict" between farmers and herders adds another level of complexity, and can refer to a higher *level* of conflict occurring, a new *scale* of conflict being attained or increased *frequency* or *intensity* of existing conflicts. Case study material is needed to assess *change* in degrees of conflict.

Bassett (in Bassett and Crummey 1993) differentiates between farmer-herder conflicts that are confined to the local level from those that spread over a whole region within a country and conflicts that take on national significance. Here, increasing conflict would indicate a conflict that had previously been confined to a local area but which then spreads to involve a wider area. This is primarily a geographical distinction, but if a larger geographical area is beset by natural resource conflicts this implies a greater number of actors will be involved, and a greater *scale* of conflict.

Finally, increasing conflict can denote higher *frequency* over time (e.g. more incidents of conflict being recorded) or greater *intensities* of conflict (e.g. more casualties per incident). In relation to this, Cousins assesses increases in natural resource conflict as a change to a higher level of violence: the difference for example, between *chronic* and *acute* conflict (Cousins 1996:6). This may be the most common way in which increasing conflict is perceived by commentators.

Summary

In summary, then, "conflict", has been used to refer to many forms of interaction that are qualitatively different. It is therefore essential to establish both the *type* and *level* of conflict being referred to. In this study the discussion will focus on analysing changes in the incidence or nature of *violent* conflicts between farmers and herders. A central question to be considered is: what are the factors that transform conflicts of interest into violent outcomes? Conclusions will also be drawn as to whether the empirical data available on farmer-herder conflicts can allow us to conclude that violent conflict is increasing.

Approaches to the study of farmer-herder conflict

References to farmer-herder relations have been made by authors from a variety of different perspectives and disciplines. In this section, some of the more prominent approaches used to analyse and explain farmer-herder conflicts are identified.

Tragedy of the commons

The tragedy of the commons theory has been one of the most influential theories on rangeland tenure in Africa. This approach developed by Hardin in the late 1960s held that indigenous common land tenure systems in Africa encouraged the degradation of natural resources. Hardin argued that overstocking and degradation were inevitable as animals were held individually by herders while the range was unregulated common property. As individual herders are assumed to be primarily self-interested they invest in more animals to obtain personal benefit leading to the overgrazing of land. Since the costs of overgrazing are borne collectively by all users, but the benefits of increasing herd size accrue directly to individuals, there is no incentive to manage the range in a collective or sustainable way. Hence it is assumed that herders cannot establish institutions to regulate the use of grazing, and thus cannot regulate competition and conflict over access to those resources. As such, African herders are perceived as pursuing a production system that is economically irrational, linked with environmentally destructive, communal land tenure systems (Lane and Moorehead 1994). This approach has emphasised a need to privatise land ownership, to regulate land use and herd sizes, and to introduce land use planning programmes. This is seen to be the only way to avoid the tragedy of the commons as resources are reassigned to individuals who then gain "*...unambiguous rights to clearly defined resources [and] will now have the incentive to use and manage the resources on a sustainable basis.*" (IFAD 1991:6)

The tragedy of the commons arguments have been challenged by those that argue that the main way to avoid such outcomes is to strengthen traditional common property resource management institutions (Lane and Moorehead 1994). While there are serious problems with the tragedy of the commons approach, some aspects of it may be useful in explaining farmer-herder conflict in areas where there are no functioning institutions to regulate access to resources. However, such areas are rare in semi-arid Africa.

Common property resource management

The "common property resources" (CPR) debate strongly challenges the tragedy of the commons approaches to understanding conflicts of interest between different resource users in Africa. The CPR debate makes the essential distinction between indigenous, "traditional" tenure arrangements and "formal" land titling (Behnke 1995:1-10). CPRs are those resources which are not controlled by individuals, but to which larger groups have rights and access to use.

Resource tenure in Africa encompasses a complex set of often overlapping rights of access to and use of natural resources. CPR regimes usually have a defined "community of users", different groups within a defined community often having different degrees of access to the communal resources. These users then exclude others from using those resources, and usually manage the use of CPRs through a structured set of rules governing use rights, exchange rights, distribution entitlements, a management subsystem and authority instruments (Bromley and Cernea 1989:18). Where common property resource management (CPRM) systems exist, natural resources are not necessarily open to all and therefore the tragedy of the commons outcomes will not necessarily occur. CPRM systems are not static, but adapt and change to fit new circumstances (Behnke 1995). Violent conflict may occur where CPRM systems do not exist or function poorly, but conflicts of interest will always exist even where they work well. The solution to violent conflict may not be to individualise property rights, but to strengthen local institutions so that they are better able to coordinate use and enforce rules (IFAD 1991:6).

The CPR debate has provided an important counter to the assumptions of the tragedy of the commons debates. It has pin-pointed the historic importance of local indigenous institutions in the management of competition over natural resource use and the avoidance of conflicts between natural resource users. It has also highlighted the negative effects of the modern State in the regulation of resource use, in some cases leading to the disempowerment and demise of customary institutions so that conflict over natural resource use becomes more likely.

Marginalisation of herders: pastoralists as victims

New thinking on African rangeland management and CPRs has turned herders from villains into victims. Debates around the tragedy of the commons had tended to present herders as practising a production system that was funda-

mentally irrational, devoid of clear management structures and inherently destructive. Those who reject these views tend to see pastoralists as victims, turned into a marginalised underclass by State policies: the *"...perennial losers in the competition for resources"* (Doornbos and Markakis 1992). Pastoralists are seen as victims of a systematic process of marginalisation, brought about by: changes in agricultural policies which limit herder entitlements to productive resources (particularly land and stock but also other environmental resources - see Toulmin 1991); the development of market economies; environmental shocks (i.e. drought); as well as more general economic, demographic, and political marginalisation (Marty 1993; Toulmin 1983b). The essence of this view is that herders are suffering from a process whereby land has been systematically removed from herding production systems for the benefit of individual and state farms, commercial production and the conservation of wildlife (Lane and Moorehead 1994). Accordingly, livestock policies, where they exist, tend to favour a rich pastoral elite, privileged new owners of livestock (urban dwellers and settled farmers), and are biased against a marginalised group of poorer "traditional" herders (see Hogg 1985; Toulmin 1992; Little 1985). This results in increasing herder poverty accompanied by a weakening of pastoralists' ability to manage natural resources responsibly and sustainably. Meanwhile, herders continue to be dependent on complementarity with farming populations to sustain their livelihoods, whereas the latter cease to be as dependent on herders as before (Marty 1993). However, those supporting this approach argue that pastoralists are well able to manage natural resources if they are empowered to do so via secure access rights to key resources and the support of pastoral institutions (Lane and Moorehead 1994).

Livelihood security approach

The recent literature on livelihood security tries to understand disputes between herders as attempts by groups competing for scarce natural resources to achieve livelihood security (Mearns *et al.* 1996). Here, conflict between resource users is linked to the failure of development interventions and the declining reliability of subsistence production in Turkana, northern Kenya. Increasingly acute cattle raiding is shown to be related to growing livelihood insecurity, and the withdrawal of animals from the pastoral sector by "predatory" raiding, these livestock being then sold for export.

This approach can also be applied to farmer-herder conflicts in other regions, by linking increased tension between these groups to growing vulnerability and insecurity of their livelihoods, as discussed later.

Tenure debates, land appropriation and property rights theory

In semi-arid Africa access to natural resources does not imply exclusive control (or ownership) over land. Indeed, there are many ways in which herders can gain access to strategic resources such as crop residues, transhumance routes and water, even if they are situated on land used normally by farmers.

Appropriation of space in Africa is governed by a multitude of often overlapping systems and authorities, for example state administration, various customary rulers, and traditional "host-guest" relations. Different systems of land tenure often exist side by side, and they tend to be highly dynamic and locally specific, making it difficult to generalise. Behnke (quoted by Cousins 1996:2) has lucidly described this complexity:

> *"the natural landscape is seldom carved up into neat territorial packages owned by distinct groups or individuals. Instead, any defined area is likely to be used by a myriad of different ownership groups of variable size and composition, with overlapping claims to territory derived from particular claims to different categories of resources within it."*

The problem caused by these overlapping systems of land tenure is highlighted in the confusion resulting from *de jure* ownership and control of land taken by the State in most African countries at the time of independence, and the *de facto* authority over land allocation and use retained by local customary authorities. Such complexity and lack of clarity over rights to land, and the coexistence of different rules of access makes disputes between users more likely.

For example, in many parts of sub-Saharan Africa it is customary for different land and resource rights to be accorded to groups of users as a function of family and group rights of residence. "Host-guest" relations allow earlier settlers to govern the right of relative newcomers to have access to land. While traditionally, guests are usually offered use-rights to land, these rights are qualitatively different to the rights of the host community: they are often seen as temporary, not inherited, and requests must always be made to the traditional authorities of the host population ensuring that everyone recognises where ultimate authority over land lies. In his studies of farmer-herder relations in northern Ivory Coast, Diallo (1995 and 1996) illustrates the problems that can result. Here, the hosts, Senoufo farmers, treated Fulani herders as guests and accorded them usufruct rights to land under their authority, but never consid-

ered these to be permanent. Hence, with increasing population and land pressure, farmers began to encroach on grazing lands, defending this action as the Fulani were in any case their guests. The State had to step in to attempt to resolve the resulting dispute via land reform and land registration so that herders would have more secure rights to land.

Further, while herders may depend on maintaining their mobility even nomadic or transhumant herders *are* territorial, in the sense of being fundamentally attached to one base area (a "terroir d'attache") (Marty 1996). Movement is necessary to ensure survival in the face of environmental constraints (e.g. regular dry seasons or long term droughts), and after months or years herders will still return to their "terroir d'attache". In his study of natural resource management initiatives on the Niger River Bend in Mali, Mathieu (1995c) showed that after several years of drought in the 1970s and 1980s, Tuareg herders returned to their traditional pastures when a cycle of better rains and project interventions began in the 1990s. This then led to tensions between the returning herders and farmers who had laid claim to these lands during the former's protracted absence.

One recent study of agro-pastoral production systems in the Sahel sees the long standing conflicts between farmers and herders as due to disputes over property rights set within a context of economic reform in many African countries (van den Brink *et al.* 1991). The authors argue that pastoral property rights have been progressively eroded, leading to competition and conflict between the different users of natural resources.

The view that land tenure is a key component of conflicts over natural resources in Africa is shared by a group of French researchers who promote the development of policies to secure land tenure rights for all parties (including farmers and herders) at the local level (see Mathieu 1995c on Mali; Elbow 1996 and Ngaido 1996 on Niger). The complex rules governing the appropriation of space and this patchwork of often unclear and overlapping rights are seen as inevitably causing tensions between resource users in semi-arid Africa (e.g. Le Roy *et al.* 1996; Blanc-Pamard and Boutrais 1994; Le Bris *et al.* 1991; Le Roy 1992). In the absence of new institutions that allow different resource users to negotiate access to resources, conflict is inevitable. As Mathieu (1995a) argues: in many areas of Africa today, neither customary institutions nor State institutions can respond to increasing demands for secure land tenure due to the overlapping authorities of customary institutions and State legislation.

Resource scarcity

Van den Brink *et al.* (1991) see increased population as leading to increased pressures on land and the erosion of pastoral property rights, resulting in increased conflict between farmers and herders.

In similar vein, Homer-Dixon states that *"...degradation and depletion of environmental resources is only one source of environmental scarcity; two other important sources are population growth and unequal resource distribution. Scarcity often has its harshest social impact when these factors interact"* (Homer-Dixon 1994:40). His central conclusion, drawn from six case studies, is that environmental scarcity acts as a long term social "stressor" that aggravates risk of conflict but is also an independent cause of conflict (Homer-Dixon 1994). While not providing historical evidence that conflict related to environmental scarcity has increased, Homer-Dixon concludes that as environmental scarcities worsen, the rate and extent of sub-national "group-identity" conflicts such as those between farmers and herders will inevitably increase.

Stakeholder approach

Stakeholder analysis has been defined as:

> *"An approach for understanding a system by identifying the key actors or stakeholders in the system, and assessing their respective interests in that system. Stakeholders include all those who affect, and/or are affected by, the policies, decisions and actions of the system; they can be individuals, communities, social groups or institutions of any size, aggregation or level in society. The term thus includes policy-makers, planners and administrators in government and other organisations, as well as commercial and subsistence user groups."* (Grimble *et al.* 1995:3-4)

It is suggested by the proponents of the stakeholder approach that *"...many efforts at environmental management fail because they pay inadequate attention to the various stakeholders involved and their particular interests"* (Grimble *et al.* 1995:3). Stakeholder analysis is increasingly used by international aid agencies to identify the significant actors in a context and their different interests so as to plan development interventions which are more effective and better address issues surrounding the distributional and social impacts of projects on various stakeholders.

Two essential elements of this approach are useful in the analysis of farmer-herder competition and conflict. First, it aims to identify all the main actors who may have an interest in the use of natural resources, at both the macro and micro level, and the patterns of interaction between these actors. Second, in accepting competing interests as the norm, it helps to identify likely areas over which conflicts of interest will develop. A similar approach is followed by Harshbarger (1995) for understanding farmer-herder conflict in Cameroon; her model focuses on issues of State legitimacy, the nature of civil society and the power of local elites.

Historical and anthropological approaches

Historians and anthropologists have long studied farming and herding societies in semi-arid Africa, including the study of relations between the two. While the former have tended to focus on processes underlying the evolution of relations between these groups (e.g. Santoir 1990; Magistro 1993; Ndagala 1991; Webb 1995), the latter have conducted largely ethnographic studies of the relations between the often ethnically distinct farming and herding societies (e.g. Gellner 1973; Gulliver 1955; Barth 1973; Dyson-Hudson 1966; Bovin 1985; Schmitz 1993). Among the latter, Bollig (1993) has attempted to analyse violent herder-herder conflicts using approaches drawn from the anthropology of war and conflict management, leading him to draw a distinction between inter- and intra-ethnic conflicts.

These approaches use different techniques and theoretical models rooted in the two disciplines of history and anthropology. However, both approaches remain essentially contextual, analysing farmer-herder relations in their specific contexts bound in time, place and cultural difference. They both display the advantage of directly addressing the issues of politics (the State, power relations, class relations, historical developments, etc.) as fundamental determinants of relations between these groups. These studies also hold the information necessary to analyse whether farmer-herder conflict has increased over time, or whether such conflict is intrinsic to their historic relations.

Political ecology approach

Another approach to analysing farmer-herder tensions and violent conflict has been provided by Bassett in his analysis of peasant-herder conflicts in northern Ivory Coast (Bassett 1988). The advantages of this approach are that it takes into account the historical and ecological context of conflicts, the role of the

State and the accumulative strategies of different groups. This "political ecology" approach includes key elements of the historical and anthropological, state-society, and ecological/common property approaches discussed above, and remains one of the only approaches to be applied directly to the explanation of farmer-herder conflicts.

The essential elements of the political ecology approach as adapted by Bassett can be summarised as involving: (i) the contextualisation of human-environment relations; (ii) a historical analysis of traditional management systems, incorporating their relation to changes in the global economy; (iii) an analysis of the influence of State intervention; (iv) the differential responses of decision-making units to changing social relations at the local level; and (v) sensitivity to regional variability.

Bassett draws on the work of Blaikie and Brookfield (1987) on land degradation and society to justify this approach as it allows the study of how the complex interrelations between peasants, their agricultural ecology, the State, and the accumulative strategies of different groups produce conflict. Hence it aims to understand the influence of structural or systemic forces beyond the local level that provoke conflicts.

Summary

All the approaches analysed above throw light on why farmers and herders compete for natural resources, but few provide a theory sufficient to include all the dynamics of farmer-herder relations. For example, it is too simplistic to start with the assumption that herders are impoverished victims who have been structurally marginalised across semi-arid Africa in the post-colonial period. Further, explanations of increased conflict cannot be reduced to a waning of traditional complementarities between farmers and herders as some argue (e.g. Marty 1993:328), as there is ample historical evidence to show that relations between farmers and herders have always vacillated between complementarity, alliances, competition and violent conflict depending on contextual exigencies (see Webb 1995).

The view taken here is that farmer-herder competition and conflict is such a complex phenomenon that no single approach is adequate to understand the evolution and dynamics of processes involved.

IS VIOLENT CONFLICT BETWEEN FARMERS AND HERDERS INCREASING?

Background

Any statement that conflict between farmers and herders in semi-arid Africa is increasing has to be assessed in relation to the evolution of relations between these groups *over time.* However, it is rare to find a rigorous study of change in types or levels of conflict between particular farming and herding populations. Rather, the numerous references to "increasing conflict" usually refer to different processes, such as increasing numbers of court cases between farmers and herders (Harshbarger 1995; République du Mali 1994); conflicts changing from "acute" to "chronic" (Cousins 1996); competition for resources changing in intensity (van Dijk 1996); or the changing nature of raiding in East Africa (Hendrickson 1995; Bollig 1992; Mearns *et al.* 1996). Heightened concern among government policy makers about "increasing" conflict is usually based on a snapshot of contemporary conflicts, not on past history.

Here, in an attempt to introduce some rigour to an analysis of whether or not conflict is increasing, the focus will be on *violent* conflict. Selected case study evidence of violent conflicts will be analysed, as follows. First, a section will briefly analyse the evidence of farmers' and herders' perceptions of change in their relations with each other, based primarily on anecdotal evidence collected by observers in interviews with farmers and herders. Next, a case study with relevant time series data on farmer-herder conflicts will be presented, in relation to: the social and economic context of conflicts; the nature and level of conflicts; the key actors involved; the ultimate and proximate causes of conflict; the attempts made to resolve the conflict. Following this, perceptions of researchers and development workers obtained from a postal survey will be presented before examining the academic literature. Conclusions will then be drawn regarding the degree to which conflict can justifiably be claimed to be increasing.

Perceptions of Sahelian farmers and herders

Given the importance currently accorded within development discourse and practice to local peoples' perceptions, it is fitting to begin with a brief review of farmers' and herders' own views of their relations with each other. This is all the more important given the lack of formal data collected over time on rela-

tions between particular farming and herding groups. In this context, oral histories often provide the richest and surest evidence for the evolution of farmer-herder relations. This review is largely based on interviews with individual farmers and herders recorded by various researchers using oral history research methods, in particular, interviews with elderly farmers and herders in the Sahel (for example: Cross and Barker (eds.) 1995; Bennett (ed.) 1991) and impressions gleaned from informal interviews carried out by researchers with experience of working in semi-arid Africa. In addition, a case study provides a summary of one particular conflict analysed in a television documentary made in France, largely based on interviews with the local actors involved in the conflict.

Anecdotes collected by researchers

Many researchers interviewed during the course of this study and many published studies of agriculture and livestock farming in semi-arid Africa make passing reference to farmers' and herders' views of each other. On the one hand, farmers and herders sometimes idealise historic relations between them, emphasising the symbiotic nature of their coexistence. This idealisation the past is used by farmers to impress upon researchers that relations are currently worsening due to increasing resource competition, and that some intervention is required. Hence farmers in Burkina Faso are quoted as saying:

> *"Years ago relations between us [the farmers] and the pastoralists were cordial and built on reciprocal trust. We would entrust our cows to the pastoralists who would guard them for us... Today, relations between the farmers and pastoralists have deteriorated and we no longer respect pastoralists enough to let them care for our animals."* (Bennett (ed) 1991: 36)

On the other hand, some researchers note that farmers and herders have always been antagonistic and mutually suspicious. Bernus (1990), for example, relates that the influx of Fulani herders into northern Ivory Coast following the droughts of the early 1970s led to near panic among urban groups and farmers. The latter asked for protection from this "pastoral invasion" *"...pour leurs champs, leurs récoltes et leurs jeunes filles"*. This implies that farmer-herder disputes and conflicts, when they occur, do not represent a change, but a continuity of ancient relations which included deep mistrust, antagonism and, periodically, full-scale wars (van Raaij 1974:23-24). However, farmers and herders also usually emphasise the historic mutual dependence of their production systems. This mutual dependence co-exists with tension. Hence, one pastoralist

from Niger is quoted as saying that farmer-herder relations, while interdependent, have always been polarised: *"It is like a war between two huge families; cultivators and pastoralists always support their own groups"* (quoted in Bennett (ed) 1991:5).

Recent fieldwork carried out by Marty (1992) in north Cameroon shows that herders feel increasingly threatened by farmers intent on expanding cultivation and encroaching on traditional transhumance routes. They perceive farmers to be in close allegiance with the State, giving them a sense of powerlessness. In this study, one nomadic Bororo pastoralist complained that farmers refused to understand that land could be reserved for the use of animals, thinking that farming can be carried out anywhere. Finally, when conflict occurs the State's arbitration structures only listen to farmers, not the views of herders.

However, it is dangerous to generalise about farmers and herders views across the Sahel and semi-arid Africa. Through his recent fieldwork among farmers and herders in the Sahel in 1994, Alain Le Masson notes that herders in both Mali and Chad were divided: some held the view that conflict between the two groups was increasing; others clearly disagreed, seeing relations as always involving both conflict and cooperation in similar degrees (pers. comm.). Van Raaij (1974:36) makes the same point. In his research in northern Nigeria, he found important variations in local people's impressions of the nature of farmer-herder conflict from place to place, and even within a single village.

Rirash (1992) has carried out interesting work analysing poetry as a vehicle for understanding conflicts in pastoral Somalia, which reveals the key principles held by herder clans that may lead them into violence. First, clan unity is seen as essential for survival: the search for water, pasture, and equal access to these resource depend on it. If this principle is discarded, internal conflict between clan members threatens the disintegration of the clan. Second, Somali pastoralists would never cooperate with other communities if they were not treated as equals. They refuse to be subservient, preferring to kill or die than accept subservience - even to other herder clans. Third, clans are attached to a core territory (or "terroir d'attache"), but the need for more resources in order to survive (e.g. during drought) may cause them to extend it, by agreement or by violence. This explains recurring frictions between Afar and Issa herders in Somalia.

Oral poetry also provides a key historical record among Somali herder groups. Poets have a duty to represent historical events relevant to their clans in their

poetry and to address vital community concerns. Poetry is passed down through the generations and therefore has the potential to reveal historical trends, although it does not supply numerical data on past conflicts. In his study, Rirash shows that prior to the sixteenth century there were serious, destructive conflicts between Christian and Moslem groups in the Horn of Africa, motivated by religious zeal combined with competition for resources. Conflict abated after the sixteenth century, until the intervention of European colonialism in the nineteenth century. Increasing references to conflict in clan poetry after the introduction of colonialism is a strong indication that violent conflict has increased since then.

Cross and Barker's work (1995), based on five hundred interviews with mainly elderly farmers and herders in five Sahelian countries, also provides evidence that conflict is increasing. Several testimonies refer to increased conflict related to crop damage due to the trespassing of livestock onto fields. This change is explained variously as the result of governments not applying sanctions for crop damage, herders' own negligence, or a general breakdown of social bonds between farming and herding communities. Cross and Barker (1995:13) summarise the views of respondents in a way that reiterates the "conventional wisdom" regarding the ultimate causes of conflict: land degradation due to inadequate and sporadic rainfall, increased human population pressure and the intensification of cultivation in semi-arid areas have disrupted previously amicable relations between farmers and herders.

For example, Touré Timéra, a seventy-two year old Senegalese farmer, states that: *"peasants and pastoralists have always quarreled, but not as much as they do now"* (Cross and Barker 1995:56). The proximate causes of these disputes are seen to be poor surveillance of livestock by herders, a lack of fences to protect fields from animals, and the failure of the State to provide a structure through which herders could be forced to pay fines for crop damage. The allegations of worsening relations in this region are repeated by several other farmers.

The Toda Massacre, Niger

This case study is based on a documentary produced for French television about a violent incident between farmers and herders in southern Niger.[3] The

3 Source: Film entitled "Amok" based on interviews with local farmers and herders, government officials and researchers. Produced in France 1992; held by ICRA Montpellier.

documentary showed a set of interviews with local farmers and herders whose communities were involved in the conflict. The argument presented by the documentary is that this massacre was not an isolated event, but that it represented a dramatic increase in the intensity of violence between the Hausa and the Fulani.

On 30 October 1991, 102 members of a settled Fulani herding community were killed and their village, Toda, was burned by Hausa farmers from neighbouring areas in what was the worst civilian massacre experienced in Niger in living memory. This followed the killing in their fields of two Hausa farmers (a traditional chief and his brother) from a neighbouring village, Soka, by a group of Fulani herders, apparently in a dispute over crop damage. Those responsible for the farmers' deaths were not brought to justice. Hausa chiefs then rallied Hausa from many villages and apparently supplied them with drugs before sending them out to kill. The massacre was a disproportionate and unparalleled response to the murder of two farmers, and led to a worsening of Fulani-Hausa relations throughout Niger and an escalation of violence between the groups. Fulani and Hausa communities stated that the killings had brought to an end traditional ties between the two groups: tension had increased to such an extent that disputes could no longer be resolved via negotiations between the traditional chiefs of the two communities. One year later, Fulani attacked and badly beat several Hausa farmers in the area, and since 1992 there have been at least three fatal clashes between Fulani and Hausa.

This conflict began as a conflict between individuals, but developed into political violence between them. Interviews with government workers and with local Hausa and Fulani yielded a variety of explanations for the conflict that can be divided into ultimate and immediate causes.

Ultimate causes:

- Increasing population resulting in increasing pressure on resources in the region.
- A period of drought leading to reduced water availability, and the appropriation of some water points by farmers for irrigation purposes.
- Pressure on land leading to less frequent use of fallows and hence a reduction in soil fertility and agricultural production.

Immediate causes:

- Crop damage by herders.
- Revenge for the killing of two Hausa farmers.
- Incitation by a member of traditional Hausa authorities in favour of ethnic war against Fulani in recompense for Fulani domination of the area in the nineteenth century.

The government arrested and imprisoned 14 members of the Hausa community. However no new institutions or mediation procedures were introduced to achieve peaceful co-existence in the area for the longer term.

Several lessons can be drawn from this case study:

- Increasing land pressure combined with droughts and reduction in soil fertility led to heightened tension at critical periods in the crop cycle: the pre-harvest period was the most critical for farmers, and they regularly suffered crop damage at this time. Whereas such clashes may have been resolved in the past, the interplay of different pressures on this occasion led to a wild response.
- While on the surface this was an ethnically-based dispute, previously the Hausa and Fulani communities had usually resolved their disputes peacefully. In this case, the weakness of the Niger State created a situation of relative anarchy at the local level within which certain traditional authorities saw an opportunity to increase their power at the expense of the other ethnic groups.

While farmers and herders in this case perceived violence between them to be increasing, the Fulani Chief was exaggerating when he claimed that relations between the two communities had previously been peaceful. Historical studies show that farmer-herder relations have always vacillated between cooperation and conflict. However, this massacre represented a dramatic increase in violence between farmers and herders in this area.

Perceptions of researchers and development practitioners

Current views

This section reports the results of a postal survey of researchers, policy makers and development professionals undertaken during 1996 with the objective of assessing current thinking about changes in the level or type of conflict

between farmers and herders in semi-arid Africa. Over eighty researchers and institutions were contacted. Of these, over thirty five replied with further information, such as documents, research reports, details of other researchers working in the field and so on. Over twenty five individuals working on related issues supplied substantive replies sharing their views and impressions on the issues.

An overview of the survey is presented here, particularly focusing on replies to the following questions: Is conflict between farmers and herders in semi-arid Africa increasing? What types and levels of conflict and cooperation can be distinguished? What are seen to be the causes of such conflicts? What approaches are the most appropriate to conflict resolution and what related themes need to be taken into account to properly understand farmer-herder relations? The main conclusions drawn from the questionnaire results are presented below.

* *Is farmer-herder conflict increasing in semi-arid Africa?*
Almost all those who responded agreed that there were many examples of conflict, in some cases serious and violent, between farmers and herders in the Sahel and East Africa. Such conflicts have *always* occurred from time to time in the semi-arid zones of Africa. However, few were willing to assert that such conflicts were actually on the increase and few could present data to support the case. Nonetheless, over a quarter of those questioned "felt" from their experience in the field that conflict had been increasing over the last 15-20 years in terms of numbers of incidents, numbers of casualties, and seriousness of conflicts. Some individuals provided anecdotal evidence regarding the Afar in northern Ethiopia and conflict between farmers and herders around Lake Chad in Nigeria.

One respondent observed: *"The threshold of tolerance between different resource users in semi-arid Africa is at its limit, therefore it is not surprising that conflicts occur..."* such observations made by those believing that farmer-herder conflict is increasing, imply causative linkages between scarcity of resources and conflict. One prominent argument is that farmer-herder conflict is increasing due to two factors: first, competition for access to productive resources, exacerbated by state policies favouring one production system; second, failure of previously existing, local adjudicative mechanisms ("traditional institutions") to resolve competition of natural resources.

An almost equal number of researchers "felt" that farmer-herder conflict has actually been stable or even *decreasing* in the last twenty years, with cases cited concerning the Afar herders and neighbours in North Shoa region of Ethiopia, or between the Mouride farmers and Fulani herders in northern Senegal.

The lack of data relating to changes in farmer-herder conflict was confirmed by half of the respondents who felt they could neither confirm nor deny the hypothesis of increasing conflict. The latter group included researchers who have been influential in encouraging support for pastoral associations to manage natural resources, and the revision of land tenure laws so as to provide herders with clear rights to natural resources in order to reduce destructive competition for natural resources between different resource users, often citing increasing competition and conflict over resources as justifying such a shift in policy . In spite of their hesitancy regarding a clear increase in violent conflict between farmers and herders, many researchers perceived the need for greater attention to conflict resolution as competition for natural resources increases.

As noted above, the most widespread view is that competition and conflict have recurred periodically between farmers and herders. One example cited, is the gradual expansion of Mouride cultivators into Fulani pasture lands in northern Senegal which has caused periodic and recurring clashes (often violent) between the two groups since the beginning of the 20th century. It is argued, however, that while the general level of farmer-herder conflicts has not dramatically increased over time, the issues over which disputes take place have changed. In some contexts they have evolved from localised disputes over crop damage to disputes over power to influence local politics and land allocation. In this area of Senegal, land remains relatively abundant, hence farmer-herder conflict over natural resources is not inevitable. On the other hand, farmer-herder disputes in this region have historically been linked to desires for ethnic or religious domination.

A significant number of researchers do not sense a dramatic increase in the incidence or gravity of farmer-herder conflicts, but nor do they generally provide empirical data to support this view. It was often remarked however, that in historical terms, farmer-herder relations have clearly improved since the repeated wars and slave-raiding during the nineteenth century in West Africa brought to an end by conquest.

Another view argues that those with land or political power are responsible for inciting conflicts between herders and farmers for their own economic or political gain. Conflicts thus may be instigated as part of a struggle for power and do not represent an inherent conflict between crop and livestock production systems.

* *Causes of farmer-herder conflict*

Even those who argue that conflicts are not increasing feel that in some cases the causes of conflicts are changing, and acknowledge that the *visibility* and perhaps the *intensity* of such conflicts are increasing. This is explained by factors such as the increased penetration of the structures of the modern state into marginal areas, increased attention of researchers, impact of media interest and coverage, or the increased use of modern weapons in such conflicts.

For others it is the *nature* of farmer-herder conflict that is changing. Here, it is useful to refer to the experience in the Maghreb where the process of privatisation of land and organisation of herders into cooperatives has led both to the reduction of direct farmer-herder confrontation and the birth of new conflicts over the privatisation of lands that were previously open to use by any farmers or herders. In relation to East Africa in particular, another aspect of this changing nature of conflict has been the increasing availability of modern automatic weapons.

In relation to both sub-Saharan and North Africa, researchers have found that the abuse of traditional host-stranger relationships has led to heightened conflict. This refers to the way in which herders are often given temporary rights to settle in an area defined by a local sedentary chief: if the stranger population overstay their welcome, and in some cases demand rights to own and exploit the land on which they were given temporary permission to settle, this may lead to confrontation and conflict. Where the state has, as in the Ivory Coast, encouraged herding populations to settle, this has led to "host" agricultural populations protesting, heightening possibilities of conflict with their "guests".

Whether conflict is seen to be periodic or increasing, many respondents concur on the causes of farmer-herder conflict. Table 3 below lists commonly cited long term trends and more immediate, or proximate causes relating to specific cases.

Table 3. Long term trends and proximate causes of farmer-herder conflicts.

Long term trends contributing to conflicts	Proximate events contributing to conflicts
• gradual process over 50 years of Fulani herds from northern to southern areas of the Sahel, with many herders sedentarising with their livestock (Ivory Coast; northern Nigeria) • increased availability of modern mid-1980s (Afar, Ethiopia; Turkana, Kenya; Maasai, Tanzania) • increased population pressure (Afar, Ethiopia; Fulani and Hausa, Niger) • farmer encroachment on traditional pastoral lands (Mouride cultivators expanding into Fulani pastoralist territory since early 20th century, Senegal; Fulani and Hausa, Niger) • overall economic crisis (north Cameroon) • climatic change (north Cameroon; Niger) • "privatisation" of land (Morocco; Tunisia)	• influx of refugees from Sudanese civil war and influx of Turkana pastoralists into southern Ethiopia such that agricultural and pastoralland is being claimed for other uses • pastoralists' herds trespassing on weapons since the farmers' fields causing crop damage (Cameroon) • exclusion of nomadic herders from traditional rangelands (Cameroon) • convergence of herding groups around wells (Cameroon) • drought (Niger; Morocco; Tunisia) • permanent settlement of "strangers" on land given to pastoralists by local "host" agriculturalist populations (Senegal; Maghreb).
Source: Author's postal survey	

* *Policy issues*

There was a general consensus among the respondents that solutions to farmer-herder conflicts are not easy to find. Some assert that there has been a general loss of confidence in the state, in judicial solutions, and in traditional mediating institutions, making violence between herders and farmers more likely. Many policy interventions are cited that have not succeeded, for example: the "gestion de terroirs" approach which has been applied in villages across francophone Africa has often resulted in the exclusion of mobile (herder) populations from village-lands and helped promote agricultural encroachment on resources of strategic or seasonal importance to transhumant herders (see Painter *et al.* 1994).

However, there is general consensus that it is important to have fora to gather farmers and herders together to define common objectives regarding land management. Many researchers are working on these themes, focusing on approaches such as "gestion de terroirs", but adapted in such a way that transhumant herders can be properly represented. The essence seems to be to develop a forum which brings together all parties so they can together negotiate and plan resource use. To enable this to work, these fora must be impartial and accord clear rights to *all* users. Such structures for negotiation may also play a role in conflict resolution and thereby prevent disputes over resources resulting in violent conflict.

* *Summary*
The survey shows that the topic of increasing conflict between farmers and herders is one that interests a large number of researchers from a wide variety of disciplines, from geography to economics, history to politics and anthropology. But, despite the importance given to the theme, few researchers have directly studied it and collected long term historical data to be able to demonstrate increasing conflict.

Broadly speaking, it appears that those who are convinced that conflict has increased are policy-oriented researchers. However, several who have had a strong impact on pastoral development policy are very hesitant to suggest that there is conclusive evidence for increasing violent conflict, yet base policy suggestions on the hunch that all forms of conflict must be addressed (including non-violent forms) with interventions in favour of empowering pastoralists vis-à-vis crop farmers. Assertions of increasing conflict between farmers and herders are often not backed by detailed historical analysis. In this context claims that conflict is increasing could represent more myth than reality, and great prudence is required before asserting that there is a clear rise in farmer-herder conflict. The changing nature and forms of conflict are being confused with "increase" in incidence of conflict. Even if the availability of modern weapons in certain regions has increased the casualties resulting from clashes, as some argue, this does not mean that there is a greater incidence of conflict than before – only that existing conflicts have more severe consequences.

Finally, in spite of the difficulties in defining the nature or degree of change in farmer/herder conflict, there is a broad consensus among researchers that a reduction of conflict is dependent on the strengthening of fora wherein the interests of all resource users are represented. Such fora are instrumental in making decisions through consensus, the resolution of disputes and the avoidance of violent conflict.

A review of the literature

The claim that conflict has increased significantly in recent times must now be measured against a review of the evidence provided in the wider secondary literature on rural societies in semi-arid Africa. This section will draw on published and unpublished material from a wide range of disciplines. It will begin with a general analysis of the themes present in this literature, making reference to specific cases and including a more detailed analysis of the few case

studies where data on changing levels or degrees of conflict over time have been collected. These will be structured in such a way as to establish the context, nature and key causes of conflict, the chains of causation that lead up to a conflict as well as to analyse whether the evidence available can prove conflict has increased over time.

The literature reviewed contains a large number of studies that refer to herder-herder and farmer-herder conflict increasing, especially in relation to trends of increasing population, development policies and competition for natural resources. These studies can be divided into those that provide historical empirical evidence and those that fail to furnish empirical evidence for such claims, the latter substantially outnumbering the former.

* *Claims of increasing conflict*

First, with regard to raiding between herder groups, it has been claimed that the influx of modern weapons into East Africa, in conjunction with the fragility of the ecosystem in this area, have increased both the intensity and incidence of violence among herders in Turkana, Kenya (Mearns *et al.* 1996:61). This is not substantiated with data by these authors. Similarly, Ayele (1986) has claimed that violence between Issa and Afar herders in northern Ethiopia has increased over time due to population pressures and competition over increasingly scarce resources, but provides no time series data to support this point. This claim is reiterated by Yesuf (1992) in his analysis of Afar herder livelihoods in the Awash Valley, Ethiopia. Finally, without recourse to historic evidence, Hutchison (1991:106) describes conflicts between Arab pastoralists and Fur cultivators in Sudan as "increasing in intensity" due to the availability of modern weapons.

Second, recent studies aimed at influencing rangeland development policy assert that farmer-herder conflict is generally increasing in semi-arid regions without furnishing any solid empirical evidence. In perhaps the strongest example of this, in a position paper on conflict management, Cousins (1996:6) refers to pastoral crisis "... *resulting in greater competition for scarce resources, heightened levels of tension within and between pastoralist and agro-pastoralist social formations, rising numbers of disputes, and increased instances of overt conflict*" (emphasis added). He continues by stating that the change from chronic to acute conflict over natural resources "... *underlines the need to make conflict management a central feature of policies and programmes aimed at promoting sustainable livelihoods in the context of multiple*

land use". However, this statement is based on only limited evidence that conflicts over natural resources, bound in time and place, occur from time to time. Further, Winrock International (1992) state, with no empirical evidence on changing incidence of farmer-herder conflict, that farmer-herder conflict is generally increasing in Africa's sub-humid zone and proceed to list policy changes required. Similarly, Lane and Moorehead (1994) state that the regions of both the Senegal River Valley and the Inland Niger Delta are beset by increasing farmer-herder conflict, and yet supply no evidence of this. Such statements are used to justify the view that pastoralists are politically marginalised, and hence, the need for a range of policy prescriptions relating to land tenure.

Vedeld (1992:4) also claims that conflict has increased due to government policies to expand agriculture in the West African Sahel leading to farmers encroaching on grazing lands. With regard to Eritrea, Woldemichael (1995) asserts that increased conflicts over grazing areas and water-points have limited the movements of herders to justify a policy of promoting the sedentarisation of pastoralists. Finally, Mathieu (1995a) argues that conflict over natural resources is increasing, and that classic, official natural resource management strategies are failing to predict or resolve conflicts: this justifies his call for new policies to manage and resolve natural resource conflicts. But these statements are not substantiated with firm evidence.

Third, increased farmer-herder conflict has frequently been predicted by development analysts as a likely result of change. From his work on northern Nigeria, van Raaij (1974:147) predicts that an increase in conflict and social tension between farmers and Fulani herders is likely given the very limited influence the Fulani have in government administration, and changes in land tenure. These are, he argues, "likely" to make disparities between farmers and herders more apparent, and to lead to a more permanent problem of tension and instability in rural areas.

Fourth, other authors generally refer to increasing farmer-herder and herder-herder conflict but without providing data. In their study of livestock farming in the Département de To in southern Burkina Faso, de Boer and Kessler (n.d.) speak of increasing numbers of conflicts at the individual level between Fulani herders, Mossi herders and Gourounsi farmers. Frantz (1981) in his analysis of the settlement and migration patterns of the pastoral FulBe in Nigeria and Cameroon argues that conflicts over access to grazing and water resources are increasing in frequency. This increase in conflict is blamed on government reg-

ulation in Nigeria and Cameroon in the post-colonial period resulting in the loss of grazing lands in northern areas. Similarly, Turner (1992) describes conflict between pastoralists and rice cultivators over productive flood plain resources as increasing over the last twenty years, but without substantiating the claim with any figures. Finally, in their analysis of farmer-herder relations in Benin, van Driel and de Haan (1994) contrast an idealistic image of "past" farmer-herder harmony and cohabitation in semi-arid West Africa, with an image of the present in which the breakdown of specialisation between herding and farming has led to increased competition for space, reduced interdependence and hence growing conflict.

Fifth, some studies have claimed that conflict is increasing on the basis of the observation of a single dramatic, but usually isolated event in which violence has flared up into fatal clashes. For example, Stahl (1992) asserts that farmer-herder conflict in semi-arid regions has increased in intensity due to increasingly scarce resources, and the introduction of modern firearms, which can turn local conflicts into mass killings. Zuppan (1994) asserts that because herders now farm and farmers have herds, competition for the same natural resources has increased, but provides no historical analysis as to whether these conflicts are different or worse than in the past. A similar point, also unsubstantiated, is made by Cissé (1980:323) regarding the Inland Niger Delta of Mali where the gradual integration of farming and herding production systems has increased previously existing conflicts between farmers and herders over the use of space. Finally, Marty (1993:327) sees the massacre of Fulani herders by Hausa farmers in Niger in 1992 (see case study above) as part of a chain of recent events giving a totally new dimension to farmer-herder relations. He states that all over Africa, old complementarities have been replaced by increased tensions and competition for space between farmers and herders.

It is difficult to assess whether the different authors have similar notions of "conflicts of interest", "competition" and "violent conflict", as these notions are rarely defined. On their own, these claims do not provide the hard data required to allow confirmation of increasing conflict. We now must turn to those researchers who have based such claims on some empirical evidence.

* *Substantiated claims of increasing conflict*

Bassett (1986; 1988) has provided a very thorough analysis of the evolution of farmer-herder relations in the central areas of the Ivory Coast. This author (Bassett 1986) asserts that individual herder-farmer conflicts increased

between the 1970s and 1980s. While no time series data are presented, this claim is supported by three surveys carried out at different times with individual households. The Fulani herders arrived in central Ivory Coast from southern Burkina Faso, southern Mali and northern Ivory Coast after the droughts of the early 1970s. The increased incidence of conflicts between individuals is attributed to the arrival of Fulani herders in the zone, who came into conflict with indigenous Senoufo and Malinké farmers. Conflicts became intense and violent from the latter part of the 1970s, resulting in direct State intervention. Previously localised conflicts became more explosive, and took on an ethnic character by 1986 due to the gradual process of impoverishment of indigenous cotton farmers and continued State attempts to encourage herders to settle (Bassett 1988:469).

While crop damage can *trigger* conflict, Bassett also discusses the causes of the conflicts, as follows. At the macro level, these conflicts coincided with years of drought in the Sahel, provoking Fulani herd movements southwards. In addition to this must be added: the policies of the Ivoirian State to encourage livestock trade and rearing; the reduction in the quality of grazing lands that had been occurring since Independence; the large and growing numbers of cattle held by farmers; and the related increase in competition between farmers and herders for land, pastures and water. Micro level causes of conflict included the adoption of slash and burn agriculture by Fulani herders: as they had no historic traditional ties with agricultural populations, this created direct competition for agricultural land. Finally, the complexity of Fulani herd movements, occurring between and within seasons, were not understood by local populations or the State.

The response of the Fulani to conflict was first to face it and then to flee when conditions became too tough. This explains the periodic exodus of herders from the Ivory Coast since the 1970s. The State, intent on encouraging the herders to stay in order to boost internal beef production, established an agency, SODEPRA, to encourage settlement. Bassett's conclusion is that this could not reduce the tendency towards farmer-herder conflict since it did not create the basis for closer complementarities between indigenous farmers and stranger herders.

While Bassett provides a useful analysis of the complex causes of these conflicts, his study does not provide sufficient evidence to support the conclusion of increasing farmer-herder conflict. He presents no time-series data on conflict apart from records of casualties and losses for the years 1981-2 and 1986

(Bassett 1988) and he refers to only three interviews with Fulani herders over this period. He does not attempt to compare the levels, types or nature of conflicts between farmers and herders in the pre-colonial and colonial periods to those in the post-Independence period. Finally, he does not sufficiently clarify the type of conflicts to which he is referring, and hence we do not gain a full understanding as to whether it is the frequency, scale or intensity of conflict that increased.

Studies in other countries that support claims of increasing conflict between farmers and herders include Harshbarger (1995). In her detailed study of relations between Meta and Aghem farmers and Fulani herders in the North West Province of Cameroon, Harshbarger identifies increased farmer-herder trespassing disputes which often ended in fatalities. She also describes three major violent clashes between these groups in 1973, 1981 and 1991. She presents the main ultimate cause as the failure of the State to mediate impartially between farmers and herders, the State being seen as in collusion with herder groups to enable them to occupy farm land close to villages. The State has thereby lost legitimacy to mediate farmer-herder conflicts, and led to farmers taking more violent action themselves. Crop damage is presented as a proximate cause of conflict. But there is, again, a lack of time series data on changes in the nature of farmer-herder conflicts in the two village studies over the longer term.

Finally, Webb (1995) provides a thorough historical study of the evolution of political violence among farmers and herders in the Western Sahel. This will be analysed more fully below. He argues that there was a trend of increasing political violence by herders against farmers in the period of his study: 1600-1850. While the advent of French colonial rule reduced such violence, he shows that increasing violence between herders and farmers over natural resources is likely in periods where the natural resource base is clearly diminishing. He links the processes of desertification of the Sahelian environment and increased competition for scarce resources to rising violence during the period studied. He bases these claims on archival research and oral histories provided by farmers and herders in the region. However, similar to the above analyses, his argument fails to provide quantified evidence of the increase in conflict between groups during this period.

The studies presented here reveal that it is very difficult to find long term time series data to show that farmer-herder conflict has increased and it is hard to prove that a period of low rainfall and diminishing availability of natural resources must necessarily stimulate increased conflict.

* *Historical evidence for increasing conflict*

"Un conflit existe et surgit toujours dans un contexte et ce contexte est presque toujours complexe." (Mathieu 1995a:5)

As Mathieu has argued, local natural resource conflicts are complex, influenced by other past and contemporary conflicts and inscribed in a specific historical context (Mathieu 1995a; also van Raaij 1974). This leads us to examine particular cases in more detail to clarify our understanding of farmer-herder conflicts.

Gallais (1975) refers to Tamacheq herders in the Gourma of Mali fighting against sedentary farmers in the region. This group of warriors perceived the farming populations as their slaves, a form of political violence referred to by Webb (1995). It was only with the arrival of colonial rule at the end of the nineteenth century that the balance in this historic conflict was tipped in favour of the farmers, who then exerted more control over key natural resources, and limited Tamacheq herders' access to the fertile banks of the River Niger. In the pre-colonial period, the same herder group also had violent confrontations with the slave "Iklan" Tuareg group in the areas of the Gourma dominated by farming. Furthermore, historic conflicts occurred between the Fulani and the mountain farmers over access to dry season grazing. Access to and control over key natural resources may have been the main causes of these conflicts, which *decreased* with the advent of colonial rule, and a realignment of the power balance. Gallais only cites one significant case of herders continuing their political violence against farmers in the region. The Foulankiriabé farmers of the Hombori area of Gourma continued to have periodic crises with their former masters well after the establishment of colonial rule, which ultimately forced these farmers to flee to Burkina Faso.

Van Dijk (1996) refers to many incidents of violence between farmers and herders in Mali on the Niger River bend. He describes the evolution of natural resource regimes and farmer-herder conflict in relation to the establishment of the Dina code by Sekou Amadou in 1812, to its subsequent demise in 1862 and eventual replacement with the French colonial regime, and finally to events post-independence. He charts rising and falling levels of conflict between farmers and herders over this period, but he does not supply data as to the degree or nature of these conflicts. He thus confirms the point made earlier, that historical analyses tend to show a continuity in the pattern of violence between herding and farming groups over time, rather than a sharp increase in incidents.

In Webb's historical analysis of the Western Sahel 1600-1850, the political violence of herding populations towards farming populations during the pre-colonial period is well-documented. "White" warriors (herders from the northern Sahel) continually raided "black" agricultural communities. This author sees such political violence as caused by strong competition for control and access to scarce natural resources in a gradually desiccating environment (which Webb 1995:5-9, argues has continued until the present day). The desert's expansion southwards led to the movement south of herders so they could continue to survive, returning north (often with slaves) during wetter periods. Through movement south these herders gained access to the agricultural production, and the natural resources used by "black" farmers. They also enslaved these populations and transported them to the desert edge and plateau regions to the north to tend their livestock so that by the end of the eighteenth century most farms controlled by "whites" were worked by "black" slaves. By the end of the nineteenth century the principal role of these slaves was to produce the food grains required by herders. Some of these have remained effective serfs under the authority of their "white" overlords until the present day. Although this author does not continue his study to the present day (the period of study ends in 1850), the historical evidence presented indicates that violent conflict between farmers and herders has long standing roots in this semi-arid region.

Van Raaij (1974:16ff) warns against over-generalisation, and provides various examples of herders being subjugated to farmer populations in Africa. From his case study of northern Nigeria, he cites the way in which Fulani herders were subjugated to Hausa rulers in pre-colonial Hausaland, and accorded fewer privileges than Hausa farmers. Marty (1993) echoes this with his reference to the marginalisation of herding populations in Africa over recent decades with the changed power balance between herders and farmers in the colonial period, continuing even more strongly in the post-Independence period.

Is there a conventional wisdom?

As was noted in the introduction, there are two broad perspectives on farmer-herder relations in semi-arid Africa. The first perspective is based on the view that farmer-herder relations have historically involved periodic violence, but also are characterised by symbiosis, non-violent interaction and complementarity. The second perspective stems from a concern that violent conflict has become a major impediment to rural development, and that farmer-herder conflicts are increasing to a degree that requires intervention. Related to this view

is the concern that the positive "traditional" forms of farmer-herder interaction that existed in the past (symbiosis, exchange relations, etc.) are breaking down, along with customary natural resource management institutions. This implies that new structures for conflict management and new institutions for the cooperative management of natural resource use must be part of any intervention.

The latter perspective has created a "conventional wisdom" in policy-oriented research, the essence of which is that as pressure on resources intensifies, the capacity of "traditional" institutions to manage and regulate competition is surpassed or diminished. Increasing violent conflict is the "inevitable" result, which necessitates various new forms of intervention. This view is usually linked to the belief that pastoralists are politically marginalised in conflicts with farmers, and therefore need special interventions to redress the balance.

The empirical evidence available does not appear to support this "conventional wisdom", conflict seems to have been a normal part of herder-farmer relations and this is likely to continue. Herders have been marginalised in some parts of semi-arid Africa but by no means everywhere, while exchange relations between farmers and herders continue to play a very important role throughout the region.

Summary

While the empirical evidence analysed here provides valuable insights into violent herder-herder and farmer-herder conflicts over natural resources, there is insufficient time series data to confirm that violent farmer-herder conflict is increasing in Africa. The studies presented here reveal that conflicts occur, abate and recur, but this has been the context in which farmers and herders have always lived in semi-arid Africa. Violence between groups of resource users is a habitual and sporadic outcome of competition over natural resources, just as are complementarity, symbiosis and peace.

CAUSATION OF FARMER-HERDER CONFLICTS

Theories of causation

It is important to understand the causes of underlying farmer-herder conflict, which involve an interplay between long term trends (such as increasing aridi-

ty of the climate in parts of semi-arid Africa, failure of governance and weakening of States, increasing importance of markets.....) and specific events (such as drought, crop damage by trespassing livestock, the flare up of ethnic violence...).

The structures of causation linking long term trends and specific events to violent conflict over natural resources are rarely adequately theorised. Some researchers arguing that farmer-herder conflict is increasing have drawn very simplistic causative linkages. For example, in their research project outline for a study on pastoralists and conflict in Eastern Africa, Doornbos and Markakis state that with *"...increasing competition for resources, the symbiotic pattern of interaction between pastoralists and cultivators often breaks down and conflict follows"* (1992:3). And yet, it should be clear from the above discussion that such statements only begin to identify causes of conflict: in each context there are multiple causes of which access to and control over natural resources is only one (Marty 1993).

Homer-Dixon (1995) provides one of the few theoretical discussions of causation to support his hypothesis that environmental scarcity is a fundamental cause of conflict. He states that research shows that environmental scarcities combined with rapid population growth *can* contribute to violence and social conflict. However, in any conflict a number of causative factors can usually be identified, and it is impossible to determine the degree of causation that can be attributed to a single variable such as environmental scarcity. Indeed, given the long-standing nature of tensions between farmers and herders we need to look at each case in turn to understand why tensions turn into open and violent conflict in one case but not in another.

While highly theoretical, Homer-Dixon's approach remains useful in its classification of three causal roles that environmental scarcity can play in relation to a particular conflict:

- as an *underlying stressor*, causally distant yet powerful;
- as *aggravator* of existing conflicts;
- as a *trigger* releasing accumulated non-environmental pressures.

Other researchers have also classified causes of conflict in a similar way. For example, Bassett (1988) uses the work of Torry on the causes of famine to identify four types of causes of farmer-herder conflict:

- *ultimate causes* (systemic, structural and historic factors and processes);
- *predisposing conditions* for a conflict;
- *proximate causes* (e.g. debt; low food reserves...);
- *stressors* or *triggers* (e.g. drought; war; State appropriation of land; high food prices...) that have a catalytic effect in transforming tension to conflict.

To these should be added Adams and Bradbury's (1995) distinction between *macro level* causes (i.e. those external to the production systems and the local actors involved) and *micro level* causes (i.e. those internal to the production systems and the local actors involved). These classifications are examined below:

Ultimate causes
Macro level: these include colonial intervention, rinderpest epidemic, population pressure, climate variability and drought, desertification and environmental degradation, movement of herds, expansion of agriculture and agricultural intensification, land scarcity, uncertainty over property rights and privatisation of land, state policy on land, development interventions, state vested interests, state failure, macro-economic factors, food insecurity. Micro level: these include cultural antagonism and mistrust, ethnicity, perceptions of space and modes of livelihood, herder defence arrangements, breakdown of traditional institutions.
Proximate causes
Macro level: including coalition of State/local herder interests against local farmers and vice versa. Micro level: including local competition for natural resources, access to water points, trespassing and crop damage, hired herders, cattle theft.

Each set of pressures can have violent or non-violent outcomes, so they should not necessarily be seen as automatically leading to violence between farmers and herders.

Ultimate causes: macro level

Colonial intervention: The period of colonial control in sub-Saharan Africa affected the relations between farmers and herders. Adams and Bradbury (1995:14-15) assert that one of the main legacies of colonialism was the introduction of modern weaponry in Africa, resulting in more destructive relations between certain ethnic groups. They add that colonialism precipitated the collapse of ancient principles of "balanced reciprocity" in the practice of warfare between ethnic groups, and thereby warfare changed from being a means to adapt to new circumstances to an agent for the outright destruction of other

groups (1995:21). Empirical studies moderate this perspective, however. For example, in his analysis of herder-herder raiding in Kenya, Bollig (1993:182) accepts that while the introduction of modern weaponry contributed to conflicts being more destructive these weapons cannot be seen as the ultimate cause of such conflicts.

Webb's analysis of the history of the western Sahel shows that conflict between ethnic groups, in particular between farming and herding groups, *abated* with the gradual extension of French colonial rule at the end of the nineteenth century. Farmers and herders had historically had violent relations, characterised by the military domination of farming groups from the southern regions of the Sahel by herder groups from the north. Colonialism enforced peace, abolished the enslavement of farmers by herders, and confirmed farmers' previously tenuous rights to land. It cannot then be assumed that colonialism has always been an ultimate cause of farmer-herder violence, although specific policies in certain regions may have disrupted farmer-herder relations at certain times. As an example of the latter, Ndagala (n.d.:56) shows how the establishment of Native Authorities to manage land use in what is now Tanzania acted against the interests of Datoga herders, leading to inter-communal violence as herders' livelihoods were threatened.

Rinderpest epidemic: Hutchison (1991) claims that the rinderpest epidemic which began in 1888 fundamentally and permanently altered long established relations between farming and herding communities in Africa as it resulted in over 90% of cattle dying in some parts of Africa. This epidemic coincided with the historic decline in power and influence of herding communities in semi-arid Africa and hence may well have contributed to a broad shift in power balance between the two groups. Given the prior ascendency of herders, such a shift in the balance of power should have led to reduced violence directed towards farmers by the former herding elite.

Population pressure: Increasing population pressure leading to more acute competition for scarce resources is often cited as the ultimate cause of farmer-herder conflicts in semi-arid Africa. It is argued that the increase in sedentary farming populations and their colonisation of semi-arid lands for farming, in conjunction with the erosion of pastoral property rights, has reduced pastoralists' ability to overcome shocks and stress (e.g. droughts). Several studies of East and West Africa argue that such pressures, in conjunction with droughts or other shocks, have increased competition for natural resources *and hence* violent conflict between farming and herding groups (van den Brink *et al.*

1991; Oba 1992; Bernus 1974; van Dijk 1996:11). However, these studies provide little empirical proof for the causative linkage between these processes.

Climate variability and drought: Semi-arid Africa is characterised by unreliable rainfall, both in terms of geographical distribution and total rainfall. The increasing aridity of the Sahelian climate (Webb 1995) and the series of serious droughts that afflicted the Sahel and East Africa (1968-74; 1979-83; 1989-91) have contributed to the breakdown of traditional symbiotic relations between farmers and herders. Conflicts then occur over access to scarce permanent water sources and herders have to graze their livestock in crop production areas for longer periods (see van Dijk on Mali (1996:11)). However, there is also evidence to suggest that farmers and herders adapt their production systems and livelihood strategies in periods of increased aridity, to avoid conflict (see Bayer and Waters Bayer 1994:58-59).

Desertification and environmental degradation: Maiga and Diallo (1995:24) put forward a commonly held view among researchers working on semi-arid Africa that a long term process of desertification in the region is the ultimate cause of farmer-herder conflict. In their study of the Mopti region of Mali, they argue that desertification has led to growing conflict between competing production systems. The view that farmer-herder conflict is related to processes of desertification is reiterated by other authors (Bayer and Waters-Bayer 1995; Thébaud 1995; Westing 1994; UNSO 1994).

However, other authors question the evidence for a long term process of desertification (Sandford 1983). Research shows that drylands productivity often goes in cycles according to rainfall (Warren and Agnew 1988; Webb 1995). Thus, while the vagaries of rainfall and environmental degradation may contribute to conflicts, this is not a new situation (Bennett 1991), nor is there an irreversible process of dryland degradation taking place.

Movement of herds: In West Africa there has been a process over twenty or thirty years of herders moving southwards with their herds due to increased aridity in the climate, the reduced risk of Tsetse fly infestation, the availability of crop residues and fallow lands for grazing, the presence of markets and the possibilities offered by the exchange of manure and animal draft power for agriculture (Bayer and Waters-Bayer 1995; Bourn and Wint 1994; Bassett 1988). Several authors also link this movement south with increasing tensions and conflict between herding and farming populations, their proximity resulting in more conflicts over the use of key natural resources (Bayer and Waters-

Bayer 1995; Bassett 1986 and Diallo 1996 on Fulani herds moving south to Ivory Coast; Vedeld on Mauritania, Mali and Niger 1992:5).

However, the evidence presented by Bourn and Wint (1994) indicates that this process can lead, not to conflict, but to an initial coexistence of production systems followed by gradual integration of animal husbandry within the local farming system. In their view, this provides evidence that farming and herding are neither mutually exclusive, nor incompatible. However, Diallo's analysis of the process of Fulani herders settling in areas of the Ivory Coast in the decades since the 1968-73 drought comes to the opposite conclusion: the vastly increased numbers of livestock in the area has increased competition between herders and indigenous farmers for resources, a process which has caused tensions to rise between the two groups, and resulted in outbreaks of violent conflict (for example in 1988, Diallo 1996).

Expansion and intensification of agriculture: Colonisation of rangelands by farmers for agricultural use has reduced access to grazing and resulted in farmer-herder conflict (Pelissier 1977; Campbell 1981). This problem has been compounded in areas where farmers, herders and absentee cattle owners have acted to restrict access to previously open rangelands (Toulmin 1983a). State support for the intensification of agriculture and the introduction of large-scale State farms has removed key resources from livestock production systems (see Lane 1990; 1991 on Tanzania). Bernus (1974:141) points to agricultural expansion into zones previously reserved for herding, reducing the space available for pastoralists and hence increasing the scale of farmer-herder conflict in Niger. Diallo (1995) adds that the expansion of agriculture has entailed the anarchic occupation of transhumance corridors, leading to conflicts when herders try to use these corridors, thus disturbing crops. Mathieu (1995c:156) shows how farmers in the flood plains of the Inland Niger Delta, Mali, appropriated land used traditionally for grazing by Tuareg herders after the droughts of the 1970s and 1980s. This appropriation of key resources by farmers led to a series of land disputes and litigation on the return of the Tuareg herders in the 1990s. Such expansion of agriculture has often been encouraged by African governments, but individual farmers have also moved autonomously to occupy grazing lands (Mathieu 1995). The encroachment on grazing lands threatens the survival of livestock production systems and hence herders sometimes defy change using violence.

Uncertainty over property rights, privatisation and state policy on land: The struggle between different resource users over land emerges as a central

cause of conflict in the cases presented above. Scarcity of land is not a problem in all regions of semi-arid Africa, but there is often hot competition for high value key resources (van Raaij 1974). Ndagala (1991) shows how conflict between Datoga herders and farmers has resulted from government-supported projects and farmers appropriating prime grazing lands.

It is access to and control over land that causes such disputes. In most African countries there are overlapping use rights accorded to different groups that do not inhabit territorially distinct areas. Such land-use systems have the positive attribute of allowing mobility in variable environments such as the semi-arid regions. But, as Behnke (1992:9-10) notes overlapping rights to property can bring difficulties which are compounded by the legal uncertainty that often reigns regarding who has access to and control over land, especially given State nationalisation of land following independence. Mathieu (1995a) argues that there is no sense of legality regarding the use of land in Africa leading to a "free-for-all" attitude to land use which easily incites conflict: users are uncertain about who has authority over land and hence may take advantage of this lack of clarity to "misuse" resources. Cases where different users (not only herders and farmers) come into conflict because of this lack of clarity and authority are cited widely (see, for example Laurent and Mathieu on the Nuni and Mossi in southern Burkina Faso (1994)).

This problem is compounded according to Mathieu (1995a:3) by the process of *institutional transition* or vacuum regarding land management in Africa, whereby all State and traditional authorities have found their power weakened to oversee how land is used. Perhaps the most significant aspect of this process is the privatisation or individualisation of access to and control over land, usually in favour of sedentary farmers. This includes the privatisation by farmers of common land near villages which used to provide the best dry season grazing (Vedeld 1992:8), the conversion of grazing lands and transhumance routes to agricultural use (see Ndagala on the Datoga of Tanzania (1991)) and the privatisation of wells and permanent water sources in the western Sahel (Toulmin 1991:23;27). These processes have allegedly led to contests between farmers and herders over rights to use and control land (Mathieu 1995a:3; Scoones and Cousins on Zimbabwe (1994); Scoones 1995:20). Since modern, inflexible land tenure arrangements are inappropriate for pastoralists who depend on mobility to "track" natural resources, tensions between herders and farmers can be expected in these contexts (Scoones 1995:23; Thébaud 1995).

Land policies of modern African states have sometimes been considered responsible for the occurrence of tensions and conflicts between farmers and herders. For example, the "top-down" approach to development pursued by the Tanzanian State involved the alienation of Barabaig herders' prime grazing lands in Hanang District, Arusha region, for the purposes of a State wheat development project (Lane 1991:75). This encroachment weakened traditional management systems, and undermined pastoral livelihoods. As a result, Barabaig protested against the large-scale wheat farms and Iraqw farmers who had been allocated land, leading to confrontation with the State through court cases, arrests for the continued use of the pasture lands near State-supported farms, and occasional violence, with loss of stock and human life (Ndagala n.d.:61; Lane 1990). The State's response was to change Tanzanian law in 1992, abrogating all customary rights over land. Also in Tanzania, Maasai herders expelled by the State from traditional grazing lands have resisted, resulting in human rights abuses by the State against them and subsequent litigation by the Maasai against the State (Bradbury *et al.* 1994).

In Mali, a high level consultation organised by the "Ministère du Développement Rural et de l'Environnement" concluded that the national land laws in the form of the "Code Domanial et Foncier" are a major cause of farmer-herder conflicts in the country. These laws do not recognise herding as a valid form of land-use. Hence, herders have no recognised rights to land either individually or collectively despite the important contribution of herding to the gross national product. By contrast, land put under cultivation confers legal rights to farmers, hence the cultivated land area has increased, reducing the land available for use by herders. In particular, some strategic resources such as the "bourgoutières" (rich pastures in the Niger River flood plain accessible only at the end of the rainy season) have been transformed into rice fields. These State policies have increased the intensity of competition for natural resources along the Niger River (see van Dijk 1996:11).

Development interventions: Development interventions have been blamed for directly contributing to the creation of farmer-herder conflict. State interventions, such as the provision of open access grazing lands and water points have disrupted traditional management systems, and created a situation for which no-one sees themselves as responsible, (Vedeld 1992; Thébaud 1990). Similarly, State irrigation projects in the Awash River valley in Ethiopia have been blamed for intensifying natural resource conflicts.

Development projects promoted by NGOs have also on occasion contributed to intensified competition for land leading to litigation. With the return of better climatic conditions in the 1990s, Fulani herders who had migrated up to twenty years earlier due to drought, returned to their historic flood plain grazing lands on the Niger River in Mali. On returning they found themselves in strong competition with farmers who had extended agriculture in the region with the assistance of NGO-sponsored activities to rehabilitate the bourgoutières. The result was a rush of court cases to clarify who had rights to control land (Mathieu 1995c).

Other interventions, such as livestock development projects or the introduction of new technologies to improve the efficiency of agriculture, have been linked to worsening farmer-herder relations. First, Bassett (1988:467) presents evidence that the livestock development projects of the government of Ivory Coast have contributed to conflict between Senoufo farmers and Fulani herders. Gallais (1972) argues that the introduction of new technologies has reduced the time and need for complementarity and exchange between farmers and herders in the West African Sahel. More specifically, Toulmin (1983b:36-37) asserts that the increased availability of chemical fertiliser in the region in the 1970s reduced the importance of manure provided by herders as an essential agricultural input. This had the consequence of farmers reducing herders' access to village grazing lands or crop residues.

In conclusion, certain approaches to local rural development can exclude herders and serve farmers' interests ultimately leading to conflicts as herders' interests are ignored. One such approach is the "gestion de terroirs" approach to local land management which tends to exclude mobile herders from village lands and strengthen farmers' claims on these lands, thus leading to conflict between farmers and herders over access to village lands (UNSO 1994).

State vested interests: The vested interests of groups controlling the State apparatus can, usually in conjunction with other factors, exacerbate farmer-herder conflicts. The case of the Barabaig in Tanzania cited above is an example of the State's vested interest in agricultural development, at the expense of the welfare of the Datoga, a comparatively small and powerless minority group in Tanzania. Similarly, in his thesis on the economy and ecology of the pastoral Fulbe in the Inland Niger Delta region of Mali, Turner (1992) concludes that the State's desire to increase crop production helped aggravate resource conflicts (see also Moorehead 1991).

State failure: "Weak" states or State failure have been recurrent themes in the literature analysing the ultimate causes of conflict in post-Independence Africa. Modern African states have tried to extend their authority over the populations and territories under their control, and in the process have often disrupted customary conflict settlement mechanisms. However, the modern administrative and judicial structure for the management and resolution of local-level conflicts has often failed to function, creating the context for serious conflicts to arise. This began during the colonial period, with colonial governments in Kenya, Uganda and Tanzania introducing new approaches to local natural resource management that were not compatible with traditional ones (Loiske 1990). In Ethiopia, the Derg regime of Mengistu introduced new systems for resource management that completely failed as they were not accepted by local communities.

Case study evidence confirms that the problem of State failure is widespread in Africa. In her analysis of farmer-herder conflict in northern Cameroon, Harshbarger (1995:36) argues that the failure of the State to enforce existing land laws protecting farmers from crop damage by herders generates further conflict. Farmers have ceased to have confidence in the State's conflict resolution mechanisms, preferring to resort to public protest. When such confidence in the State is lost, peaceful disputes more easily gain ethnic dimensions and become violent (Harshbarger 1995:30-31; 232-3). Guèye takes the same view in his analysis of local conflicts over access to and control over natural resources between Wolof and Serere farmers on the one hand and Fulani herders on the other. Reflecting no confidence in the formal conflict resolution bodies established by the Senegalese State, these local populations have sought their own solutions to natural resource conflict (Guèye 1995:10). Finally, in his analysis of disputes between Senoufo farmers and Fulani herders in northern Ivory Coast, Diallo (1995) shows that farmers have lost confidence in the State because of the perceived bias of the State towards herders' interests. Farmers no longer trust the State at the local "sous-Préfecture" level to be able impartially to resolve natural resource conflicts with herders, doubting the competence and honesty of local State officials. In response, farmers have organised their own system to protect their fields from damage caused by cattle trespassing: they have organised groups of armed "chasseurs" (vigilantes) to police their fields and expel herders, a tactic that can obviously lead to violence.

Adams and Bradbury (1995:170) refute the argument that weak states cause violent conflict in Africa, since if this were true, there would be more evidence of the serious conflicts that have threatened the very existence of a few African

states, such as Rwanda and Somalia. They argue that, in fact, African states are generally not as weak as few face such a threat to their existence. However, while this may be correct when analysing conflicts that threaten the very heart of the State and its continued existence, it is suggested here that African States are often weak in being able effectively to resolve local-level farmer-herder conflict. Weak States are, therefore, often an important ultimate cause of farmer-herder conflict because there is no authority to arbitrate in disputes over access to resources.

Macro-economic factors: National development, economic policy and the international economic framework can aggravate farmer-herder conflict in certain contexts. In his analysis of relations between Senoufo farmers and Fulani herders in northern Ivory Coast, Diallo (1996) argues that the rapid process of urbanisation in the Ivory Coast has produced a substantial increase in the demand for beef at the national level that cannot be satisfied by national production. This has led to increasing imports of beef from neighbouring countries, and a negative effect on the balance of payments. In response, the government has been encouraging migrating Fulani herders to settle permanently in the northern part of the country so as to stabilise the internal meat supply for urban dwellers. The main vehicle to achieve this was the "Société de Développement des Productions Animales" (SODEPRA), established as a State agency in 1970 and dissolved in 1994. This agency provided livestock extension services in the northern region, constructed dams and vaccination centres, and distributed subsidised seeds for forage crops. This policy favouring the settlement of foreign herder populations fuelled tensions between indigenous farmers and Fulani herders, resulting in violent clashes between the two groups over control of land, and periodic flight of herders out of the country. Here, the State and urban classes (members of parliament, civil servants and developers), who were interested in generating the taxation revenues generated by livestock production and providing an internal supply of meat to the expanding urban economy, were pitted against the interests of the indigenous Senoufo farmers who did not welcome the presence of the Fulani herders.

Another macro-economic cause of farmer-herder conflict cited in the literature has been the process of integration of producers into the cash and market economies of the Sahel and East Africa. Cash transactions have gradually replaced relations of barter and exchange that historically characterised economic relations between them. In order for herders to acquire the goods necessary to sustain their livelihoods they have been increasingly forced to sell livestock. At the same time farmers have increased their holding of livestock,

hence reducing their dependence on herders to provide livestock products. Further, markets have developed for the purchase and sale of natural resources (land, stubble etc.) giving more power to farmers in relation to herders. Thus, traditional farmer-herder social relations have been gradually breaking down (Toulmin 1992).

Ormerod (1978) links the process of increased Fulani integration into the cash economy to the higher demand for meat in the growing coastal towns of West Africa.

> *"The traditional economy of the nomad graziers has become linked to the cash economy in such a way that the demand for meat from the coastal towns is being satisfied by exploiting the common lands at the desert margin at a time when these same lands are under pressure from population increase and changes in the methods of arable farming."* (Ormerod 1978:365)

The implication here is that increased competition for land between herders and farmers has stemmed from herders extending their traditional operations to increase the production and marketing of livestock to satisfy market demand. Such pressure on semi-subsistence economies to commercialise production "*...have upset the balance between economic modes of production and the environment, contributing to the shrinking of Africa's resource base and increased local resource conflict*" (Adams and Bradbury 1995:18).

Finally, the widespread increase in cash-crop production could be linked to new farmer-herder conflicts. Van Raaij (1974:36) provides the example of the increase in the cultivation of cotton in northern Nigeria. Cotton matures in the dry season, when herders traditionally grazed livestock in fields. However, the need to protect such cash crops from damage from livestock has led farmers to exclude herders from their fields in the dry season, provoking disputes between herders and farmers.

Ultimate causes: micro level

Cultural antagonism and mistrust: The cultural antagonism and mistrust between farmer and herder groups in various locations in semi-arid Africa is frequently noted in the literature. Mathieu (1995) links farmer-herder conflict to the progressive disruption of customary social relations which had been based on mutual dependence. Cultural antagonism has, however, often existed alongside such dependence and complementarity.

Bovin's (1985) analysis of farmer-herder relations in West Africa indicates that farming groups see themselves as having quite distinct social characteristics to herders. Farmers see themselves as "civilised" as they are settled and conduct farming, whereas herders are seen as "savages" due the mobility and rootlessness required by their occupation, an impression that is confirmed by their cultural distinctiveness. The ethnic and cultural identities which each group creates and nurtures through generations uphold this image and result in a state of cultural antagonism that has always existed. Van Raaij (1974) notes the distinctions between the nomadic Fulani and sedentary farming populations in northern Nigeria. Herding groups tend to reinforce this notion of cultural difference so as to preserve their threatened way of life. Hence, they retain language and traditions that are distinct from those of the farming populations with whom they share natural resources, and display an obvious disdain for agricultural work. This explains the lingering ethnocentricity, despite a deep sense of interdependence between Hausa farmers and Fulani herders (van Raaij 1974: 223-26). Conflict becomes more likely when it is perceived as an essential tool to preserve a threatened way of life, in this case the livestock production system itself (see Mearns *et al.* on conflict in Turkana, Kenya (1996)). Both Bovin (1985) and van Raaij (1974) see the preservation of these cultural identities as the underlying context in which tensions between the two groups periodically flare up into open conflict.

In Tanzania, Datoga herders and surrounding farming populations have displayed a similar mix of reciprocity and cultural antagonism. The farming groups retain a historic mistrust of the herders. This antagonism is in part due to unacceptable rituals and customs historically practised by the Datoga. In particular, the Datoga are feared because of the murder customs practised by one section of the ethnic group: the Barabaig (Ndagala 1991; Loiske 1990). These customs involved giving a reward to any man found to have killed a non-Datoga farmer, considered as potential cattle thieves, and therefore natural "enemies of the people". While the custom is not currently widely practised, the knowledge of its existence contributed in the mid-1980s to attempts by farmers of different ethnic groups to eliminate the Datoga group by violence. Ndagala does not see cultural antagonism as the sole factor here, however, but links this violence with increased competition between these farming groups over natural resources. Inter-group relations were exacerbated by inadequate State development policies, in particular villagisation of the Datoga (Ndagala 1991).

Ethnicity: Linked to this issue of cultural antagonism is that of ethnicity. At a local level ethnicity often plays an important role in farmer-herder conflicts.

As was noted earlier, many analysts present farming and herding groups as belonging historically to different ethnicities, keen on retaining their distinct ethnic identities. FitzSimons and Whiteside (1994:8) describe conflicts between the Maasai, Kalenjin and Pokot in the Kenyan Rift Valley as essentially ethnic conflict. Harshbarger (1995:200ff) relates the differing degrees of conflict between farmers and Fulani herders in her two study villages to the fact that farmers in these villages belonged to different ethnicities, each of which had differing sets of relations with the Fulani. Oba (1992) describes the way in which Turkana herders in Kenya traditionally fight neighbouring groups of other ethnicities (see also Bollig 1992). Finally, Ndagala (1991; n.d.) shows how in Tanzania, Datoga herders have historically had conflictual relations with some farming ethnic groups, but alliances with others.

There is no doubt that various detailed studies show important links between ethnicity and violent conflict in Africa (see Fukui and Markakis 1994). However, farmer-herder conflict cannot be reduced to ethnic animosity between groups alone. Some authors take the view that ethnic difference is only a supplementary factor that can ignite conflicts in contexts where other tensions over resource use are already running high. These authors reject the reductionism often displayed by Western observers of violent conflicts in Africa, where sides in a conflict are habitually referred to in ethnic terms.

Zuppan (1994) sees farmer-herder relations as having evolved in complexity over time. We are now witnessing the processes of homogenisation of farming and herding production systems in semi-arid Africa so that farmers and herders now compete for the same economic and ecological resources. This means that reasons for conflict between farmers and herders are more complex than simply belonging to different ethnic groups (also see Toulmin 1983b:38).

Perceptions of space and modes of livelihood: The fundamentally different perceptions of space, territory, and claims to land held by farmers and herders were analysed above. Herders need to use a large territory, tracking the seasonal availability of grazing and water resources. Farmers usually stay in one locality, even if they use different patches of land in different periods. As a result, the overlapping rights and interests held by different groups can engender dispute, as well as the recognition of complementarity.

Herder defence arrangements: The mobility which herders require may leave their livestock vulnerable to theft or animal marauders on occasion. Given the centrality of livestock to their production system, this has led to

herding groups making security and protection of livestock a priority. Hence, herding communities are famed for their readiness to defend herds from attack, a readiness that can contribute to tensions between herders and farmers developing into violent disputes at a local level.

Breakdown of traditional institutions: Some analysts have suggested that traditional institutions for the management of natural resources have broken down with the intrusion of the institutions of the modern State. Vedeld (1992:7-9) argues that the disintegration of traditional territorial organisations and common property regimes has increased conflicts between different resource users, but does not provide sufficient evidence to support this claim.

Moorehead (1991) argues that institutions in the Inland Niger Delta of Mali, established early in the nineteenth century to regulate farmers' and herders' use of land have been gradually breaking down to the disadvantage of Fulani herders. This has encouraged conflict between Fulani herders and farmers in the region. Similarly, Lane (1991) argues that the breakdown of traditional Barabaig herder institutions in Tanzania has increased opportunities for farmer-herder conflict. Here, one hypothesis advanced to explain farmer-herder conflict is that the traditional common property resource management regime has been replaced by individual maximising behaviour and individual appropriation of land.

The literature does not provide conclusive evidence that local institutions are in a state of terminal decline. On the contrary, the evidence indicates that they are often still functioning and manage to regulate access to and control over natural resources *except* where the State has directly appropriated powers from these institutions to manage resource use at the local level.

Proximate causes: macro level

Proximate causes of conflicts are likely to be locally specific. However, one example is provided below of a linkage between proximate causes of conflict and macro level factors.

Coalition of State/local interests against either farmers or herders: This refers to the emergence of alliances between governments and particular vested interests against other groups. Harshbarger (1995:213) refers to such a coalition in Cameroon which has inhibited attempts at conflict resolution via official channels. Here, this alliance contributed to the corruption of State officials in

the Farmer-Grazier Commission, which acted to mediate farmer-herder conflicts over cattle trespassing and crop damage. Similarly, in northern Ivory Coast, where immigrant Fulani herders were encouraged to settle by the government in the 1970s, there was increased farmer-herder conflict due to damage to crops given the presence of the new herds. Several examples of state-farmer coalitions which have resulted in herder marginalisation and conflict have been referred to previously (e.g. the Barabaig – see Lane 1991; 1993). These have tended to have negative effects on farmer-herder relations similar to those experienced in situations where the state intervenes on behalf of herders.

Proximate causes: micro level

Local competition for natural resources: At the micro level, the proximate cause of farmer-herder conflict most central to this study is local competition for resources between different local users. It has been noted above that such competition is normal and does not necessarily result in violence.

Guèye (1995) explains the conflict between Fulani herders, and Wolof and Sérère farmers in Senegal in these terms. Here, the Fulani were later arrivals in a farming region, placing them in the role of "guests" of the "host" farming communities. They were loaned land for cultivation and grazing on a long term, but not permanent, basis by their hosts. The conflict between these farmers and herders originated over rights to a key resource: the leaves of the shrub "quinquéliba" (*Combretum micranthum*). This shrub is a rich source of fodder for herders, but has been increasingly used by farmers for commercial purposes. Since the Fulani were visitors, and the host populations wished to control the use of this shrub, they were in conflict over the former's continued exploitation of this resource, even though it grew in lands "loaned" to the Fulani. At the height of the dispute, the host populations argued that the Fulani were only their guests and that the farmers had priority rights over the use of this resource.

Struggles over land rights as conditions change can also lead to violent conflict over resources. Herders frequently have less well defined rights to land due to State policy favouring agriculture. Mathieu (1995a) provides examples of different groups beginning to oppose each other as local people recognise the importance of trying to secure their land rights. "Guest" populations or settling migrants often lose in such conflicts. Turner (1992) describes the violation of traditional usufruct rights in the Inland Niger Delta of Mali, which has led to violent incidents between farmers and herders. According to Turner, such con-

flict is inevitable unless traditional tenure arrangements are re-defined to fit with contemporary realities. For Diallo (1996), the roots of these types of conflict lie in the contradiction between modern and traditional systems of land tenure. In the Ivory Coast, the subject of Diallo's study, he states that 99% of land is still managed by traditional authorities (Diallo 1996:19). When people try to secure land under the relatively recent legislative provisions, conflicts arise due to their being in contradiction with traditional systems of land tenure.

Diallo (1996:15) also provides the example of how Senoufo farmers have tried to maintain control of water resources in Boundiali region, northern Ivory Coast. This conflict arose when the Fulani were prevented from using water near dams on the pretext that the watering of their livestock would make the fish flee, hence undermining the livelihoods of local fishermen, and herders' access to these dams was prevented by local farmers surrounding it with barbed wire.

Access to water points: In a study of herding by Fulani herders in southern Burkina Faso, de Boer and Kessler (n.d.:47) note that one of the most important problems identified by Fulani herders as causing conflict between them and local farmers was the lack of water in the region, in particular the insufficient number of wells and water points dedicated to pastoral use. However, even if wells are provided these may then become a cause of localised conflicts between farmers and herders, as illustrated by Thébaud (1990).

Trespassing and crop damage: The literature is replete with references to cattle trespassing in fields, and damage to crops, causing conflicts to flare up between individual farmers and herders. Conflict can arise from such incidents when the usual systems of compensation for crop damage fail to operate.

Diallo (1995) sees trespassing by cattle in fields as one of the main causes of localised farmer-herder conflict in semi-arid Africa. [See also Bernus on Niger (1974); Harshbarger on Cameroon (1995); Diallo (1996); van der Valk-van Ginneken (1980) and van Raaij on Nigeria (1974); République du Mali (1994); Bovin (1985) on the WoDaabe versus Konari conflict in Niger and Nigeria (1985)]. He observes an increasing trend of cattle trespassing as herders search for grazing. The farmers and herders interviewed by Cross and Barker (1995) talked of conflicts over crop damage increasing due to population pressure on land, the fading respect for the authority of traditional institutions, and the lack of State involvement in applying sanctions for crop damage. Harshbarger's study of crop damage disputes in Cameroon confirms that when

the systems for compensating farmers cease to work, public protest and violent clashes between farmers and herders can result (Harshbarger 1995).

Crop damage does not always cause violent conflict. For example, de Boer and Kessler (n.d.:46) note that while crop damage by Fulani herds in the rainy season appeared to be an increasing problem in southern Burkina Faso, this was resolved without violence, by the payment of compensation equivalent to the value of the crops destroyed to farmers. Such compensation was mediated by traditional chiefs and extension workers, and this seemed to satisfy all parties. The research conducted in northern Nigeria by van Raaij (1974) indicates that there was a rise in court cases brought against Fulani herders for crop damage between 1962-67, but finds no link to increasing violence between farmers and herders. Van der Valk-van Ginneken (1980) notes that while crop damage was the main cause of tension between herders and farmers in northern Nigeria, these were resolved by litigation. No increasing trend in such disputes was observed.

Nonetheless, the importance of cattle trespassing and crop damage as a trigger for farmer-herder violence cannot be denied given the wealth of material cited above. There may be underlying reasons for this to be an important flashpoint for farmer-herder conflicts: the growing individualisation of land tenure, the increase in area planted to cash crops and dry season crops, and the erosion of herder rights to access dry season grazing combine to threaten the very existence of herding as a viable production system. However, against this backdrop must be placed the evidence that herders are usually willing to pay compensation as the price for maintaining their way of life.

Hired herders: The use of hired labour by herd-owning farmers is said to have contributed to local conflicts. It is argued that hired herders gain poor and insecure remuneration from their employers, and as a consequence, have sometimes adopted sloppy herd management practices, including leaving animals in the bush unguarded at night and causing crop damage. These have become one among several proximate causes of farmer-herder conflict in Ivory Coast (Bassett 1988:467).

Cattle theft: The theft of village cattle in northern Ivory Coast has been blamed on Fulani herders who live outside the villages of sedentary farmers, acts which foment conflict (Bassett 1988).

Summary

The series of causes presented above should not be construed as complete. It is evident from the discussion of causation that, in each conflict there are likely to be multiple causes, some of which may be unique to a particular context. The review presented here has concentrated on some of the most frequently cited causes of farmer-herder conflict. These causes may often be linked in what might be called *chains of causation*, with underlying causes setting a scene within which a conflict is finally triggered by a particular event. However, assessing the relative importance of different causes, and linkages between these causes, can only be done in relation to detailed, historical case studies of specific farmer-herder conflicts, and not as a result of a general discussion.

CONFLICT MANAGEMENT AND ITS RESOLUTION

Background

The second objective of this study was to examine the extent to which "traditional" mechanisms are still able to resolve disputes between farmers and herders, thereby questioning the need for new policy approaches. Material is provided below to assess the various roles of institutions at different levels in resolving conflict.

There is a considerable literature on conflict resolution in Africa that focuses both on resolving macro-level, inter-State conflict or situations of civil war (see e.g. Deng and Zartman 1991), and on the resolution of micro level natural resource conflicts (see Anderson *et al.* 1996; Cousins 1996; FTPP 1994; Delaloy 1993). Institutions for dealing with conflict have been in place for generations which implies that local communities *expect*, in normal circumstances, to address and resolve such problems.

Conflict resolution occurs at different levels. The first level is often hidden from outside observers, since it involves direct negotiation between the individual farmers and herders involved. Then, there are conflicts which are resolved by traditional institutions or by the formal institutions of the State. At the next level are intra-group and inter-group conflicts. Finally, there is the level of State versus groups of farmers or herders. Strategies employed by

local communities to manage or resolve these different levels of conflict vary, but usually include:

- adaptation of livelihoods and livelihood diversification;
- conflict avoidance and migration;
- alliances;
- recourse to higher authorities for rulings (e.g. customary local institutions);
- recourse to the formal authorities of the State and, in particular, the modern judicial system (courts);
- new fora for conflict resolution.

Adaptation of livelihoods and livelihood diversification

Responses to conflicts over natural resources are frequently non-violent, and involve adaptation of livelihood strategies to remove the fundamental causes of confrontation.

"Traditional" systems of interaction between farmers and herders have always been dynamic and responsive. As Scott notes of northern Nigeria:

> *"...the livelihood activities practised by the nomads and the farmers were constantly adjusting to new crops, new cattle management practices, new (commercial) attitudes toward production, changes in the environment, and changes in societal needs (cash, for example)".* (Scott 1984:51)

Growing competition for resources may simply have increased the speed of adaptation without increasing levels of conflict. Scoones (1995:27), for example, notes that *"...as populations have increased, new forms of resource management and tenure have arisen. The expansion of arable farming into grazing areas has meant that livestock management has had to adapt"*. He points out that "*...adaptation to increased resource pressure requires new arrangements*" and that "*...these may involve negotiations between farming and pastoral groups or access restrictions during the cultivation season within agropastoral communities so that mixed crop-livestock farming can continue successfully*" (Scoones 1995:27).

Adaptation has also included intensification, which usually entails the sharper delineation of rights over resources, greater specialisation, differentiation and diversification of activities and livelihoods.

A recent study of livelihoods in the Malian Sahel (Davies 1996), shows the ability of local people to pursue "adaptive strategies" in the face of various pressures on their livelihoods. These adaptive strategies are distinct from short term, temporary responses to a reduction in food entitlements, or "coping strategies". Rather, they involve long term, permanent changes in the mix of activities pursued, necessary to reduce the vulnerability of a particular bundle of activities (Davies 1996:4). Barth (1973) argues that adaptation is likely to result in successful farmers investing more of their surplus in livestock, while unsuccessful herders might resort to sedentary farming. This adaptive trend is a likely explanation for the gradual integration or "homogenisation" of herding and farming production systems in semi-arid Africa, a trend mentioned earlier.

McCown *et al.* also note that adaptation is as important a trend as conflict with regard to changing resource availability and the environment in which a production system has to operate (1979). They provide eight case studies of ways in which adaptation is the preferred response to changing circumstances, including studies of West Senegal, Mali, Burkina Faso, Sudan and Ethiopia. In none of these cases do they observe an increase in farmer-herder conflict. However, they do postulate that with new conditions in semi-arid Africa created by increases in population, increases in the cultivated area, reduction in yields and over-utilisation of resources it will be increasingly difficult for producers to continue to adapt effectively as a response to natural resource competition.

Conflict avoidance and migration

Herders and farmers tend to avoid situations in which there is the likelihood of serious inter-group conflict. One particular strategy employed by herders has been to migrate away from areas of relatively high competition over natural resources, or where farmers are openly hostile to the presence of the herders. This explains the periodic departures northwards of immigrant Fulani from the Ivory Coast during the 1980s, despite efforts by the government to attract them to stay. Such migration normally pushes herders into more marginal areas, hence reducing the viability of the herding production system (see e.g. Bassett 1986; 1988).

Alliances and collaboration

Farmers and herders can also create alliances as a response to increasing scarcity of natural resources. For example, despite a process of expansion of cultivation by Iraqw farmers into their grazing lands, Lane (1991) shows that the Barabaig herders of Tanzania did not respond with violence. Rather, in order to maintain traditional social bonds with the Iraqw, they allowed the agricultural expansion. Similarly, Guèye (1994) shows how Fulani herders created an alliance with local farmers against outside interests in the western groundnut producing region of Senegal. Despite a history of conflict, these groups managed to co-operate to manage the available natural resources for the mutual benefit of both groups, and to keep out outsiders.

Recourse to customary local institutions

If competition over natural resources is not to result in conflict, negotiation, mediation and arbitration procedures are required. Such procedures have always existed in semi-arid Africa, and have evolved to suit changing circumstances. Successful negotiation requires a knowledge of the local context, and the "stakes" of interested parties, and the existence of an accepted authority that can encourage the disputing parties to accommodate each other's interests. Fisher *et al.* have provided the following useful clarification of these concepts:

> *"The basic problem in a negotiation lies not in conflicting positions, but in the conflict between each side's needs, desires, concerns and fears... Such desires and concerns are interests. Interests motivate people; they are the silent movers behind the [choice] of positions. Your position is something you have decided upon. Your interests are what caused you to decide...Reconciling interests rather than positions works for two reasons. First, for every interest there usually exist several possible positions that could satisfy it. All too often people simply adopt the most obvious position... [...Second,]...reconciling interests rather than compromising positions also works because behind opposed positions lie many more shared and compatible interests than conflicting ones."* (quoted in FTPP 1994:13)

Customary institutions, or "the formal and informal ties that bind collectivities" (Johnson 1996:3), have evolved to manage natural resources, and to conciliate actors disputing access to or control over resources. They provide a forum for negotiation between different resource users, and a mediator with recognised authority.

Customary institutions continue to play an important role in managing resources and many resource disputes continue to be resolved, often discreetly, at this level, or by negotiation between the traditional leaders.

The evidence for the continued importance of such customary institutions is widespread. For example, Gallais (1984:200ff) notes that the customary pastoral land management institutions in the Inland Niger Delta Region of Mali remain largely intact. It is these institutions that have, in his view, been key to ensuring that there has been no great change in levels of conflict over natural resources during the pre-colonial, colonial and post-colonial periods in this region, despite rising pressure on natural resources and drought.

Recourse to authorities of the State and the courts

Violent conflicts are also avoided by recourse to State bodies, including legislation, the courts, and organisations, such as tribunals, land management authorities, and mediation bodies. Resource users have frequently used these formal State institutions to resolve confrontations non-violently (see, for example: Harshbarger 1995; van der Valk-van Ginneken 1980; van Raaij 1974; République du Mali 1994). In addition, in the past, strong State intervention has reduced conflict between farmers and herders. Webb (1995) shows that it was the establishment of French colonial rule in the Western Sahel that established peaceful relations between farmers and herders after 250 years of political violence between these groups.

NGOs and conflict resolution

The development of new fora for conflict resolution has been encouraged recently by outsiders so as to attenuate what they perceive to be the demise of the power of customary or traditional institutions to resolve natural resource conflicts. Hence, some have recommended the establishment of new institutions to manage common property resources and others the establishment of new herder institutions.

For example, Adams and Bradbury (1995:56) show how NGOs in Mali and Ethiopia have tried to promote negotiated solutions to conflict by acting as neutral intermediaries, linking the Government with local interest groups via a process of inter-community meetings. Bradbury *et al.* (1995) have used the methods of Participatory Rural Appraisal with various interest groups to help to resolve conflicts, focusing on the interests of all actors at each stage of con-

flict. 1) At the "pre-stage" of a natural resource conflict, they argue that such interventions can prevent the polarisation of forces turning into violence; 2) between the stages of "conflict" and "crisis", mediation is important to prevent the escalation of conflict; 3) at the "post-conflict" stage, grievances must be addressed and reconciliation between actors achieved via the establishment of new procedures or institutions. However, Bradbury *et al.* recognise that such conflict resolution strategies must be based on existing forms of conflict resolution in the societies concerned.

Finally, the "gestion des terroirs" approach to village resource management mentioned previously involves local communities in decisions over natural resources, and can provide a forum for the resolution of conflicts between different resource users. However, as Marty (1993) notes, such institutions for natural resource management will only succeed in resolving conflicts between farmers and herders if the interests of farmers and herders are represented equally (not simply equitably according to the size of respective communities), and if the village lands (or terroir) cease to be the sole unit of land to be managed. Given the importance of livestock movements within and between different terroirs, land management decisions will often need to cover a cluster of villages and their neighbouring herder encampments. As this is, as yet, rarely the case, the ability of "gestion des terroirs" institutions to resolve conflict between herders and farmers is only limited.

CONCLUSIONS AND POLICY IMPLICATIONS

Conclusions

This study aimed to examine two central hypotheses:

> (i) Farmer-herder conflict has significantly increased over recent decades in semi-arid Africa;
>
> (ii) Existing or "traditional" mechanisms are facing difficulties in resolving natural resource disputes between herders and farmers, hence contributing to a heightened sense of a need for new policy approaches.

Few studies supply the long term data needed to substantiate either of these hypotheses. The diverse material available shows that conflicts of interest and

competition, *as well as* symbiosis, complementarity and cooperation, are normal and historic forms of interaction between farmers and herders in semi-arid Africa, occasionally escalating into violent conflict of an inter-personal and inter-group nature.

That conflict and violence have always periodically occurred between competing users of natural resources does not make it any more acceptable. Interventions could usefully focus on how to render such conflicts manageable. However, in order to understand why violent conflicts occur between a given set of resource users, an analysis of the ultimate and proximate causes must first be carried out, giving due weight to ecological, historical and anthropological factors. In addition, such an analysis must be set within the broader political economy of the country and region.

Policy implications

Past policies

Concern that natural resource conflicts are increasing has led to their resolution being placed high on the policy agenda of those involved in rural development and natural resource management. In the words of Swift (1996:1), conflict is a "...new additional element" to be added to rural development thinking and policy. However, the evidence reviewed here shows that conflict between farmers and herders is not new, and the claims that it is increasing are generally poorly substantiated.

Recommendations to reduce conflict between farmers and herders have been made to address the problem at macro and micro levels. Some of the most prominent macro-level policy recommendations are presented below, followed by brief comments on their strengths and drawbacks.

1. Encourage State legislation to fix geographical limits to the expansion of agriculture to protect rangelands (such as the Rural Land Code in Niger) to prevent growing competition for natural resources (République du Mali 1994), and at the same time enforce State legislation on compensation for crop damage caused by herds (Bernus 1974; République du Mali 1994).

It should be noted that in practice such policies have been impossible to enforce and may threaten the trend towards mixed farming and agricultural intensification occurring through much of the Sahel (République du Mali 1994).

2. Reform land tenure regimes to give herders clear rights to defined areas and access to patches of high value resources required for the continued survival of their livestock production systems (République du Mali 1994).

The new Rural Code introduced in Niger (see Lund 1995), and the "Plan Foncier Rural" recently introduced in the Ivory Coast (Diallo 1996:18) were expected to calm conflicts between farmers and herders by making their relations more contractual and based on formal written law. However, the contradictions between customary and codified law and the lack of legitimacy attributed to the latter by rural society mean that such initiatives have had very limited impact.

3. Create protected zones of pastoral lands to shield herders from high levels of tenure insecurity in the short term (Lane and Moorehead 1994:28)

While this has been a promising initiative in some areas, the zoning of pastoral lands can *cause* conflicts if farmers or other non-herder groups are, as a consequence, excluded from such zones. This has been the experience of IFAD in their Agro-Pastoral Action Areas (ZAGROP) areas in the Central African Republic, forcing IFAD to revise their approach and include all users (fishermen, farmers, hunters...) in these zones and in their management structures to avoid provoking further conflicts (République Centrafricaine 1992). The latter, inclusive approach seems now to have met with some success, and could be replicated in other rural development initiatives.

4. Establish measures to prevent land degradation and thus remove a cause of land litigation and conflict over scarce natural resources (Maiga and Diallo 1995).

This is perhaps the most promising approach if structured into local and national negotiating committees where all users of natural resources in a specific place are given an equal voice to express their concerns. Such an initiative could be based on an adapted version of the village-based natural resource management committees advocated by the "gestion de terroirs" approach, while ensuring all users have an equal voice.

Micro level policies

1. Sedentarise herders and promote mixed farming among pastoralists (van Raaij 1974).

While this policy may seem to pre-empt farmer-herder conflicts by giving herders secure rights to land, many semi-arid lands are better suited to opportunistic and mobile grazing strategies. Settlement of herds can provoke localised degradation of vegetation and soils. It should therefore be avoided unless it is an autonomous process chosen by herders themselves.

2. Promote new herder institutions for the management of the range and to assert herders' rights at local and national levels to control access to the resources.

This policy fails to emphasise the need to bring farmers and herders together into common institutions within which negotiated solutions to conflicts of interest can be found. Further, it also ignores the current trend towards more integrated farming and herding production systems, by emphasising the distinctions between farming and pastoral groups.

3. Incorporate farmers *and* herders in fora for locally managing natural resources, e.g. "gestion de terroirs" approaches to local-level rural development, CPRM institutions and other approaches to co-management of local natural resources. These institutions should be based on surviving customary institutions (Mathieu 1995c; Marty 1993 and 1996; Vedeld 1992).

For this to succeed, certain changes to these interventions must be made: governments have to accept that power to manage local resources is really devolved to existing local level institutions; the village should no longer be the sole unit for management of natural resources - in many cases, clusters of villages make more sense, including surrounding herder encampments that may depend on the seasonal use of "village" natural resources; rights of access to village natural resources and land should be conferred on herders, not just farmers; herding should be nationally recognised as a rational and profitable use of land; new complementarities should be found between herders and farmers to promote continued interdependence; there must be *parity* in the representation of herding and farming communities in natural resource management institutions, even if the farming and herding populations vary in size, otherwise herders' interests will often be ignored (see Marty 1993; also République du Mali 1994); and negotiated agreements between farmers and herders on land tenure at the local level should be recognised by the governement administration (de Boer and Kessler n.d.).

4. Negotiate arrangements for multiple land use (or *interterritorialité*) between all groups using the same land (Marty 1996).

This approach could promote cooperation between farmers and herders depending on the same lands via a forum for negotiation.

5. Encourage local communities to build on their own institutions for management of local natural resource conflicts by giving them the legal power and responsibility to do so. The role of "outsiders" should be limited to reinforcing local capacities for conflict resolution rather than replacing local institutions with new institutions promoted by outsiders (Mathieu 1995a; Guèye 1994; République du Mali 1994).

This is the best approach particularly where existing State mechanisms are insufficient to manage natural resource conflicts as local communities often have dynamism, inventiveness, the ability to adapt, and the knowledge necessary to understand the stakes of all actors involved in a given dispute (Mathieu 1995a).

6. Allow local users to develop their own, legally-recognised tenure arrangements and decide on appropriate uses of natural resources in their locality (Lane and Moorehead 1994; see also Guèye 1994; Mathieu 1995c; Maiga and Diallo 1995).

The government would have to encourage the establishment of such structures and the necessary decentralisation of powers (Maiga and Diallo 1995). However, in practice, most governments have been very unwilling to give up such powers to local bodies.

7. Ensure that development schemes do not have a negative impact on existing herder grazing and transhumance patterns.

This would undeniably pre-empt herder-state conflicts such as those observed in Tanzania.

8. Train farmer and herder groups in conflict management and resolution techniques using customary or new institutions as the fora for their application (Bradbury *et al.* 1994)

Such attempts at training in conflict resolution are relatively new and their effectiveness in removing the underlying causes of, or preventing, conflicts is

as yet unproved. There is no evidence that such training would necessarily improve the work of existing institutions.

So, what is to be done?

The wide array of policies presented above is only a selection from the many recommendations drawn up to address natural resource conflicts. Given the insufficient evidence for increasing conflict, the continued existence of customary forms of conflict resolution, the many examples of the legal system being used by farmers and herders to clarify their respective rights and responsibilities with regard to access to and control of natural resources, and the failure of many natural resource management initiatives to end farmer-herder conflicts, the question here should perhaps be: *is there anything else which needs to be done?*

Research

This paper emphasises the need to understand the local historical and social contexts in which farmer-herder conflicts occur before coming to conclusions about whether action needs to be taken. This includes analysing the macro and micro level causes of conflict and the functioning of local, customary institutions in relation to conflict management. Furthermore, it reiterates the need to monitor the incidence of farmer and herder *adaptation* to conflict. The impact of training in conflict resolution on the incidence and gravity of conflicts could usefully be assessed. Finally, given the weak empirical data base on farmer-herder conflicts, greater attention needs to be paid in current and future research to proper monitoring and recording of such incidents, their causes and subsequent evolution.

Policy

The evidence presented in this paper has demonstrated the great variability in conditions within which conflict occurs. The need to tailor policy to local circumstances is thus of paramount importance. The following measures are therefore recommended:

- recognise the competence and resourcefulness of local people and their existing institutions in the management of natural resources;
- promote national and local-level negotiating fora which include *all* users of natural resources, and allow them to find locally appropriate ways to handle conflict;

- allow such bodies to question the likely impacts of planned development interventions before they begin;
- support existing conflict resolution bodies and legally recognise their jurisdiction;
- strengthen formal, legal mechanisms for resolving conflicts between farmers and herders, with the state playing the role of an *impartial* mediator in disputes, fairly and consistently applying legal instruments (e.g. in relation to compensation for crop damage);
- clarify the division of responsibilities between modern and customary rules regarding natural resource use.

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Drylands Programme

The Drylands Programme at IIED was established in 1987 to promote sustainable rural development in Africa's arid and semi-arid regions. The Programme acts as a centre for research, information exchange and support to people and institutions working in dryland Africa.

The main fields of activity are:

- Networking between researchers, local organisations, development agents and policy makers. Networks help exchange ideas, information and techniques for longer term solutions for Africa's arid lands.

- Support to local organisations and researchers to encourage sharing of experience and ideas, capacity building and establishing collaborative links.

- Action-oriented research in the practice and policy of sustainable development in Africa's drylands, focusing on the variability of resources and incomes on which populations depend, development-oriented research methodologies, and natural resource management systems.

Pastoral Land Tenure Series

A programme for research support and institutional collaboration on pastoral land tenure in Africa was established in 1991.

The programme's goals are to:

- Influence the formulation of land use policy through the generation of research findings that support and inform the debate on common property resource management.

- Contribute to the resolution of conflicts over land.

- Clarify the policy options available to national planners and donor agency personnel.

- Provide the basis for more efficient land use in pastoral areas of dryland Africa.

A series of papers arising from this work is being published with a view to making relevant information available to policy-makers and development practitioners. IIED gratefully acknowledges financial support for this programme from the governments of Sweden, Norway and Denmark.

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