Increasing Violent Conflict between Herders and Farmers in Africa: Claims and Evidence

Karim Hussein, James Sumberg and David Seddon*

This article is concerned with violent conflict, one aspect of the relations between livestock keepers (herders) and crop farmers (farmers) in semi-arid Africa. These relations have been the subject of academic and development policy interest since the establishment of colonial rule in Africa (see Webb, 1995), and have been characterised by some as symbiotic (mutually beneficial and complementary), by others as competitive and by yet others as inherently conflictual. Indeed, a number of analysts see tensions, competition and violent conflict over natural resources as omnipresent in these regions (e.g. Mathieu 1995a,b). Recently, however, development policies and programmes have been influenced by claims that violent conflict between the two groups has increased, especially since the droughts of the 1970s and 1980s.

Much of the recent literature suggests that this 'increasing conflict' is due to two factors: (i) changing patterns of resource 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 be changed to address and mitigate violent conflict directly, and recommended policies have included the establishment of grazing reserves or pastoral areas, a pivotal role for active pastoral associations and wide-ranging land tenure reforms (see Bassett, 1986; Scoones, 1995; Vedeld, 1994). Other recommendations include the retreat of the state and a return to local natural resource management by strengthening or adapting traditional institutions (e.g. Lane and Moorehead, 1995). Policy and programmes based on such recommendations could have profound implications for social and economic relations and patterns of natural resource use. It is essential, therefore, that the analysis on which they are based is robust.

In this article we seek to address the question: Is violent conflict between

Development Policy Review Vol. 17 (1999), 397-418

^{*} Karim Hussein is a Research Fellow at the Overseas Development Institute, London and James Sumberg and David Seddon, Senior Lecturer and Professor respectively, are at the School of Development Studies, University of East Anglia, Norwich, UK. This article originates from a research programme entitled 'Conflict Between Sedentary Herders and Farmers in the Semi-arid Sahel and East Africa', funded by the Livestock Production Programme of the UK Department for International Development. However, the views expressed are those of the authors alone.

[©] Overseas Development Institute 1999. Published by Blackwell Publishers, 108 Cowley Road, Oxford OX4 1JF, UK, and 350 Main Street, Malden, MA 02148, USA.

herders and farmers in Africa increasing? We aim to assess the validity of the claims of increasing violent conflict on the basis of a review and analysis of the research literature from both the francophone and anglophone areas of semi-arid Africa and through a postal survey of researchers and development workers.

Background and concepts

Arid and semi-arid Africa represent up to 60% of Africa's total land mass, contain about 60% of all ruminant livestock (Scoones, 1995:2; Helland, 1990), and are prime ground for finding both new pastures and for expanding crop cultivation (Bernus, 1974). Indeed, many semi-arid regions of Africa have experienced a consistent expansion of cultivated land over the past twenty years (Bennett, 1991:12). An important characteristic of semi-arid regions, which affects the livelihood strategies of both herders and farmers, is a short rainy season (3–4 months), whether this is mono-modal (West Africa) or bimodal (East Africa), and unreliability of rainfall (inter-annual fluctuations; fluctuations in seasonal and spatial distribution). In addition, they have suffered recurrent, prolonged and extensive droughts during which the rains have sometimes failed completely (e.g. 1910-14; 1940-44; 1968-74; 1979-84) (ibid:13). Other characteristics include the fact that grazing resources are found in different places at different times, which profoundly affects herders' strategies: for example, pastoralists tend to prioritise mobility (whether in the form of nomadism or seasonal transhumance) and an opportunistic approach to resource management. These strategies ensured the persistence of pastoralism over centuries, leading to a perception of its benign nature as practised in semi-arid environments (Dyson-Hudson, 1980). Earlier literature referred to such strategies as highly adaptive and based on a 'profound symbiosis' (Toupet, 1975:463) between herders and environmental conditions of risk and uncertainty.

The literature on African agriculture and livestock production systems reveals the difficulty of trying to separate herders and farmers into two distinct groups. Indeed, some authors have argued that there is an on-going process of homogenisation of production systems in semi-arid Africa, with farmers increasingly keeping livestock and herders increasingly engaging in crop cultivation (Toulmin, 1983a; 1983b:37–3; Pelissier, 1977). This is supported by Bourne and Wint (1994) who show that the highest concentration of livestock in semi-arid African countries exists where there is the highest

^{1.} Zuppan (1994) points out that while herders and farmers retained broadly separate identities in colonial times, the differences between herders and farmers were exaggerated and their relations often wrongly explained in terms of ethnic conflict.

intensity of land use and rural settlement. This process of homogenisation is thought to be occurring because of pressures such as population increase, drought, government policies and inter-ethnic rivalry (Woldemichael, 1995; Winrock International, 1992).

These arguments have been put forward largely by those working on Sahelian West Africa. In semi-arid regions of East Africa the traditional distinctions between groups practising herding and farming may at first appear to be more meaningful, but, as Fre (1992:162–3) points out, even in East Africa farming and herding systems are pursued at the same time according to complex livelihood needs: the two systems therefore 'coexist or inter-depend'. It is potentially contentious, then, to adhere to the distinction between herders and farmers. However, while these terms are recognised as not static, and as masking varying degrees and strategies of crop cultivation and livestock rearing, they remain widely used, and will be used here to refer to two groups of people who have historically been distinguished by their pursuit of broadly different production systems.

Those who claim that conflict over natural resources, and violent conflict between herders and farmers 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). Conflict has been used to describe a wide range of interactions between herders and farmers over natural resources, interactions that are qualitatively different from each other and clearly of different degrees of severity. Thus, the umbrella term 'conflict' has been used to cover tension between resource users, straightforward 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 it is essential first to disaggregate the notion of conflict.

In this article we shall distinguish between conflicts of interest,² competition, and violent conflict. Conflicts of interest refer to the fundamental relationship between actors who permanently or temporarily co-habit an area, have different objectives and interests, and use similar local resources such as land, vegetation and water. Conflicts of interest over the ownership and use of resources may therefore exist between any resource users (farmers and farmers, herders and herders, herders and farmers), and may be intra-household, inter-personal, intragroup, inter-group or in some cases between local users and outside interests

^{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'.

such as corporations and the state (Mathieu, 1995b; de Leener and Sow, 1995). We refer to conflicts of interest as part of the fundamental relationship between local resource users because they set the stage for competition among them, which in some cases ends in violent conflict.

Once a conflict of interest exists, such competition is to be expected if the necessary strategic resources are in short supply. Toulmin (1983b) presents an image of competitive demand for pastoral resources in contemporary semi-arid Africa as originating from three classes of users: cultivators, other pastoral groups, and new livestock owners. According to her, there has been an increase in competition between herders and farmers owing to factors such as the encroachment of agriculture or pastoralists' lack of influence on the decisionmaking apparatus of the post-colonial state. However, the degree of competition depends on seasonal and regional factors. For example, there is more competition in the cultivation season and less during the dry season, when it is to the advantage of both parties that livestock graze on post-harvest stubble so that fields are manured. Competition among herders for access to the stubble may, of course, be intense, and there is also competition among herders and farmers and between herding groups for permanent water resources. Conflicts of interest and the resulting competition for resources can lead to a variety of either non-violent or violent outcomes. While conflicts of interest and competition must exist for violent conflict to develop, the latter should be treated as only one of an array of possible outcomes.

Some non-violent outcomes are associated with indigenous institutions for local-level natural resource management, in particular the management of common property resources. Such institutions are based on the exclusion of some users, the definition of rights of access to resources for different types of user, and the development of rules over natural resource use in a defined area. Gallais (1994; 1967), Swift (1991) and Lane (1990; 1991) give examples of their development and functioning.

Non-violent outcomes also result from avoidance strategies. These would include herder groups migrating or retreating from areas of high competition with farmers; the diversification of livelihoods to cope with increasing pressure (e.g. sedentarisation of herders, adoption of mixed farming); adaptation of customary institutions to manage local natural resource use; or alliances between local herders and farmers to counter resource use and extraction by actors external to the local area. Indeed, actors with conflicting interests over natural resources can work their way through multiple levels of compromise and negotiation before violent conflict develops.

Litigation, legal action taken by one party against another to clarify who has access to a resource or to obtain compensation for 'misuse' of resources, is another non-violent response. A complex patchwork of fora for pursuing litigation in semi-arid Africa comprises customary institutions (traditional rulers), state administrators and the formal courts, including supreme courts and

courts of appeal which have adjudicated in natural resource disputes in countries such as Mali (see République du Mali, 1994a,b). Increasing levels of litigation may indicate increasing competition and tension and, in the case of court action, can represent a sensitive indicator of levels of tension between herders and farmers (van der Valk-van Ginneken, 1980).

Here, we use the term 'violent conflict' to refer to violence of a physical nature so as to distinguish it clearly from conflicts of interest, competition, and the non-violent outcomes discussed above. Three key types of conflict have been identified and are summarised in Table 1. No continuation is assumed between inter-personal and political violence, and all forms of violence can have more or less destructive results. Some elements of what Bradbury et al. (1994) refer to as 'structural violence' (e.g. alienation of land) do appear as forms of 'political violence' and are considered a form of violent conflict.

Table 1
A typology of violent conflicts over natural resources

Type of violent conflict	Examples
Inter-personal violence	• Fights between and attacks on individuals at a local level
(Intra-community violence)	TheftRaiding of livestockMurder
State violence	 Actions of the state, often on behalf of one group of resource users against another for political purposes Mass evictions
Political violence	Military violence to achieve control and subjugation of populations, and power and control over resources.
(Inter-community violence)	 War (fighting between armies within or between states) Raiding of livestock Enslavement Destruction of villages Acts of random violence

See also Webb (1995:39)

The notion of 'increasing conflict' between herders and farmers adds another level of complexity, and can refer to either more conflict, a new scale of conflict being attained or increased frequency or intensity of existing conflicts. Bassett (in Bassett and Crummey, 1993) distinguishes between different levels of conflict: those that are confined to the local level, those that spread over a whole

region within a country, and conflicts that take on national significance. This leads us to consider higher scales of conflict, a notion which encompasses both increasing numbers, or types, of people involved (the social pervasiveness of conflict) and the spread of conflict to cover wider geographical areas. Here, if conflicts between individuals develop into collective conflicts between whole groups, then this indicates an increase of scale in the conflict (see Saidou, 1995:37; Adams and Bradbury, 1995). Finally, increasing conflict can denote greater frequency over time (e.g. more incidents being recorded) or greater intensities (e.g. more casualties than in the past). 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 (1996:6).

Is violent conflict between herders and farmers increasing?

This question is addressed here in three ways. First, we review the research literature to analyse claims of increasing violent conflict and the evidence used to support them. Second, we review the available evidence relating to the views of herders and farmers themselves. And thirdly, we briefly present the views of researchers and development workers obtained through a postal survey.

The literature reveals two main perspectives on herder-farmer relations. The first notes that they have always moved between co-operation, competition, and conflict, an apparent paradox neatly summarised by Gallais (1975), in his detailed studies of relations between farming and herding communities in Mali, as the essence of the traditional Sahelian condition. Herders and farmers retain their distinctive identities and compete for limited natural resources, but rely on each other for the provision of essential services and products. This interdependence results in close socio-political relations between communities. So, while conflict over natural resources is noted to be a chronic problem in many countries (Adams and Bradbury, 1995:37), close social and economic relations have also been historically present: '...distrust and dislike are...as much part of their relationship as mutual appreciation...' (van Raaij, 1974:23; also see Blench, 1997:4).

The second perspective is situated in the growing orthodoxy supported by academics, practitioners and donors, that violent conflict is one, if not *the*, central concern for development research and practice (see, for example, Swift, 1996; Adams and Bradbury, 1995). Conflict has been placed high on the development policy agenda and environmental scarcity in particular is being promoted as a main explanatory variable for violent conflicts in Africa (e.g. Homer-Dixon, 1994; Bennett, 1991; Greenhouse, 1995). The general message is that farmer-herder conflict is now more acute, and that this 'increasing conflict' justifies immediate policy attention.

Claims and evidence from the research literature

The notion that conflict between herders and farmers is increasing is by no means new, and the literature contains many claims of increasing herder-herder and farmer-herder conflict, especially in relation to increasing populations, competition for natural resources, and changing development policies. These claims can be divided into those that provide supporting evidence and those that do not. Interestingly, the latter substantially outnumber the former. For our purposes here we shall review these under two major headings: those with a significant historical element, and more contemporary claims.

Claims with a significant historical element. Webb (1995) studied the evolution of political violence among herders and farmers in the Western Sahel from 1600 to 1850, and argued that there was a trend of increasing violence over this period. 'White' warriors (herders from the northern Sahel) are shown to have continually raided 'black' agricultural communities to the south. He suggests that the fundamental cause of such violence was competition over scarce natural resources in a gradually desiccating environment, which, he argues, has continued to the present day (1995:5-9). The desert's expansion southwards forced herders to move south during the dry season, which gave them access to the agricultural production and the natural resources used by 'black' farmers. The herders 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.³ Webb suggests that the advent of French colonial rule reduced such violence, and, while making no claims in relation to conflict and violence in more recent years, he does argue that increasing violence over natural resources between herders and farmers is likely in periods when the natural resource base is diminishing.

Gallais (1975) refers to Tamacheq herders in the Gourma of Mali fighting against sedentary farmers during the pre-colonial period. This group of warriors perceived the farming populations as their slaves, a central form of the 'political violence' referred to by Webb. During this period, the same herder group also had violent confrontations with the slave 'Iklan' of Tuareg descent in the areas of the Gourma dominated by farming. Furthermore, historic conflicts over access to dry season grazing occurred between the Fulani and the upland

^{3.} In Webb's analysis the period of political violence, domination and enslavement of farming populations paradoxically brought about deeper cultural ties between herding and sedentary farming populations, hence encouraging the kind of symbiotic relations that recent researchers have claimed to exist between herders and farmers.

farmers settled away from the Niger River. Access to and control over key natural resources may have been the ultimate cause of these conflicts, but, with the realignment of power brought about by colonial rule, conflicts actually decreased as farmers exerted more control over key natural resources and limited the Tamacheq herders' access to the fertile banks of the Niger River. Gallais cites only one significant case of herders continuing their violence against farmers in the region, and, in a sense, this only provides evidence of continuity in the relations between them.⁴

Oba (1992) studied District Annual Reports since 1929 to provide some historical view of violent conflict between groups of herders in Turkana, Kenya. The main focus of his work was to establish the consequences for the Turkana pastoral economy of the interrelationships between ecology, land-use systems and political conflicts, but he also provides an historical analysis of the causes of such conflict. The Turkana entered the region in the late eighteenth century, then expanded their territory in all directions by 'exacting pressure' on neighbouring groups until they were assimilated or they retreated. During the nineteenth century they conquered other pastoral groups (Merille, Toposa, Donyiro, Dodos) using violence, but, once brought under British rule, direct violence between herder groups increasingly took the form of cattle raiding. During the colonial period, new entities for the management of land use were imposed, and tribal boundaries were fixed. These conflicted with traditional land-use strategies, especially movement to exploit different key resource patches, and produced increased pressure on natural resources leading, in Oba's view, to increases in inter-pastoralist conflict. They were also at the root of a long-term process of breakdown of traditional reciprocal relations between herder groups which was exacerbated by the introduction of centrally controlled grazing schemes. The Turkana relied on these reciprocal relations for their food security. In the post-Independence period, raids declined as the grazing regimes of the colonial period were not revived and controls on cross-border movements were relaxed. However, by 1970 there were almost weekly cross-border raids and counter-raids leading to enormous losses of livestock (Table 2). In Oba's

^{4.} These views are important as they undermine the arguments of the 'pauperisation' school of thought (see also Were and Wilson on Buganda herder violence against and dominance of Bunyoro farmers in southern Uganda [1972:54]). Van Dijk (1996) also refers to many incidents of violence between herders and farmers in Mali on the Niger River bend. He traces the evolution of natural resource regimes and farmer-herder conflict from before 1812, to the establishment of the Dina code by Sékou Amadou in 1812, to its demise in 1862 and eventual replacement with the French colonial régime, through to the period of Independence. While he charts rising and falling levels of conflict between herders and farmers over this period, 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 of shifting degrees of violence between herding and farming groups over time, not a recent sharp increase of violence.

view this increased destruction is related to the introduction of modern weapons in the region, the escalation of raids by armed 'ngoroko' permitted by the relaxation of border security, and resource scarcity caused by drought.

Table 2
Cattle raiding and human casualties reported between 1929 and 1983
against the Turkana, Kenya

Year	Raiding group(s)	No. of stock lost	Casualties
Pre-	Rutuing group(s)	SIOCK IOSI	Casaanies
Independence			
1929	Merille	182	94
1939	Merille, Toposa, Donyiro	600	209
1939		000	209
1948	Donyiro		200
	Donyiro, Merille, Toposa	5,000	
1957	Merille	5,000	183
1958	Dodos	5,782	2
Total		11,564	697
ъ			
Post-			
Independence			
1965	Merille, Toposa, Donyiro, Dodos	2,476	45
1966	Merille, Toposa, Donyiro, Karimojong	2,856	207
1970	Merille, Toposa, Donyiro, Karimojong		
1971	Merille, Toposa, Donyiro, Karimojong	1,079	102
1972	Merille, Toposa, Donyiro, Karimojong	7,279	73
1973	Karimojong, Dodos, Merille, Pokot	17,108	28
1975	Karamoja	5,978	120
1976	Karimojong, Pokot, Merille	11,960	
1977	Pokot	2,247	
1978	Pokot	5,217	
1979	Pokot		87
1982	Merille	8,152	
1983	Pokot	22,856	
Total		87,181	762

Source: Oba (1992:9)

While not complete, Table 2 represents one of the best published sets of data on violent conflict in semi-arid Africa relating to natural resources. Raiding remained a strategy for all herding groups in the region to secure survival, or expand herd sizes and grazing lands, but the empirical evidence shows no clear trends in human or stock losses. There are other detailed historical analyses of herder-herder conflicts in East Africa (Ndagala on the Maasai and Datoga in

Tanzania; Bollig on Pokot-Turkana raiding in Kenya). However, these studies do not present the kind of time series data provided by Oba.

Contemporary claims. More contemporary studies of and claims about farmer-herder conflict are numerous and varied. These can be classified by the assumed cause of the violence, with the two most common causes being competition over natural resources and the increased availability of modern weapons.

Competition over natural resources: Two authors provide some empirical evidence to support their claims of increasing violent conflict over natural resources. Bassett (1986;1988) used a political ecology approach to studying the evolution of farmer-herder relations in the central areas of Côte d'Ivoire. He asserts that individual herder-farmer conflicts increased between the 1970s and 1980s, and supports this claim with three surveys of individual households. The increased incidence of conflict is attributed to the arrival of Fulani herders from southern Burkina Faso, southern Mali and northern Côte d'Ivoire after the droughts of the early 1970s. The herders came into conflict with indigenous Senoufo and Malinké farmers, and these conflicts became intense and violent from the latter part of the 1970s, resulting in direct state intervention. By 1986 these localised conflicts had become explosive, taking on an ethnic character because of the gradual process of impoverishment of indigenous cotton farmers, and continued government attempts to sedentarise the herders (Bassett, 1988:469). Unfortunately this analysis presents no time series data on conflict, and data on casualties and losses are given only for the years 1981–2 and 1986, making the identification of trends very difficult.

Harshbarger (1995) uses a 'state-society' approach to analyse conflict between Meta and Aghem farmers and Fulani herders in the North-West Province of Cameroon. She cites increased incidents of individual farmer-herder trespassing disputes (which often ended in fatalities) to support her conclusion that conflict has increased. While litigation against herders seems to have increased, there are no time series data on long-term changes in the nature of farmer-herder conflicts in the two villages studied. She also describes three major violent clashes between these groups in 1973, 1981 and 1991, and suggests that the ultimate cause was the failure of the state to mediate impartially between herders and farmers due to its collusion with herder groups to occupy farm land close to villages. This resulted in a loss of state legitimacy, and led to farmers taking more violent action themselves.

There are many other claims of increased herder-farmer conflict for which little if any empirical support is provided. Some of these are quite general: for example, Vedeld (1992:4) argues that conflict has increased in the West African Sahel because of government policies to expand agriculture, which lead to farmers encroaching on grazing lands. Similarly, Scoones (1995:26) states that, especially in semi-arid areas, '...resource pressures are at their most intense with

the competition between agricultural and pastoral uses of land. In many areas, these pressures are increasing, resulting in greater contests for key resources, greater shifts in resource tenure and greater opportunities for conflict between land users'. 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'. 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 observation and its associated policy recommendation seem to be based only on the fact that conflicts over natural resources occur from time to time. In relation to Africa's sub-humid zone, Winrock International (1992) state that farmer-herder conflict is generally increasing and proceed to list a series of policy recommendations. Mathieu (1995a) also claims that conflict over natural resources is increasing and that official natural resource management strategies are failing to predict or resolve these conflicts: he then calls for new policies to manage and resolve such conflicts.

Other claims of increasing conflict are more context-specific. With regard to Eritrea, Woldemichael (1995) asserts that increased conflict over grazing areas and water-points has limited the movements of herders, and he uses this to justify a policy recommendation of sedentarisation of pastoralists. Similarly, Lane and Moorehead (1995) claim that the Senegal River Valley and the Inland Niger Delta are beset by increasing farmer-herder conflict and use this assertion to justify both the view that pastoralists are pauperised underdogs and a range of policy prescriptions relating to land tenure. In their study of livestock farming in the Département of To in southern Burkina Faso, De Boer and Kessler (n.d.) claim that there have been 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 claims that conflicts over access to grazing and water resources are increasing in frequency. This is blamed on government regulation in the post-colonial period resulting in the loss of more northerly grazing lands. Similarly, Turner (1992) describes conflict between pastoralists and rice cultivators over productive flood plain resources as increasing over the last twenty years, and Zuppan (1994) suggests that, because herders now farm and farmers have herds, competition for the same natural resources has increased. She then claims that this is proved by contemporary conflicts between herders and farmers, but provides no historical analysis as to whether these conflicts are different or more intense than in the past. A similar point, also unsubstantiated, is made by Cissé (1980:323) regarding the Inland Niger Delta of Mali, when he claims that the gradual integration of the farming and herding systems has increased conflicts between herders and farmers over the use of space. In their analysis of farmer-herder relations in Benin, van Driel and de Haan (1994) contrast a 'past' of farmer-herder harmony and cohabitation in semi-arid West Africa with the image of a 'dangerous present' in which the de-specialisation of herding and farming has led to increased competition for space, reduced interdependence and hence increased conflict.

Some authors have used striking but often isolated events to support claims of increased violent conflict. For example, Stahl (1992) asserts that farmerherder 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. Marty (1993:327) sees the massacre of Fulani herders by Hausa farmers in Niger in 1992 as part of a recent chain of 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. Others assert that, while the incidence of conflict is not increasing, the nature of farmer-herder conflict is worsening in some contexts. For example, Mathieu and Coupe's study of the Senegal River Valley (1982) concludes that there have always been both conflict and complementarity between herders and farmers in this region, with violent conflict breaking out particularly in the rainy season. However, with the combined impact of recent development (principally irrigation) projects and drought, the risk of conflict has increased. The only evidence cited to support this is the example of forcible expulsion of Fulani herders from irrigated areas.

Modern weapons: It has been claimed that the influx of modern weapons into East Africa, in conjunction with the fragility of the ecosystem, has ultimately increased both the intensity and incidence of violence among herders in Turkana, Kenya (Mearns et al., 1996:61). This claim is not, however, substantiated by data. Similarly, Ayele (1986) has claimed that violence between Issa and Afar herders in northern Ethiopia has increased over time because of population pressures and competition over increasingly scarce resources, but provides no time series data to support this conclusion. This claim is reiterated by Yesuf (1992) in his analysis of Afar herder livelihoods in the Awash Valley, Ethiopia. Finally, Hutchison (1991:106) describes conflicts between Arab pastoralists and Fur cultivators in Sudan as 'increasing in intensity' due to the availability of modern weapons, but again provides no supporting evidence.

Views of African herders and farmers

Given the prominence currently accorded within development discourse to local people's perceptions, it is fitting to review published accounts of farmers' and herders' own views of their mutual relations. This is all the more important,

given the lack of formal data collected over a long period of time on relations between particular farming and herding groups. This section is based on published accounts of interviews with individual herders and farmers, in particular elderly herders and farmers in the Sahel, recorded using oral history research methods. The limitations of these methods are significant and well known, but such accounts do provide another valuable vantage point from which to view changes in farmer-herder relations over time.

Herders and farmers sometimes idealise their historic relations, emphasising the symbiotic nature of their co-existence in semi-arid regions. This interpretation of the past, which is usually not justified by historical studies of farmer-herder relations (e.g. Webb, 1995), is sometimes used by contemporary farmers to impress upon researchers that relations are currently worsening because of 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, 1991:36)

One contrary view that is often quoted is that herders and farmers have always been antagonistic and mutually suspicious. Bernus (1990), for example, relates that the influx of Fulani herders into northern Côte d'Ivoire following the droughts of the early 1970s led to near panic among urban groups and farmers. The latter asked for protection — '...pour leurs champs, leurs récoltes et leurs jeunes filles' — from this 'pastoral invasion'. This implies that farmer-herder disputes and conflicts, when they occur, do not represent changed relations, but a continuity of ancient relations which included deep mistrust, antagonism and, periodically, full-scale war (see also van Raaij, 1974:23-4). However, herders and farmers also often emphasise the historic mutual dependence of their production systems, while highlighting the fact that this mutual dependence coexists with tension. Hence, a pastoralist from Niger is quoted as saying that, though interdependent, their relations have always been polarised: 'It is like a war between two huge families; cultivators and pastoralists always support their own groups' (Bennett, 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 Marty's 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

government's arbitration structures listen only to farmers, not the views of herders. Through his recent fieldwork among herders and farmers 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 involving both conflict and co-operation in similar degrees (pers. comm.). Van Raaij (1974:36) makes the same point: in his research in northern Nigeria, he found important variations — from place to place, and even within one village — in local people's impressions of the nature of farmer-herder conflict.

Cross and Barker's work, based on 500 interviews with mainly elderly herders and farmers in five Sahelian countries, provides evidence of several herders and farmers who see conflict as increasing. A number of testimonies refer to increased conflict related to crop damage due to the trespassing of livestock on to fields. This change is explained variously as the result of governments failing to apply 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 repeats the conclusions of what might be called the 'conventional wisdom' regarding the ultimate causes of conflict: increasing land degradation due to inadequate and sporadic rainfall, increased population, and herders taking up farming led to increased pressure on natural resources. This in turn disrupted the previous amicable relations existing between herders and farmers.

Views of researchers and development practitioners

During 1996 a postal survey of researchers, policy-makers and development professionals was undertaken with the objective of assessing current thinking about changes in the level or type of conflict between herders and farmers in semi-arid Africa. The idea was to determine whether the claims of increasing violent conflict were supported by a body of as yet unpublished material, or other data not uncovered in our review. A short questionnaire was mailed to over 80 individuals and institutions in Europe, Africa and North America who were known to have some past or present interest in this topic. There were 35 replies, with many supplying detailed reports and reference materials. Respondents were asked their opinions on the following questions.

Is farmer-herder conflict increasing in semi-arid Africa? Almost all those who responded agreed that there were many instances of conflict, in some cases serious and violent, between herders and farmers in the Sahel and East Africa. Most asserted that such conflicts have always occurred from time to time; however, few were willing to claim with any degree of certainty that they were actually on the increase. Nonetheless, over 25% 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 and of casualties, and seriousness of conflicts. Recent cases of the eruption of large-scale violent conflict were cited by some respondents to justify the current concern that farmer-herder conflict is becoming more frequent and more serious. Another 25% of respondents felt farmer-herder conflict has actually been stable or even *decreasing* in the last 20 years, while the remaining 50% felt they could neither confirm nor deny the hypothesis of increasing conflict. Interestingly, the latter group included some individual researchers who have themselves cited increasing competition and conflict over resources to justify policy changes, encouraging the use of pastoral associations to manage natural resources and the revision of land tenure laws so as to provide herders with clear rights to natural resources.

What are the causes of farmer-herder conflict? The most common response was that farmer-herder conflict is increasing because of two factors: competition for access to increasingly scarce productive resources, exacerbated by state policies favouring one production system, and secondly failure of local adjudicative mechanisms ('traditional institutions') to resolve tensions created by this competition. Even those who argued that conflicts were not increasing considered that in some cases the causes of conflicts were changing, and acknowledged that the visibility and perhaps the intensity of such conflicts was increasing. This is explained by factors such as the increased penetration of the structures of the modern state into marginal areas, the increased attention of researchers, the impact of media interest and coverage, or the increased use of modern weapons in such conflicts.

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: if the stranger population overstay their welcome, and in some cases demand equal rights to own and exploit the land on which they were given temporary permission to settle, then there are examples of the local host population trying after some years to reclaim the land, resulting in confrontation and violent conflict. Where the state has, as in Côte d'Ivoire, encouraged herding populations to sedentarise, this has also led to 'host' agricultural populations protesting, and heightening possibilities of conflict with their 'guests'.

Whether conflict is seen to be periodic and recurrent, or increasing, many respondents concurred on a number of the causes of farmer-herder conflict, and these can be divided into long-term trends and proximate events (Table 3).

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

Long-term trends

- Gradual process over 50 years of Fulani herds moving from northern to southern areas of semi-arid Africa, with many herders sedentarising with their herds (Côte d'Ivoire; northern Nigeria)
- Increased availability of modern weapons since the 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)

Source: Hussein (1998)

Proximate causes

- Influx of refugees from Sudanese civil war and of Turkana pastoralists into southern Ethiopia such that agricultural and pastoral land is being claimed for other uses
- Pastoralists' herds trespassing on 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' agricultural populations (Senegal; Maghreb)

Conclusions and implications

While the three sources of information reviewed here provide valuable insights into violent farmer-herder (and herder-herder) conflicts in Africa, even the historical analyses fail to provide the rigorous time-series data necessary to confirm the hypothesis that violent farmer-herder conflict is generally on the increase in semi-arid Africa. The best data are those provided by Oba (1992); however, even they illuminate few clear trends. The studies reviewed reveal that violent conflicts occur, abate and recur and that the causes usually include the scarcity of natural resources as well as deeper structural factors in the relations between herders and farmers. Violence between groups of resource users does appear to be one outcome of competition over natural resources, just as are complementarity, symbiosis and peace. The literature and evidence

reviewed support the view that conflict is not the strange, dangerous new phenomenon that some current analysts seem to want policy-makers to believe. This is not to say that the situation is static: indeed, certain types of extreme political violence (such as the large-scale wars or slavery of the pre-colonial period) seem to have been displaced since the colonial period with lower intensity forms of violence, such as cattle raiding.

Hence, the evidence that violent conflict between herders and farmers related to natural resource use is increasing is inconclusive: there is no agreement among researchers nor among herders and farmers of the Sahel. There is certainly empirical evidence that violent conflicts occur between groups of resource users; however, even in relation to any one particular context, there appear to be insufficient data in the literature to verify claims of a trend of increasing violent conflict. The only exception may be the literature on raiding among herders in East Africa. Here, many researchers agree that violence has long been one form of interaction among these groups, and that an influx of modern weaponry has increased the intensity and perhaps the frequency of violent conflicts since the early 1980s.

Furthermore, the empirical evidence available is often patchy and non-comparable across contexts, making it impossible to determine the broad geographical distribution of violent conflicts. It is therefore not possible at this time to draw conclusions as to which regions of semi-arid Africa are more or less afflicted with violent farmer-herder conflicts.

There are broadly two distinct perspectives on farmer-herder relations in semi-arid Africa. Firstly, there is the perspective based on the view that farmer-herder relations have historically involved periodic violent conflicts, but also are characterised by symbiosis, non-violent interaction and complementarity. Secondly, there is a perspective emanating from a fundamental concern that violent conflict has increasingly become a major, if not the central, impediment to rural development, and that farmer-herder conflicts related to natural resource scarcity have increased 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 co-operative management of natural resource use must be part of any intervention.

The latter perspective appears to have become the new 'conventional wisdom' in policy-oriented research. Its essence is the view that, as pressure on resources intensifies, competition for them increases, the capacity of 'traditional' institutions to manage and regulate competition is surpassed or diminished, and increasing violent conflict is the 'inevitable' result, necessitating various new forms of intervention. Many supporters of this view also hold to the conviction that pastoralists are the marginalised underdogs in

conflicts with farmers, needing special interventions to reduce this marginalisation.

As has already been pointed out, the empirical evidence reviewed here does not appear to support this conventional wisdom. While the logic is compelling — increased competition for resources leading to increased violent conflict — it is not borne out as a general phenomenon. It is important to note that this logic leaves little room for local negotiation, adaptation or innovation, and seems to deny any role for agency in the non-violent resolution of local conflicts of interest. It would be imprudent to let this new conventional wisdom ride roughshod over the progress made in recent years in the conceptualisation of local individuals and communities as active agents in the evolution and management of their agro-egro-ecological and social environments.

Indeed, given the number of analysts who do not claim that violent conflict is increasing — simply that it is a normal, if regrettable, aspect of farmer-herder relations — this conventional wisdom must be seriously questioned. Furthermore, historical and empirical evidence does not necessarily support the broad generalisation that herders have been marginalised throughout semi-arid Africa, nor that exchange relations between herders and farmers are in terminal decline. Policy initiatives and development programmes based on these views should now be carefully scrutinised.

References

- Adams, M. and Bradbury, M.(1995) 'Conflict and Development: Organisational Adaptation in Conflict Situations'. Oxfam Discussion Paper No 4. Oxford: Oxfam (UK and Ireland).
- Ayele, Gebre Mariam (1986) 'Economic Adaptation and Competition for Scarce Resources: the Afar in North East Ethiopia'. MA thesis, Department of Social Anthropology, University of Bergen.
- Bassett, T.J. (1986) 'Fulani Herd Movements', Geographical Review 76 (3). Bassett, T.J. (1988) 'The Political Ecology of Peasant-Herder Conflicts in the Northern Ivory Coast', Annals of the Association of American Geographers 78:(3).
- Bassett, T.J., and Crummey, D.E. (eds) (1993), *Land in African Agrarian Systems*. Madison, WI and London: University of Wisconsin Press.
- Bennett, O. (ed.) (1991). *Greenwar: Environment and Conflict.* Budapest, London, Paris, Washington, DC: Panos Institute.
- Bernus, E. (1974) 'L'évolution récente des relations entre éleveurs et agriculteurs en Afrique tropicale: L'exemple du Sahel Nigérien'; *Cahiers ORSTOM* Série Sciences Humaines XI (2).
- Bernus, E. (1990) 'Le nomadisme pastorale en question', *Etude Rurale* 120, octobre-decembre

- Blench, R. (1997) *Aspects of Resource Conflict in Semi-Arid Africa*. Natural Resource Perspectives No. 16. London: ODI.
- Boer, F. de and Kessler, J.-J.(no date). Le système d'élevage Peulh dans le sud du Burkina Faso: Une étude agro-écologique du département de To (Province de la Sissili). Tropical Resource Management Papers No. 4. Wageningen Agricultural University, The Netherlands.
- Bollig, M. (1992) 'Ethnic Conflicts in North-West Kenya: Pokot-Turkana Raiding 1969-1984', *Zeitschrift fur Ethnologie* 115.
- Bollig, M. (1993) 'Intra- and Interethnic Conflict in Northwest Kenya: A Multicausal Analysis of Conflict Behaviour,' *Anthropos* 88.
- Bourne, D., and Wint, W. (1994) *Livestock, Land Use and Agricultural Intensification in Sub-Saharan Africa*. Pastoral Development Network Paper No. 37a. London: ODI, December.
- Bradbury, M., Fisher, S. and Lane, C. (1994) Working with Pastoralist NGOs and Land Conflicts in Tanzania: A Report on a Workshop in Terrat, Tanzania, 11th-15th December 1994. Pastoral Land Tenure Series No.7. London: IIED.
- Cissé, S. (1980) 'Sedentarization of Nomadic Pastoralists and Pastoralists and "Pastoralization" of Cultivators in Mali' in *The Future of Pastoral Peoples*. Proceedings of a conference held in Nairobi, Kenya, 4-8 August.
- Cousins, B. (1996) 'Conflict Management for Multiple Resource Users in Pastoralist and Agro-pastoralist Contexts'. Paper for Third International Technical Consultation on Pastoral Development, Brussels, 20–22 May.
- Cross, N., and Barker, R. (eds) (1995) *At the Desert's Edge: Oral Histories from the Sahel*. London: Panos/ SOS Sahel.
- van Dijk, H. (1996) 'Ecological Insecurity and Pastoral Society in the Niger Bend'. Draft paper presented at the seminar on 'Pastoralism under pressure: Political and ecological change among the Fulbé', Africa Studies Centre, Leiden, 13-14 June.
- Van Driel, A. and de Haan, L. (1994), 'La "déspécialisation" conduit à un conflit entre agriculteurs et les éleveurs au Bénin', *Bulletin de Recherche des Pays-Bas*, June.
- Dyson-Hudson, R. and N. (1980) 'Nomadic pastoralism', *Annual Review of Anthropology* 9:15–61.
- Frantz, C. (1981) 'Settlement and Migration Among Pastoral Fulbe in Nigeria and Cameroun' in *Contemporary Nomadic and Pastoral Peoples: Africa and Latin America*. Studies in Third World Societies No. 17. Williamsburg, VA: Dept. of Anthropology, College of William and Mary.
- Fre, Z. (1992) 'Pastoralists and Agropastoralists Losing Ground: A Horn of Africa Perspective' in Hjort af Ornas (ed.) *Security in African Drylands: Research, Development and Policy*. Research Programme on Environment and International Security. Departments of Human and Physical Geography, Uppsala University.

- Gallais, J. (1967) Le delta intérieur du Niger: Etude de géographie régionale. Mémoire de l'IFAN. Dakar: IFAN (2 vols).
- Gallais, J. (1975) *Pasteurs et paysans du Gourma: La Condition Sahelienne*. With the collaboration of Jocelyne et Jérôme Marie. Mémoire of the Centre d'études de Géographie Tropicale, Bordeaux. Paris: Editions CNRS.
- Gallais, J. (1994) Les Tropiques: Terres de risques et de violences. Paris: Armand Colin.
- Greenhouse, S. (1995) 'Conflicts of New Interests', *The Guardian 18* October. Harshbarger, C.L. (1995) 'Farmer-Herder Conflict and State Legitimacy in Cameroon', DPhil thesis, University of Florida.
- Helland, J. (1990) 'Finding a New Sustainable Pastoralism or Sustaining Pastoralists? The Dilemma Facing East African Pastoralism', Forum for Utviklingsstudier No.2.
- Homer-Dixon, T.F. (1994) 'Environmental Scarcities and Violent Conflict: Evidence from Cases', *International Security* 19 (1) (Summer).
- Hussein, K. (1998) Conflict Between Farmers and Herders in the Semi-Arid Sahel and East Africa: A Review, Pastoral Land Tenure Series No. 10. London: IIED.
- Hutchison, R.A. (ed.) (1991) Fighting for Survival: Insecurity, People and the Environment in the Horn of Africa. Based on original research and compilation by Bryan Spooner and Nigel Walsh. Geneva: IUCN.
- Lane, C.R. (1990) Barabaig Natural Resource Management: Sustainable Land Use Under Threat of Destruction. UNRISD Discussion Paper No. 12. Geneva: UNRISD, June.
- Lane, C.R. (1991) 'Alienation of Barabaig Pasture Land: Policy Implications for Pastoral Development in Tanzania'. DPhil thesis, University of Sussex.
- Lane, C. and Moorehead, R. (1995) 'New Directions in Rangeland Resource Tenure and Policy', in I. Scoones (ed.) *Living With Uncertainty: New Directions in Pastoral Development in Africa*. London: IIED.
- de Leener, P. and Sow, M. (1995) *Conflits et dynamiques populaires de changement.* Report of Proceedings of a workshop 8–16 June 1995, organised by ENDA GRAF Sahel (Dakar) and ITS Base (N'Djamena).
- Marty, A. (1992) 'Etude régionale des stratégies différenciées des éleveurs d'Afrique Centrale: Le Nord Cameroun'. Paris: IRAM, January.
- Marty, A (1993) 'La gestion des terroirs et les éleveurs: un outil d'exclusion ou de négociation?, *Revue Tiers Monde* 34 (134), April-June.
- Mathieu, P. (1995a) 'Conclusion: Les conditions de la gestion locale de l'environnement', *Cahiers du CIDEP 27*, November.
- Mathieu, P. (1995b) 'Réhabilitation et cogestion des ressources naturelles dans la vallée du fleuve Niger, dans le Gourma malien (1986–89)', *Cahiers du CIDEP 27*, November.
- Mathieu, P. and Coupe, B. (1982) 'Integration agriculture-élevage ou conflits agriculteurs-éleveurs dans les aménagements ruraux en zone sahelienne: le

- cas de la vallée du fleuve Sénégal' in *International Colloqium on Tropical Animal Production for the Benefit of Man, December 17–18 1982.* Antwerp: Prince Leopold Institute of Tropical Medicine.
- Mearns, R., Armon, J., Hendrickson, D. and Nangoro, B.O. (1996) 'Conflict, Drought and Livelihood Insecurity among the Pastoral Turkana of Kenya'. Draft working paper, IDS, at the University of Sussex.
- Moorehead, R. (1991) 'Structural Chaos: Community and State Management of Common Property Resources in Mali'. DPhil thesis, University of Sussex.
- Ndagala, D.K. (no date) 'Pastoralists and the State in Tanzania', *Nomadic Peoples*.
- Ndagala, D.K. (1991) 'The Unmaking of the Datoga: Decreasing Resources and Increasing Conflict in Rural Tanzania', *Nomadic Peoples* 28.
- Oba, G. (1992) Ecological Factors in Land Use Conflicts, Land Administration and Food Insecurity in Turkana, Kenya. Pastoral Development Network Paper No 33a. London: ODI, December.
- Pelissier, P. (1977) 'Competition and the Integration of Agriculture and Cattle Raising in Sahelian and Soudano-Sahelian Africa' in G.H. Cannell (ed.) *Proceedings of an International Symposium on Rainfed Agriculture in Semiarid Regions*. Riverside: University of California.
- van Raaij, J.G.T. (1974) Rural Planning in a Savanna Region: The Case of Fulani Pastoralists in the North Central State of Nigeria. Rotterdam: Universitaire Pers.
- République du Mali (1994a) 'Note présentation des résultats de l'enquête éffectuée par la direction nationale de l'élevage sur la situation des conflits entre agriculteurs et éleveurs'. Ministère du Développement Rural et de l'Environnement. Direction Nationale de l'Elevage, May.
- République du Mali (1994b) 'Communication Ecrite' pour soumettre au Gouvernement les résultats d'une enquête de la Direction Nationale de l'Elevage sur la situation des conflits entre Agriculteurs et Eleveurs. Cabinet du Ministère du Développement Rural et de l'Environnement, May.
- Saidou, A. (1995) 'Niger: Gestion Durable des Conflits Fonciers' in de Leener and Sow.
- Scoones, I. (1995) 'New Directions in Pastoral Development in Africa', in I Scoones (ed.) *Living with Uncertainty: New Directions in Pastoral Development in Africa*. London: IIED.
- Stahl, M. (1992) 'Issues for Social Science Research Focusing on Dryland Dynamics in Africa' in Hjort af Ornas (ed.) *Security in African Drylands: Research, Development and Policy*. Research Programme on Environment and International Security. Departments of Human and Physical Geography, Uppsala University.
- Swift, J. (1991) 'Local Customary Institutions as the Basis for Natural Resource Management Among Boran Pastoralists in Northern Kenya', *IDS Bulletin* 22 (4).

- Swift, J. (ed.) (1996) 'War and Rural Development in Africa', *IDS Bulletin* 27 (3).
- Toulmin, C. (1983a) *Herders and Farmers or Farmer-Herders and Herder-Farmers*. Pastoral Development Network Paper 15d. London: ODI, January.
- Toulmin, C (1983b) Economic Behaviour among Livestock-keeping Peoples: A Review of the Literature on the Economics of Pastoral Production in the Semi-arid Zones of Africa. Development Studies Occasional Paper 25. School of Development Studies, University of East Anglia, May.
- Toupet, C. (1975) 'Le nomade, conservateur de la nature? L'exemple de la Mauritanie centrale' in T. Monod (ed.) *Pastoralism in Tropical Africa*. Oxford: Oxford University Press.
- Turner, M.D.(1992) 'Living on the Edge: Fulbe Herding Practices and the Relationship between Economy and Ecology in the Inland Niger Delta of Mali'. DPhil thesis, University of California, Berkeley.
- Van der Valk-van Ginneken, P.H.M.(1980) 'Report on Land Conflict within Zangon Katab District (ABET): A Study of Court Cases'. Addis Ababa: International Livestock Centre for Africa, Sub-Humid Programme.
- Vedeld, T. (1992) 'Local Institution-building and Resource-management in the West African Sahel'. Pastoral Development Network Paper No 33c. London: ODI.
- Vedeld, T. (1994) 'The State and Rangeland Management: Creation and Erosion of Pastoral Institutions in Mali', Issues Paper No. 46, IIED Drylands Networks Programme. London: IIED, January.
- Webb, J.L.A. Jnr. (1995). Desert Frontier: Ecological and Economic Change Along the Western Sahel 1600-1850. Madison, WI: University of Wisconsin Press.
- Were, G.S. and Wilson, D.A. (1972) East Africa Through a Thousand Years: AD1000 to the Present Day. London: Evans Brothers Ltd.
- Winrock International (1992) *Assessment of Animal Agriculture in Sub-Saharan Africa*. Arlington, VA: Winrock International.
- Woldemichael, B. (1995) 'Education for the Pastoral Communities of Eritrea: A Research Study'. Asmara: Ministry of Education of the State of Eritrea/Radda Barnen, Swedish Save the Children, October.
- Yesuf, Ali Said (1992) 'Resource-Use Conflicts between Pastoralism and Irrigation Development in the Middle Awash Valley of Ethiopia'. Unpublished MSc thesis in Natural Resource Management, University of Norway, Ås.
- Zuppan, M. (1994) 'Need Herders and Farmers Quarrel? Rethinking Herder-Farmer Models in Africa,' *Rural Extension Bulletin* 4, April.