

Pastoralism in Peril: Pressures on Grazing Land in Senegal

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IIED

INTERNATIONAL
INSTITUTE FOR
ENVIRONMENT AND
DEVELOPMENT

DRYLANDS PROGRAMME: Pastoral Land Tenure Series No. 4

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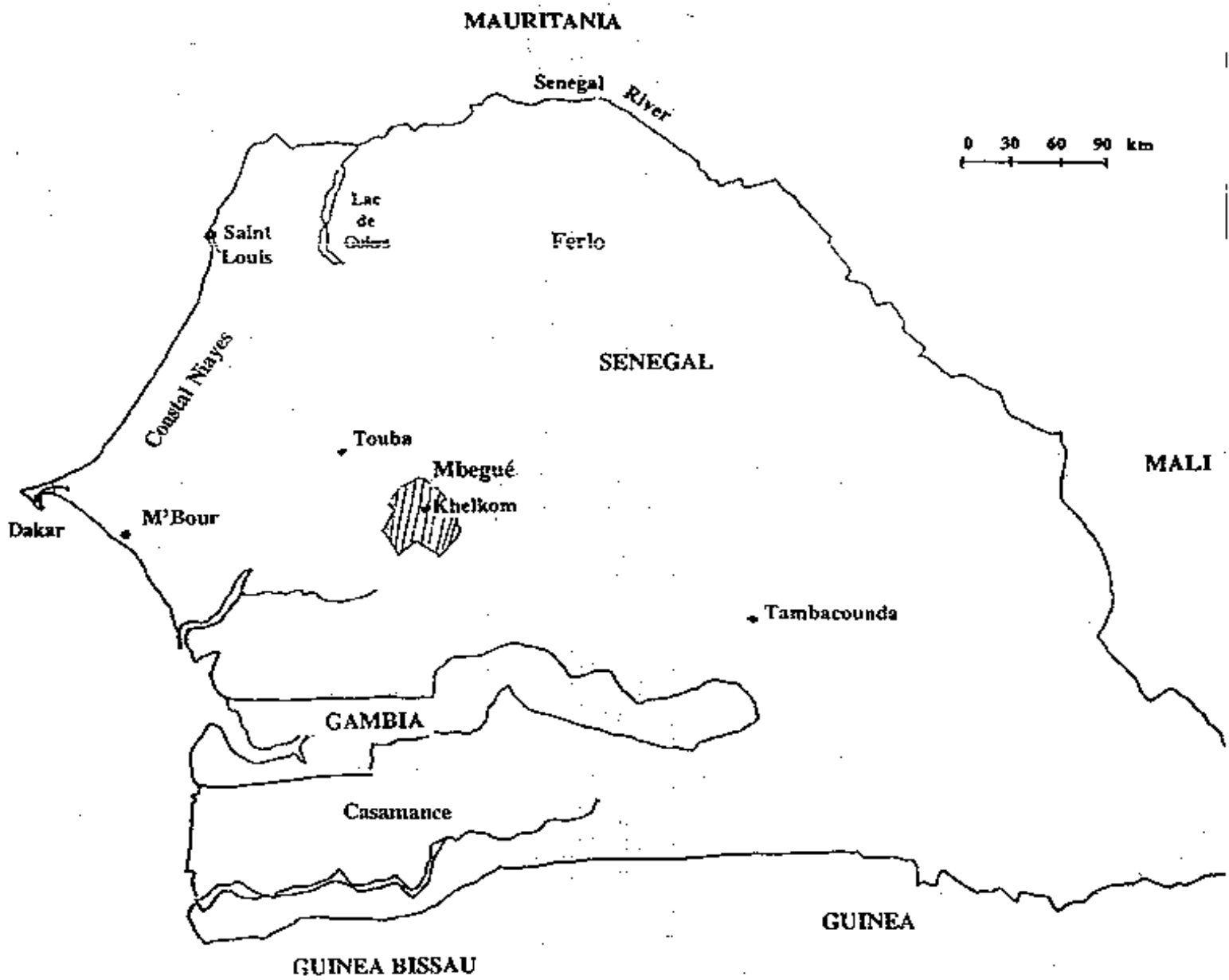
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This series is funded by grants from the Swedish Agency for Research Cooperation with Developing Countries (SAREC) and the Norwegian Agency for Development Cooperation (NORAD) in support of the Drylands Pastoral Land Tenure in Africa Programme

IIED, 1993

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INTRODUCTION

Land use patterns across Senegal's Sahelian zone are undergoing significant and rapid change. One particularly alarming aspect of this transformation is the unrelenting compression of a once dynamic agro-pastoral system into an ever more circumscribed space. While pressure on grazing land is hardly recent and has been explicitly recognized since the 1930s and 40s (Foury 1953:19), the accumulated effect of decades of expanding agriculture is being exacerbated by the rapid advance of commercial agriculture on several fronts simultaneously. Irrigation schemes have monopolized much of the Senegal river and are expanding west from the Lac de Guiers; there is a burgeoning demand for agricultural land around boreholes in the sylvo-pastoral zone; Mouride religious leaders' requests for land to put into commercial peanut cultivation are accelerating; and the once vast savannas of Senegal Oriental are being increasingly settled by farmers escaping the population pressures and exhausted soils of the peanut basin.

Questions of land use in different parts of the country are often treated in isolation. In many cases grazing issues are not even addressed, except in areas considered to be "pastoral zones". As a result there has been no attempt to assess the accumulated impact of these events on the overall viability of the agro-pastoral system. This paper looks at the causes and consequences of increasing pressures on the grazing lands needed to maintain viable agro-pastoral systems in Senegal's Sahelian belt. Animal raising is a vital part of peoples' diversification strategies in the marginal agricultural zones of the Sahel, and becoming even more important as conditions for

¹An earlier version of this paper was prepared for the Nomadic Pastoralists in Africa Project (NOPA), UNICEF/Nairobi. A Fulfulde version has also been published by Associates in Research & Education for Development (ARED), BP 5270, Dakar-Fann, Senegal.

rain-fed agriculture deteriorate. In large parts of northern Senegal, rainfall is sufficient to support crops in only three or four years out of ten. The shortage of grazing affects not only people such as the FulBe, who have been traditionally identified as "pastoralists," but also many others who have diversified into cattle to compensate for poor harvests. These animals are often put out to the FulBe to herd, given their acknowledged skills in this domain.

FulBe grazing strategies, developed from years of experience, depend on herd mobility, one of the few means of coping with the capricious and parsimonious rainfall patterns of the Sahel. Yet the communal space needed to maintain mobility is rapidly disappearing, whether in the river basin of the north, the once vast pastureland of the Ferlo and upper peanut basin, or the more southerly Casamance woodlands. The causes of pressure on pastures are different in each of these cases. But together they represent an alarming transition from a land-use pattern that permits integrated agro-sylvo-pastoral production systems to one that is much more highly specialized in sedentary crop production.

The expansion of sedentarized agriculture and the compression of grazing lands have serious implications. Failure to protect the grazing areas essential for livestock threatens Sahelian survival strategies. There are also serious questions about the sustainability of the crop based production systems that replace more integrated agro-pastoral systems. There are high risks from pushing sedentary agriculture onto lands that are only marginally suited for crops. Along the Senegal River, where irrigation was seen as the solution to low rainfall, more land is currently being taken out of production each year, due to salinization, than is being newly cultivated. Decades of intensive peanut production on fragile soils further south have generated barren expanses of denuded and billowing sand where once were fertile pastures. In both cases, the land is not only no longer suitable for cultivation, it is also virtually useless for grazing. Often it has been cleared of trees, reducing both the availability of fodder and the possibilities of collecting fruits and other tree products.

This paper looks first at the agro-pastoral populations of Senegal and, in particular, at the role of mobility in reducing risk and ensuring the sustainability of their livelihoods. It then discusses, region by region, the pressures on grazing lands, looking specifically at issues that have arisen (1) along the Senegal river and the Lac de Guiers, (2) in the Ferlo, (3) in the Peanut basin, (4) in the Niayes coastal region and (5) in Eastern Senegal and the Casamance. The conclusions focus on political and legal issues related

to the maintenance of common areas necessary for agro-pastoralist livelihoods and looks at how the local populations themselves have responded to this threat to their grazing strategies.

THE AGRO-PASTORALIST POPULATIONS OF SENEGAL

Virtually all the ethnic groups of Senegal practice some type of agro-sylvo-pastoralism, a combination of cultivation, exploitation of trees, and animal raising in which the latter two often serve as mechanisms for reducing the risks inherent in cultivating lands in ecologically marginal areas. The emphasis put on cultivation relative to tree crop exploitation and animal raising varies by geographical zone and by ethnic group. Families and communities invest in a portfolio of activities and adapt their apportionment of labour, capital, and other resources to each activity depending on conditions at any given point in time. Research suggests that the mix in the portfolio may change substantially over time. Groups renowned as peanut cultivators in one generation, when economic and social conditions favour that activity, may change their strategy entirely, investing in other crops or animal raising when conditions change during another period (Freudenberger and Freudenberger 1993:21-23).

During the recent twenty year period when drought has stalked the Sahel, diversification has been the principal survival strategy used by rural families (Eldin and Milleville 1989; Mortimore 1989; Toulmin 1992; Watts 1983). Diversification has taken place within the agricultural sector as farmers move away from a heavy dependence on peanuts and enter into a wide variety of "niche" productive activities such as watermelon, pumpkin, hibiscus, and different cereals. Tree products provide an important source of income to women and specialist collectors of products such as baobab fruit, gum arabic, and balanites seeds (Becker 1983; Bergeret and Ribot 1990). Most rural families have diversified into emigration, sending youths to cities or overseas. The money they send back is an important element of the livelihood for many families. Livestock are also a critical component of many families' diversification strategies. This investment may be in either small animals, principally sheep and goats, or in cattle.

While most rural people in Senegal earn their livelihood from a combination of cultivating, herding, and other diverse economic activities, the group that

has traditionally put the most emphasis on animal raising is the FulBe². Living principally in the northern, more ecologically vulnerable reaches of the country, the FulBe have depended less on crop cultivation for their livelihoods and have become specialists in raising cattle and smaller animals. They have, over time, developed highly sophisticated strategies to care for their herds in the face of low and variable rainfall. Recognized as expert herders by other ethnic groups, FulBe families often settle in hamlets near to the villages of other ethnic groups. Arrangements are then made for the FulBe herders to care for the herds of the villagers in return for some recompense which often involves a salary and certain rights to the milk. This point is emphasized because, while this paper looks primarily at FulBe agro-pastoral strategies, it must be recognized that the compression of grazing areas affects not only this group but also many others who are either currently involved in cattle raising, or maintain the option of investing in cattle as a means to diversify in the face of risk.

The Senegalese FulBe can be divided into three major groupings based on lineage and spatial distribution: the *WaalwaalBe*, the *JeerinkooBe*, and the *Fula* of eastern Senegal and areas south of the Gambia (Ba 1986:48). While the FulBe are often portrayed as single-minded pastoralists, in fact they have been agro-pastoralists for many generations: herding cattle, raising sheep and goats, and cultivating field crops such as millet and sorghum. They have managed the risks of their marginal environment by juggling a portfolio of activities and maintaining the geographic flexibility needed to adapt their strategies, each year, to whatever conditions prevail. A single family might keep large and small animals, grow several different crops, and collect a variety of forest products. Systems of exchange with more distant relatives and maintaining access to pastures in diverse geographic locations permit the pastoralists to manage the risks associated with their environment, to make maximum use of the region's ecological diversity, and to respond to considerable and unpredictable variations in both rain and pasture quality (Touré 1985:34). Mobility is an essential element in these strategies, since it enables people to profit from sparse and widely dispersed resources whose availability varies by location from year to year.

²Known as Fulani in English and Peul in French, in Senegal the population in question refers to itself as Fulbe (plural) or Fullo (singular). These terms will be used here.

Mobility and the Agro-pastoral Livelihood System

In the first half of this century, the FulBe populations of Senegal still practised transhumant migration on a grand scale (Barral 1982; Dupire 1970; Grenier 1960). Since the major pasture areas of the Ferlo had no year-round water supply, herders based in the savanna (*JeerinkooBe*) would move north to the river during the dry season. Other groups based along the river (*WaalwaalBe*) would move their herds south to the Ferlo pastures during the rains when the river banks were under cultivation. Within these linear patterns of migration between the river and seasonal pastures, camps would move periodically within their zone to take advantage of pasture conditions and to exchange milk for food and other products produced by sedentary populations. In the 1950s, the drilling of boreholes across the savanna of the Ferlo had a rapid and profound effect on these migration patterns. The establishment of year-round water points in rich pasture areas meant that it was no longer necessary to move families and herds north to the river during the dry season. They settled either in the villages that rapidly grew up around the boreholes, or in encampments not far from these water points. Instead of major seasonal transhumance, herders now practise what has been called "micro-nomadism" (Barral 1982:67), moving only short distances to take advantage of better pastures late in the season or to compensate for non-operating boreholes or outbreaks of disease.³

Despite the fact that, in most years, FulBe families now move only relatively short distances with their cattle, the option of going further continues to be an important component in reducing risks. Today, herders' movements are largely determined by variations in rainfall and the quality of grasslands in their own and neighbouring localities. However, in years when there is greater rainfall variation among regions, and particularly in cases of severe drought, herding populations still resurrect their longer distance transhumance strategies. The enormous losses (40-60% of cattle) suffered during the 1972/3 drought were in large part due to the recently settled population's reluctance to move their herds away from the apparent security afforded by the borehole (Santoir 1986). In the next major drought of 1983, animal losses were much reduced because the FulBe implemented traditional drought-response strategies and quickly moved their animals south to richer pastures when the threat became apparent (Touré 1990:9).

³If the distance between pastures and camp becomes too great for the animals to return each night to be milked, the family will move to temporary camps. Such camps may be moved two or three times in a season but rarely more often and rarely very far (Barral 1982: 64).

FulBe and other herders confront ever increasing impediments to both short distance and longer distance mobility. Whenever year-round crops are introduced, whether irrigated field crops along the river or gardens and orchards watered by wells, they impinge on traditional systems in which land was free for grazing and animal passage during the dry season. The deterioration of soils and yields in the principal agricultural zones of the country are pushing farmers onto lands, previously considered too marginal for crops, that were once pastures. New fields sprinkled across the countryside increase the risk that animals will damage crops during their passage resulting in substantial penalties for the herder. Enclosure of common lands for project activities, organized ranching, or plantation agriculture has put fences where cattle used to roam freely.

CONFLICT BETWEEN SEDENTARY AND AGRO-PASTORAL SYSTEMS: REGIONAL CASE STUDIES

Tensions are growing between different resource users over the shared exploitation of land. Often the conflicts pit pastoralist groups against sedentary farming communities, yet this is not the exclusive source of tensions as the examples show below. The expansion of urban settlements into areas once used for grazing also plays a part in reducing the extent of common lands. In each of the following sections, we look at the process of change in a given region, addressing the causes of conversion of grazing areas to other uses and the conflicts that have arisen during this process.

The Senegal River and the Lac de Guiers⁴: The Expansion of Irrigated Agriculture

The clash between multiple users of the same ecological space is no more evident than along the shores of the Senegal river and the Lac de Guiers. Rapid changes in the regional economy associated primarily with the development of irrigated agriculture is profoundly transforming relations between the FulBe and the surrounding Toucouleur and Wolof populations. The completion of the two large dams at Manantali (Mali) and Diama (Senegal) have created new opportunities for the development of intensive irrigated agriculture. This in turn has reduced not only the availability of

⁴A dammed tributary of the Senegal River, the Lac de Guiers is the only significant fresh water lake in the country.

key grazing areas, but also access to watering points along the river (Horowitz and Salem-Murdock 1990; Santoire 1986; Touré 1991).

Traditionally, two communities of FulBe have employed the banks of the Senegal river and the Lac de Guiers for dry season grazing, the *JeerinkooBe* of the Ferlo hinterland and the *WaalwaalBe* of the Senegal river valley. During the dry season the receding waters of the Senegal river created rich pastures for both groups of FulBe. The *WaalwaalBe* also practised recessional agriculture along the river's shore. Once the rains arrived to mark the beginning of the new crop season, the *JeerinkooBe* returned to the interior of the Ferlo, principally to the area known as the *koya*, and settled around seasonal pools of water. The *WaalwaalBe* similarly moved livestock a short distance into the interior in order to avoid the flooded borders of the Senegal river. Little competition occurred between these communities in the Delta or middle valley of the Senegal river due to the low density of livestock populations and the quite limited range of flood recession agriculture.

The colonial administration in Senegal sought to develop the irrigation potential of the Senegal river valley as early as the first part of the 19th century. Many early initiatives failed and it was only in the early 1960s that implementation of plans to transform the Delta into vast irrigated rice fields began in earnest (Delaunay 1984; Santoir 1983; Crousse et al 1991). Following the drought years of the late 1960s and early 1970s, development agencies succeeded in expanding irrigated agricultural schemes into the middle and upper reaches of the Senegal river and along the shores of the Lac de Guiers. The transfer of land to irrigated agricultural schemes has destroyed prime riverine grazing in the Delta and middle valley.

The pressure on grazing lands has taken many forms. The state has leased public lands to large national and international agribusiness firms in the Delta and along the shores of the Lac de Guiers. Entire villages have been evicted in order to make room for sugar cane plantations and cattle ranches (Mathieu et al 1986). In other parts of the valley, livestock paths to water points along the river have been eliminated by the expansion of irrigated land. The creation of the national park at Djoudj similarly excluded pastoralists from lands previously used for grazing. The effects of the reduction of good dry season grazing lands, progressively constricted since the early 1960s, has been exacerbated by the arrival of livestock owned by refugees who fled Mauritania during the violent crisis of 1989 (Horowitz 1989). The highest concentration of livestock in northern Senegal is now found along the borders of the Senegal river. Conflicts, at times violent, are

growing between those engaged in irrigated agriculture and herders trying to find sufficient forage for their livestock. The *JeerinkooBe* have largely ceased to move to their cattle north to the river during the dry season due to the shortage of grazing areas while the *WaalwaalBe* encounter increasing difficulties in finding adequate pastures there for their herds (Gallais 1972, Touré 1991).

Along the shores of the Lac de Guiers, the story is much the same. Large expanses of land have been converted to irrigated horticultural enterprises owned by national and international commercial interests (Institut des Sciences de l'Environnement 1983; Mathieu et al 1986). Some of the largest landowners are Mouride⁵ entrepreneurs seeking to develop irrigated gardening enterprises to meet the growing national and international demand for vegetables. The enclosure of large expanses of the lake shore for gardening has reduced access by livestock to the once plentiful and succulent marsh grasses (ReMAPS 1992a). In the immediate vicinity of the lake, the quality of vegetation suitable for livestock production has declined. FulBe informants report that over the past thirty years the diversity of tree species suitable for livestock production has fallen and years of consecutive droughts have reduced the availability of grasses (ReMAPS 1992a).

Year after year of poor rainfall and lack of forage in the far north of Senegal have forced many *WaalwaalBe* to flee southward with their cattle, sheep, and goats. Some family members remain along the Senegal river to occupy lands used for flood recession and irrigated agriculture while others take the livestock into the Ferlo in search of more plentiful grasses. These FulBe, who have become known as *egge-egge*, practice an itinerant form of pastoralism consisting of constant movement from one borehole to another in search of sufficient grasses. As we describe below, these "nomads" encounter considerable animosity from the resident FulBe who are long established around the boreholes of the *koya* and who seek to conserve pastures for their own uses (Touré 1991:10, ReMAPS 1993b).

⁵The Mourides are one of three major Sufi Islamic sects in Senegal.

The Ferlo⁶: Land Competition Around the Boreholes

The Ferlo has traditionally been the prime rainy season grazing area for the FulBe. For centuries it was protected from excessive exploitation by its inhospitality and the lack of permanent sources of water. Only the hardy *JeerinkooBe* developed the skills to use this vast but harsh grazing zone, though their survival hinged upon the maintenance of access to better watered grasslands both north and south of the Ferlo during the dry season. All of this changed with the introduction of boreholes sunk into the massive Maestrichtian aquifer in the 1950s. From that time forth there has been growing competition, both for Ferlo pastures and particularly for land proximate to the boreholes (Barral 1982; Barral et al 1983).

The year-round source of water and apparently plentiful forage lure herders to the Ferlo. But equally, they are being pushed into this region by the pressures on other grazing areas. From the south, Mouride and Wolof farming communities continue to advance northwards from the peanut basin into the grasslands of the Ferlo, pushing FulBe northwards of the front. From the west, as access to the Lac de Guiers is blocked off, FulBe look to the interior. From the north, the *JeerinkooBe*, having lost access to water points and pasture lands along the Senegal river are trying to make their living year-round in the Ferlo. In addition, populations of *egge-egge* flee south from the river area that they can no longer call home (Juul 1991; ReMAPS 1992a and b; Touré 1991).

The year-round settlement of the FulBe within the confines of the Ferlo has rendered them increasingly vulnerable to climatic fluctuations. During years of low rainfall or severe drought in the arid Ferlo, the growth of forage from grasses declines dramatically. In the past the FulBe were less subject to these fluctuations because they maintained access to riverine grasses and the abundant ligneous vegetation of the woodlands of central Senegal. Similarly, when a bush fire breaks out and burns the pastures around a borehole, the FulBe must flee to another area. Yet at present, the FulBe find it increasingly difficult to migrate out of the Ferlo to search for alternative pastures. Blocked in all directions, the FulBe are forced to remain in an increasingly confined area that is subject to perpetual fluctuations in the availability of forage.

⁶The Ferlo is variously defined. Here the term is used in its general sense and refers to the grasslands in a broad belt lying roughly between the Ferlo river valley and the Senegal river (see map).

Competition Among Pastoralists for Water and Pastures

From the earliest days of the borehole era, the FulBe have become highly dependent upon the operation of the borehole pumps, especially during the dry season when there are no alternative sources of water. The use of Ferlo pastures depends on access to water. To the extent that water resources are evenly distributed throughout the territory, pasture use can also be evenly distributed across the available resources. Where water is unevenly available, some pastures are overgrazed while others are used little or not at all. When the boreholes were drilled across the Ferlo, they were placed along a grid to ensure that water would be equally available through much of the region. As larger numbers of people and animals come to depend on the Ferlo pastures, the distribution of water and neighbouring grasslands has become a critical factor in the use of the region's resources.

Most FulBe now maintain a base near one of the boreholes, living within the distance that a cow can walk in a day. The cattle walk to the borehole every other day, and use the pastures in the vicinity. When a pump fails, unless the water supply returns within a day or two, the FulBe must move their livestock to an adjacent borehole. The deterioration of the pumps is making equipment failure increasingly common. For many years, the colonial administration and, later, the Senegalese government covered the costs of operation and maintenance of the boreholes. During the late 1980s responsibility for managing the pumps was turned over to local populations who were exhorted to form "borehole committees" and charge fees to users. These committees have encountered great difficulties in keeping the pumps operating since, by the late 1980s, many of the pumps and, in some cases the boreholes themselves, had reached the end of their expected lifespan. Breakdowns have become more frequent and the costs of repairs are high. In 1989 the borehole of Velingara (Department of Linguere) simply ran out of water. Despite the feverish attempts of government to dig a new borehole, several months went by before the project was completed. In the interim, the FulBe moved their animals to adjacent boreholes, thereby greatly increasing the livestock populations around the neighbouring boreholes and ecological pressure on grasslands. The case of Velingara is not unique. The first generation of boreholes constructed in the mid-1950s are nearly all suffering technical problems.

In the face of both climatic and technical uncertainties, the FulBe maintain opportunistic grazing strategies (Ellis and Swift 1988; Sandford 1982). While maintaining allegiance to a particular borehole, each family retains

considerable mobility within the Ferlo as they move their livestock from one borehole to another in search of suitable forage and sufficient water during times of crisis. The FulBe invest considerable effort in maintaining relationships with neighbouring communities in order to facilitate access to water and pastures. Rules are established around each borehole not only to provide access to these resources by outsiders in time of need but also to protect the resources of the area. FulBe living in the vicinity of Yang-Yang and Mbeuleukhé, for example, try to encourage the highly mobile *egge-egge* fleeing the Senegal river basin to settle next to established encampments so that their activities can be more carefully monitored and to conserve pastures that would otherwise be destroyed through a proliferation of small and scattered settlements (ReMAPS 1992b). The *egge-egge*, however, resist these recommendations and camp wherever grass and water are plentiful. Where the *egge-egge* have not followed local rules, the *JeerinkooBe* have used a number of strategies to try to discourage their use of Ferlo pastures. One reported technique is to declare to visiting herders that the borehole is broken and to surreptitiously start the pumps at night to water the local cattle.

For the most part, within the Ferlo -- in spite of increasing competition for pastures and water -- FulBe populations have succeeded in maintaining flexible, opportunistic grazing strategies that permit herders to follow grass and water as available. The dangers of ignoring these strategies are illustrated by the experience of the pastoralist component of the *Projet Sénégal Allemand du Zone Nord*. It provides a vivid example of the implications of policies and programmes to settle pastoralist populations around boreholes. The project fenced roughly 14,000 hectares of grasslands around the borehole of Vendou Tiengoli and divided the area into plots to be grazed by a restricted number of livestock. Despite efforts by the project to ensure a representative participation of various FulBe socio-economic groups in the ranching scheme, the elite successfully captured the project benefits and excluded lower class members of the community from access to the pastures (Zluczyk et al. 1991, Miede 1990). While a minority of wealthy herders benefited from the intensification, the excluded population added an additional burden to the area served by other boreholes.

The ranching scheme also transformed migration patterns and relations with neighbouring populations. For over a decade, pastoralist households around the borehole became accustomed to grazing their livestock in fenced plots provided with piped-in water. Outsiders from neighbouring boreholes were excluded from using the water and grazing of the fenced-in zone. Neighbouring communities resented the restrictions on the borehole where

they had previously conducted exchange relations. The consequences were seen in 1990 when the borehole at Vendou Tiengoli broke down for several weeks during the dry season. The Vendou Tiengoli FulBe tried to move their livestock to neighbouring boreholes but many livestock, having lost their endurance for long-distance walking, died in the trek. Herders and animals who succeeded in reaching neighbouring villages were confronted with enormously high water rates in revenge against the Vendou Tiengoli residents for having severed relations of mutual assistance.

Competition for Land With Sedentary Cultivators

Diverse herding groups are being compressed into a shrinking area of the Ferlo but, in addition, their use rights to pastures within the Ferlo are being challenged by sedentary communities who also seek to settle near boreholes in order to cultivate peanuts and other field crops. The administrative district⁷ of Barkedji, at the interface of the peanut basin and the Ferlo, provides an example of the appropriation of land around boreholes by sedentary populations and the impact on herders. Land once used for livestock grazing has been converted into field crops, primarily of groundnuts, and this has further reduced the availability of grazing to agro-pastoralists. The considerable political power of the sedentary populations, primarily the Mourides, has closed off possibilities of negotiating joint use of the space surrounding the boreholes. The FulBe have found themselves pushed out of an area once considered a prime dry season grazing zone.

The principal villages in the Barkedji area follow the ancient Ferlo river valley and its tributaries. In the pre-borehole era, the *JeerinkooBe* settled along the valley and dug shallow wells into the seasonal streambeds that were used to water their livestock. As early as the 1930s the Mouride sect established farms in the valley although their presence was restrained by nearly a decade of low rainfall in the 40s (Santoir 1983:42) and expansion was further limited by the classification of large areas of land as sylvo-pastoral or forest reserves.

Over the past 20 years, competition for land in the area has become increasingly pronounced. Between 1977 and 1988, over 6,500 hectares of land were requested by and attributed to applicants in the rural community of

⁷The term district, as used here, refers to the French *arrondissement* while rural community refers to the administrative division known in Senegal as the *communauté rurale*. Each *arrondissement* in Senegal includes several *communautés rurales* and each *communauté rurale*, governed by a *conseil rural*, includes numerous villages and encampments.

Barkedji. Many of the lands so allocated fall into areas which are clearly classified as forest or sylvo-pastoral areas. The process has taken on a new amplitude over the past year. In 1990 alone, Mouride *marabouts* submitted claims for more than 80 km² of land (Juul 1991:5). While in theory the community council, which in the case of Barkedji has been 80% FulBe, has the right to refuse such claims, in fact they lack the effective capacity (knowledge and appreciation of their potential authority in this domain) to do so and virtually no requests are denied. In allocating the land, there is no evidence that competing claims for the land, its proximity to water points or animal passage ways, or other factors that would interfere with traditional user rights and pastoral activities are taken into consideration.

Alarmed by the clear implications of such land privatization on their livestock activities, the FulBe of Barkedji have reacted by submitting their own claims for land. While they have no intention to fence or otherwise change the use of the lands they wish to control, they strongly wish to ensure the continued access of local populations to essential corridors and grazing spaces and to limit the expansion of Mouride peanut cultivation (Juul 1991:6). This strategy has seen only limited success, however, due to the administrative criteria used to judge requests. The applicant must demonstrate the ability to put the land into productive use (*mettre en valeur* in the French legal terminology) and in Senegal extensive livestock raising and the use of land for pastures is not yet considered to be "productive". Thus while the FulBe rural councillors have no hesitations about approving the requests of fellow FulBe, these are frequently turned down at the level of the *préfet* (departmental administrator) where all such land allocations must be approved (Touré 1991:14).

The experience of Barkedji, where applications for 15% of the total land area of the rural community were submitted in 1990 alone, is perhaps more dramatic than what has happened in other areas. It is illustrative, however, of the trend toward increasing competition for control of common lands previously used for grazing and the systematic preference demonstrated by the authorities for sedentary agricultural systems over those based on mobility and livestock production.

The Peanut Basin : The Expropriation of Grazing Zones by Mouride Peanut Plantations

The peanut basin of Senegal, which comprises a large part of the central area of the country, has been intensively cultivated for half a century. Pressure by the French to plant peanuts for the colonial market resulted in the massive clearing of land during the first decades of the 20th century. Much of this land clearing took place under the direction of the Mouride Islamic sect, whose emphasis on discipline, the sanctity of labour, and a communal sense of mission all contributed to their spectacular success in establishing pioneer villages of religious followers and rapidly expanding the cultivation of peanuts in the interior (Copans 1988; Cruise O'Brien 1971; Sy 1969)).

The apparent predominance of sedentary agriculture in what is now commonly known as the peanut basin belies a history of conflict with pastoral populations over this land. While the lands colonized by the Mourides in their unstinting expansion were largely undeveloped (according to their definition of that word), they were neither vacant nor unused. From their earliest excursions out of their home base in the Baol and Kayor regions, Mouride cultivators encountered FulBe herders who used the vast uncleared lands to graze their cattle and cultivate small fields of food crops to meet their own consumption needs. These herders had established seasonal camps along the dried up river valleys where water was more accessible and had constructed wells and shallow watering holes that they used during transhumance movements in search of better pastures. Often these wells provided the Mourides with their first foothold in a region, and they built their communities around the FulBe water points (Pelissier 1966:358).

The Mourides refused to recognize any tenure rights of these earlier land users. They maintained that only by clearance could land claims be established. From the 1930s, when they began systematically to settle the valleys of the interior, regular and often bloody conflicts occurred between the Mourides and FulBe herders. When they were new in an area and still few in number, the Mourides usually persuaded the FulBe to move on peacefully. As the settlers became more numerous and better organized, they preferred to resolve land disputes by brute force, evicting the pastoralists with threats or actual violence. Where the FulBe resisted, the Mourides were fully prepared to fight, and in one notable case in 1937, more than 50 people were injured in a dispute at Touba Fall (Cruise O'Brien 1971:198). In cases where the FulBe appealed to the colonial courts for protection of their rights, they were almost always rebuffed, since the

official attitude held that Mouride peanut production contributed more to the economy than the pastoralists' grazing. In the rare instance when the courts did support the ancestral rights of the FulBe, the Mourides simply disregarded the decision and planted their peanuts as before. Fearful of antagonizing the highly organized and economically productive Mouride establishment, the authorities cast a blind eye on such transgressions and the FulBe had little choice but to move on (Cruise O'Brien 1971:198).

While the colonial government generally supported the Mourides in individual conflicts between cultivators and pastoralists, there was growing official concern about the rate of peanut expansion and the injurious effect it was having on both herding populations and the environment (Foury 1953:19). The government was well aware of the contradiction between the economic imperative to produce peanuts and the clear environmental costs it imposed. Since peanuts are entirely uprooted at the harvest, leaving no residual matter in the soil, their continued production resulted in particularly rapid rates of soil degradation (Bellouard 1945:4). This was due both to the removal of organic matter needed to replenish soil nutrients and to the effects of erosion when plants were uprooted and soil left bare during the long dry season.

By 1945, the colonial authorities began to design a policy intended to limit the expansion of the peanut front. The compromise devised by the colonial administration protected the most fragile soils on the high lands from peanut cultivation, restricting these areas for use by pastoralists who were recognized to be gentler on the environment (Foury 1953:19). Commercial cultivation would, however, be permitted in the valleys. As the colonial administrator described the plan: "Inserted between the valleys like links of a net, the plateau will be classified as sylvo-pastoral reserves where users will have rights to temporary cultivation and pasturing of animals.... It is in this perspective (classification of the plateau and free use of the valleys for agricultural production) that the policy of classifying the forests of Mbegué, Koum Koum, Déali and Lindé has been determined" (Foury:20).

Since the classification of these lands for sylvo-pastoral use in the 1950s, these reserves have played a critical role in agro-pastoral livelihood strategies. They have served two principal functions. They offer seasonal havens where local agro-pastoralists can keep their cattle during the rainy season when most of the region is under cultivation and therefore off-limits. In addition, they serve as a refuge in periods of more severe drought; when there are pasture or water deficits in other areas, herders travel south from more northerly areas of Senegal and even Mauritania to use the reserve on a

temporary basis until conditions permit them to return to their usual pastures. The assault on grazing land in the peanut basin is taking place principally in these reserves. This is hardly a new phenomenon; the reserves have been coveted (and in some cases successfully appropriated) by cultivators since their designation. However, the recent dramatic transfer of most of the sylvo-pastoral reserve of Mbegué⁸ to the Mourides highlights the vulnerability of these last and critically important pasture lands in the central part of Senegal.

The forest of Mbegué, a classified reserve of some 73,000 hectares, served as a major grazing area on the southern edge of the FulBe transhumance routes. In a typical year as many as 6,000 people and 100,000 cattle would use the forest during the rainy season. As many as 200,000 more cattle might use the forest on an *ad hoc* basis during the dry season, with numbers increasing significantly in years of drought. The forest had a borehole, well managed by the FulBe themselves, which served populations using the forest during the dry season. In 1991, after years of requests from Mouride religious leaders (who have a powerful influence over the political inclinations of their followers and whose endorsement is actively sought by the major political parties), the government established a "contract to cultivate" with the head of the brotherhood. He was granted permission to put 45,000 hectares of the 73,000 hectare reserve into commercial production. Over a three week period preceding the planting season, the forest was cleared by religious disciples at a rate of approximately 2,000 hectares a day. The area has since been divided among groups of followers into vast plantations where peanuts are cultivated by tractors in kilometre-long rows. Herders and their cattle have been squeezed onto the remaining 28,000 hectares which they fear may also be appropriated at any time.

The likely ecological impact of turning the forest into a peanut plantation can be seen with sobering clarity if one travels just 10 km north of the reserve into the areas around the villages of Sadio and Baila, colonized in earlier expansions of the Mouride domain. The villages, shaded by parks of Neem trees, are nestled in seas of billowing dunes, much of the land so degraded that it can no longer support crops. With hardly a tree or bush to stop the blowing sands, it is difficult for even the most hardy pioneer species to regenerate on the depleted soils. The Mourides' cultivation practices have contributed to particularly rapid environmental degradation. Plantations, especially, are farmed in order to generate the largest profits in the shortest

⁸For a complete discussion of the deforestation of Mbegué see Freudemberger 1991.

period of time; unlike smallholders who are forced to nurture their limited resources, the religious leaders' success in appropriating new land as the old is exhausted gives them no incentive to practice more sustainable methods. Rotation with crops other than peanuts and use of manure tends to be lower on Mouride plantations than on individual small-holder farms. Large plantations often use tractors that require fields to be cleared of trees, exposing soils to much greater risk of erosion.

The Mbegué declassification follows a pattern of transfer of lands, previously restricted from cultivation in acknowledgement of the fragility and vulnerability of their soils, from sylvo-pastoral use to an agricultural production system based primarily on peanuts. The forest of Déali met a similar fate in an earlier declassification. These lands are, in the short-term, being converted from grazing to crop-land. In the medium and longer term, they are being converted to deserts.

The Coastal Niayes: Urbanization and the Expansion of Commercial Gardening

The compression of open grazing space is highly visible in the unique ecological zone of the coastal Niayes where competition for land has become intense. Here, it is principally the expansion of urban settlements and intensive commercial horticulture that has reduced the commons once used for livestock.

The coastal Niayes is a unique ecological zone which runs parallel to the Atlantic Ocean from the Senegal river area south to the environs of Mbour. The zone closest to Dakar is especially apt for horticulture, fruit tree production, and semi-intensive animal husbandry due in part to the high water table, the cooling effects of the coastal breezes, and the proximity to urban markets. This zone has long been the locus of numerous public and private development interventions. Among these are the government of Senegal's encouragement of agribusiness investments in dairy production and export oriented horticulture (Rassas 1987; Faugère 1984) and a recent plan to expropriate large areas of prime land for the construction of a Japanese retirement community (PR Newswire 1990). While the latter appears to be on hold, at least for the present, it illustrates the diversity of demands on this prime ocean front land.

The ecosystem of the Niayes has undergone profound ecological and social transformations since the turn of the century. Until the 1930s, the lowland depressions from Saint Louis to Dakar were covered by a dense mantle of

trees characteristic of the Sudano-Guinean forest. In the late 19th century, the Niayes became a readily available source of firewood and timber for the growing urban centres of Saint Louis, Louga, and Kebemer. Ronier palms (*Borassus aethiopum*) were the first species to suffer from the excessive exploitation. At the turn of the century, the colonial administration imposed conservation measures, creating state forest reserves around the densest populations of roniers.

The Niayes were sparsely populated until the early decades of the 20th century. The zone was largely a refuge for pastoralist FulBe escaping the exactions of the Wolof in neighbouring provinces. The abundant pools of open water and the ease with which shallow wells ("séanes") could be constructed encouraged the FulBe's seasonal use of the Niayes but they were discouraged from permanent settlement by the existence of trypanosomiasis carrying flies. By the mid-1930s, as the forest cover began to be removed, the FulBe began to settle permanently in the vicinity of the best watered depressions nearest the ocean. The Wolof land owners, who preferred the dryer uplands which were better suited to peanut production, ceded the wetter coastal areas to the FulBe.

In the newly acquired lowlands the FulBe began to combine horticultural production with livestock raising in the 1940s and 1950s. To this day, they are heavily involved in gardening, and maintain practices of fertilizing garden plots with manure from their livestock and protecting fields with windbreaks and live fencing. Considerable investments are made in cement lined wells and manual pumps. The FulBe are still the predominant land holders and gardeners in the zones nearest to the ocean while Wolof cultivate the areas further from the ocean (Ba 1986; ReMAPS 1992e; Sall 1987). While these FulBe have been highly successful in developing a "niche" livelihood, their activities have been as inimical to livestock as those of other sedentary populations whose enclosures exclude wandering cattle.

Few pastures and watering areas remain in the lowland areas of the Niayes. Most of this land is now taken up by intensive gardening. Other open lands are rapidly being converted into fruit tree orchards, one of the fastest growing economic activities of the area. Upland farm lands have been illegally sold by elderly Wolof land owners to "Sunday farmers", wealthy government officials, merchants, and speculators who have the means to purchase land. They fence it off with concrete walls and establish plantations of fruit trees. Eventually, as the city of Dakar grows, the "Sunday farmers" hope to sub-divide their land and sell it off for housing estates. As a consequence of the rapidly emerging land market, almost all the upland

pastures have disappeared as well. FulBe who once grazed livestock in the Niayes are forced to go elsewhere, often towards the interior of the peanut basin or the Ferlo (ReMAPS, 1992e).

Eastern and Southern Senegal: Agricultural Colonization of the Last Frontier

The eastern and southern regions of Senegal are important livestock raising zones, though their importance is often underestimated. Rarely have studies on the farming systems of the Casamance and eastern Senegal paid attention to pastoral systems and needs. But here the same types of compression are affecting the mobility of pastoralist populations and the available space for livestock grazing.

The "Senegal Oriental" zone is still considered a relatively underpopulated area free for new agricultural settlement from the overcrowded peanut basin (Dubois 1975; Garenne and Lombard 1991; Trincaz 1979). Since the early 1960s the government of Senegal has encouraged both organized and spontaneous settlement in the region. The early schemes encouraged Wolof and Serer agricultural populations to settle in areas with few pastoral populations. As the territory has become progressively occupied, villages have been established in areas long used for grazing, often close to dry season water points. As a result, there are growing conflicts between the resident FulBe populations and the newcomers.

Disputes have broken out between FulBe and sedentary Serer and Wolof farmers over livestock entering fields at harvest time. This has particularly been a problem because of the expansion of cotton, a crop that is harvested later than millet and other upland food crops. Herders have responded by moving their livestock into national forest reserves, such as Dabo, but this brings them into conflict with the forestry service (ReMAPS 1992b).

Such conflicts are an indication of the growing competition between those reliant primarily on agricultural production and those primarily dependent on livestock raising. Wide cattle tracks used traditionally by FulBe to move animals north and south to better water and pastures are being encroached upon by farmers. Access to water along the upper Gambia River and other water courses is being blocked as local populations fence off the shores for gardens. Conflicts between gardeners and herders are rampant around urban centres, such as Kedougou, where women are becoming heavily involved in dry season horticulture, in part as a result of projects financed by non-governmental organizations.

Similar conflicts are apparently on the rise in the Casamance, though little research has been conducted on pastoralist activities in this region (Linares 1992). As populations move from northern Senegal into the Casamance in search of land for cultivation, one may expect increasing pressures on common village grazing areas. As cultivation expands into upland areas used for rainy season grazing, village livestock herds will be confined to smaller and smaller pasture areas. These constraints have already emerged in the adjacent country of The Gambia. On the south bank of the Gambia River, the expansion of dry-season gardening along the banks of streams and in freshwater swamps has exacerbated tensions between FulBe herders and Jola and Mandinka farmers (Freudenberger et al 1992). The expansion of small-scale dikes to prevent salt-water intrusion along the bottoms of rice fields has also hindered the free movement of cattle. Conflicts arise when cattle trample the dikes and destroy the earth works.

CONCLUSIONS: PASTORALIST VULNERABILITY, LOCAL RESPONSES, AND THE NEED FOR SUSTAINABLE LAND USE PLANNING

The noose is tightening around the pastoral economy. Social, economic, and political processes are all leading towards the privatization of common spaces in the sylvo-pastoral zone and the spread of farming onto lands that can barely support sedentary agriculture. The environmental implications of the transition from extensive, semi-nomadic agro-pastoral production systems to crop cultivation are alarming in the marginal Sahelian belt. Farming systems in general, and Mouride peanut plantations in particular, are characterized by less diversity and reduced adaptability to environmental fluctuations. Non-sustainable agricultural practices, such as monocropping and the failure to return organic material to the land, mine the land and cause long-term, if not irreversible, damage to the soils. The more marginal the rainfall the more difficult it is to regenerate these environments to productive levels.⁹

The FulBe with remarkable adaptability have modified their strategies in response to the compression of grazing space; many have already become master farmers and are largely sedentarized in communities with schools and other public services. Some continue to pursue traditional livelihoods,

⁹A fifteen year German project attempting to restore 30,000 hectares of land not dissimilar to that which is left in the wake of Mouride plantations cost more than \$5 million (Wal Fadji 21 June:5) and, even after such an investment, has not met its objectives.

moving further to the periphery in order to avoid conflict with more powerful and organized cultivators. Others, willing to sacrifice neither their cultural identity nor their economic well-being, have begun to organize to protect pastoral interests and actively seek means by which they can coexist with farming populations.

As the review of land allocation in various areas of the country has shown, the competition between grazing and crop lands has a long history. The rivalry takes on a new edge in the present era, however, due to two factors. First, many of the recent pressures on grazing land are the result of irrigated agriculture that deprive herders of grazing not only during the crop season, but throughout the year. Year-round irrigated agriculture does not permit the traditional arrangements made between herders and farmers where animals grazed stubble during the dry season and in return left a share of organic fertilizer. Second, the pressure on space, particularly in critical areas of the peanut basin is so great that it threatens the viability of herders' livelihoods. In order to reduce risk, herders need access to pasture reserves in diverse ecological conditions. At least some of these need to be further south, to ensure a supply of grazing in the inevitable years of severe drought when northern pastures are decimated. These more southerly reserves are disappearing at a particularly rapid rate due largely to the pressures of Mouride peanut production.

If pastoral livelihood systems are to persist, grazing lands must be protected and mechanisms devised to protect seasonal rights of access to lands that can be used for grazing. This does not imply that land be reserved for the exclusive year-round use of livestock owning populations, but rather, that arrangements be negotiated so that certain prime grazing lands are available, at least on a seasonally determined basis. Various resource user groups must work out ways to share resources used in common, which implies the establishment of rules regulating differential access to the wide variety of natural resources found in a particular area.

Senegal has a legal and administrative framework capable of weighing competing land use interests. It is significant that many of the decisions concerning these matters are taken at the local level. In theory, this permits the extensive participation of affected populations in decisions concerning the territory in which they live. Among the critical legislative acts is the 1964 Law of the National Domain. This law makes the State the ultimate legal holder of most land, but gives rural community councils the authority to allocate lands according to the user's capacity to render it productive ("*mettre en valeur*"). The councils that make such decisions are popularly

elected from the villages which comprise the Rural Community. The power of these rural councils was strengthened in 1991 when they were given greater control over their budgets, though all decisions continue to be subject to approval by the *préfet* (departmental administrator). Attempts to protect pastoral interests were codified in a 1980 decree (80-268) which prohibits clearing and cultivation in "natural pastures". It also called for the establishment of Committees for the Conservation of Pastures that would be set up in each district, department, and region.

In theory, these decrees give communities much flexibility to respond to diverse local interests in determining land use. In fact, however, they have had only a very limited impact in protecting agro-pastoral interests. In many cases the council membership is dominated by relatively powerful commercial and farming interests. When small farmers and herders are represented, often they do not have adequate training to understand the rights and responsibilities afforded by their position. It is rare to find councils refusing a request for land since many perceive their role as "giving land to those who ask". They are further handicapped by the state's failure to recognize pastoral activities as "productive, value-adding" uses of land. The 1980 pastoral decrees have been largely ineffectual since, aside from classified areas, it is not at all clear what is meant by "natural pastures" and the pasture conservation committees have not, in most cases, been activated (Juul 1991:3; ReMAPS 1993b).

Government and project efforts to respond to agro-pastoral concerns have often failed to understand the importance of such factors as mobility in herder strategies. Several government agencies and projects are currently encouraging a micro-level development policy around the major boreholes of the Ferlo (*aménagement d'air du desert du forage*). This is primarily an attempt to sedentarize the pastoral communities around a single borehole and to vest these communities with the powers and responsibilities to manage the surrounding grasslands in an ecologically sustainable fashion. The government plans to transfer management control of the boreholes from the state to the FulBe inhabiting the territory serviced by the water point (a 5-15 km radius around each borehole). By "polarizing" the FulBe around a single borehole, the planners hope to build a sense of attachment to a particular place, and hence increase the population's willingness to invest in the conservation and regeneration of surrounding natural resources (République de Sénégal/ISRA 1991).

In effect, this strategy aims to create a "common property" management system with controlled access in which the state would grant local communi-

ties the right to exclude non-resident users from the territory and the responsibility to manage the territory's resources. This would entail cooperative arrangements between government technical services and the resident FulBe who would work together to develop management plans and to devise local rules regulating the use of water and forage. While there are several positive features of this micro-level management strategy, it is not without a number of potential problems.

Similar pastoral development approaches in other parts of Africa have met with only limited success (Bonfiglioli 1992; Niamir 1990). Efficient management of local resources may mitigate, but is no guarantee against such crises as the prolonged breakdown of borehole pumps, forest fires that destroy large areas of pasture, localized outbreaks of disease, or very localized droughts that cause a dramatic decline in pasture availability. Unless pastoralists maintain mobility that permits them to escape the territory on a short-term basis, polarization is likely to increase the vulnerability of communities to these inevitable crises. Land use planning must not neglect the informal and formal relationships and mutual assistance mechanisms which cut across territorial boundaries and have proved critical to pastoral survival. Such projects must be accompanied by policies that facilitate the movement of pastoralists and their herds from one area of the country to another and ensure the maintenance of dispersed grazing areas to which herders can move in times of need. Otherwise, they do little more than offer a mantle of legitimacy to the continuing pressure on grazing land.

Local Mobilization Around Agro-pastoral Concerns

As this paper has shown, national trends are not promising for pastoralists. Nevertheless, there are examples of local level initiatives in favour of herder interests. Rather than simply retreating when conflicts arise with farmers, local FulBe groups are now beginning to organize in order to represent pastoral issues more systematically in land-use debates. They are also working out new relationships for cohabitation and symbiotic use of resources with local farming communities. These provide examples of the kinds of local initiatives that can be built upon, strengthened, and expanded.

Herders in some areas are beginning to use the rural councils to promote their interests. In the Ross-Béthio community council district on the banks of the Senegal River, for example, the FulBe have lobbied the council to set aside 100 hectares that would not be used for irrigated agriculture but would instead be available as a pasture reserve. Along the eastern bank of the Lac

de Guiers, representatives of the local FulBe communities are negotiating with an American agribusiness scheme for the maintenance of access routes to the lake shore for livestock and the provision of veterinary services. The increasingly well organized FulBe have argued before the community council that large land allotments should not be granted to agricultural development projects unless pastoral interests, such as access corridors, are protected. The translation of land use codes into Pulaar by a Senegalese non-governmental organization is making herders more aware of their rights and existing mechanisms for challenging land use allocations.

Other groups are mobilizing in order better to represent their interests to the donor community. In the northern Ferlo, the FulBe have long resisted the development plans, selectively adopting components of projects which they deem useful and ignoring or in some cases sabotaging the rest (Granry 1989; Pouillon 1990). Gradually, however, they are moving from a "reactive" to a more "pro-active" stance. Literacy programmes oriented around meeting the development needs of individuals and communities are flourishing in Pulaar. Rural associations, such as those along the Senegal River, are beginning to form, often initially around literacy activities (Nuttal 1989). Some of these have gone on to create their own officially recognized economic production units (*Groupements d'Intérêts Economiques*) and have qualified for credits from the *Caisse Nationale de Credit Agricole*.

As grazing lands become scarcer and hence more valuable, there are also examples of agro-pastoral populations organizing to protect and restore these resources that are so essential to their economic survival. Wolof and FulBe in the community council of Mbeuleukhé in the heart of the Ferlo have together formed a *Fédération de Lutte Contre les Feux de Brousse* to fight forest fires. The federation raises funds from monthly dues to stock diesel fuel which is then given to the Forest Service fire fighting brigades when a bush fire breaks out. The federation also embarks on annual campaigns to clear firebreaks and carefully polices the area to avoid the outbreak of fires (ReMAPS 1992b).

Thus, while conflicts are still common and pastoralists are still frequently the losers when grazing and farming interests clash, there are more hopeful examples of cases where -- at the local level -- herders have succeeded in protecting their rights and negotiating mutually beneficial land use arrangements with farming populations. To the extent that many sedentary farmers have now diversified into cattle and hence share the need for protected grazing areas, these arrangements may actually become easier. Herders must mobilize in defence of their interests at the local level if they

are to ensure their own survival. But, as we have seen, this is not sufficient since herder survival also depends on having access to resources that are outside their immediate sphere of influence.

National Land Use Allocation

It is at the level of national land policy that herders have had much more difficulty in protecting their interests and where this is likely to continue. The government continues to convert vast tracts of grazing land to other uses. The FulBe have had virtually no success in stopping these transfers despite their best efforts. Reserves such as Mbegué play a critical role in agro-pastoral livelihoods, yet the interest groups they serve are hard to organize. While used on a regular basis by a fairly small local population, the reserve was available to a far greater number of herders, from a much wider area, who would use the forest only in times of severe hardship. When opposing interests are as highly organized and powerful as the Mourides, private ranchers, or donors wanting to enclose land for project purposes, such dispersed and poorly organised pastoral groups are no match for them.

The FulBe have not been altogether unsuccessful at organizing at the national level. They had one important victory in the expulsion of Mauritanian camels during the dry season of 1988. For years the FulBe had been arguing that the 12,000 or more Mauritanian camels consumed an excessive share of the pasture lands of northern Senegal, a problem whose severity only increased as other pressures reduced the land available for grazing. The government finally responded to these demands and forcibly expelled the camels. This effort by the FulBe to control the use of their increasingly constrained grazing resources is as yet an isolated example of success at the policy level.

The protection of grazing reserves must be part of a broader national strategy to ensure sustainable livelihoods and land use. The current pattern of land allocation in central and northern Senegal is suboptimal in terms of its use of scarce national resources. Irrigation schemes may provide large short-term profits for a few speculators but leave salty wastelands behind. Extensive and unsustainable agricultural practices, common in Mouride plantations, result in serious soil depletion. The current system which gives the Mourides virtually unlimited access to new lands acts as a severe disincentive to their adoption of more intensive and sustainable agricultural practices, and eats away at grazing areas essential for agro-pastoral livelihoods. As grazing areas are reduced, the pressures on the few

remaining pastures will result in the increased degradation of the commons. Both the agricultural and pastoral parts of the agro-pastoral system are being pushed in ways that are destructive of fragile environments and inimical to the well-being of populations who depend on those environments. Land allocation should be based on the principle of rendering the nation's patrimony productive. In fact, current policies are mining the land and systematically robbing both present and future generations of a viable future.

Without explicit actions to strengthen agro-pastoral claims and assure continued access to lands needed to maintain herders' mobility, current pressures on the agro-pastoral economy are likely to continue and, accelerate. Time is running out. With each passing land appropriation -- whether 45,000 hectares in one decree at Mbegué, a dozen new allocations of 10-20 hectares in a Ferlo Rural Community, or the irrigation of another perimeter along the Senegal river -- agro-pastoralists see their hopes of a future disappearing.

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IIED'S DRYLANDS PROGRAMME

The Drylands Programme at IIED was established in 1988 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 will be published with a view to making relevant information available to policy-makers and development practitioners.

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