sauvegarder leur richesse, compte tenu des revers de fortune, fréquents dans leur milieu. Leur fortune, composée de bétail, peut être perdue du jour au lendemain. Une maxime, qui résume leur prudence et qu’ils s’effortcent de suivre, dit ceci: “Il faut savoir d’où on vient, où on est et où on va.”

LISTE DES ABRÉVIATIONS

ANADER : Agence Nationale d’Appui au Développement Rural
CFA (franc) : Communauté Financière Africaine
CIDT : Compagnie Ivoirienne de Développement des Textiles
DRDB : Développement Rural du Département de Boundiali
FRAR : Fonds Régionaux d’Aménagement Rural
GTZ : Gesellschaft für Technische Zusammenarbeit (Coopération technique allemande)
PAP : Projet Aménagements Pastoraux
PDCI : Parti Démocratique de Côte d’Ivoire
PFR : Plan Foncier Rural
PNAGER : Programme National de Gestion de l’Espace Rural
RGPH: Recensement Général de la Population et des Habitants
SODEPRA : Société de Développement des Productions Animales
UAP : Unité Agro-Pastorale

CHAPTER ELEVEN

ECOLOGICAL INSECURITY AND FULBE PASTORAL SOCIETY IN THE NIGER BEND

HAN VAN DIJK

Introduction

A common assumption in the social sciences is that, to a large extent, people have control over their own existence, and that change is a gradual process, allowing adaptational adjustments in human behaviour. In this paper it will be argued that pastoral land use is best be understood as governed by unstable, variable, contingent, and unpredictable ecological, socio-economic and political factors. Consequently, an analysis of the unpredictable character of these factors is far more important for an understanding of the ways in which people manage and use natural resources than attempts to construct some sort of standardised version of reality. By discussing the Fulbe living in the Niger Bend I will try to show the importance of ecological insecurity to the formation and organisation of Fulbé society. It is argued that the analysis may be extended to other regions of West Africa and other groups of Fulbé.

Conventional approaches to analysing problems of survival in the Sahel consider either the relation between climate and natural resource management from a technical point of view, or the strategies of individuals and groups while dealing with ecological hazards. Most research has therefore concentrated on the resilience and adaptive capacities inherent in pastoral ways of natural resource use and management, or on the social, political and cultural systems which seem to give permanency and stability to the pastoral existence. This has led to an unjustified focus on those people who have managed to survive ecological calamity (see De Bruijn, this volume).
Moreover, such a perspective is only partial because it neglects the thoroughly social and political nature of ecological insecurity and the societal, cultural and institutional aspects of instability. The extent to which individuals and groups are able to deal with ecological hazard in an adequate manner depends not only on their skills and knowledge as is commonly argued, but also, and perhaps even more, on the political position they occupy and the control over and access they have to crucial resources. Given the fact that ecological hazard is a recurrent phenomenon in the Niger Bend, it is worthwhile looking at Fulbe social relations and political hierarchies from the perspective of insecurity, and the vulnerability of people occupying positions in these hierarchies.

Political and military struggles over power and resources also create insecurity in the form of raiding, political marginality, and intervening governments and development agencies. These circumstances influence and articulate local hierarchies. Oscillations in primary production of the ecosystem, for example of forage for animals and cereals for humans, create economic instability through unfavourable market conditions leading to booming cereal prices and collapsing livestock markets (Swift 1986). Political hierarchies and rules and laws mediating access to and control over resources determine the vulnerability of individuals and groups in these hazardous conditions. In short, they define risk positions (Beck 1992). Calamities such as droughts, political upheaval or economic crises are also occasions when risk positions can be 'renegotiated' by means of warfare, revolt, raiding, political and legal reform, development interventions, migration and so on.

The question to which the rest of this chapter will be devoted is whether there is a relationship between the various insecurities people have to encounter and the nature, form and content of hierarchies, laws and rules in Fulbe society. What is the influence of climatic instability, and other forms of hazard at this institutional level, and how does this relate to specific Fulbe strategies for the management of natural resources in the past and the present? Is it possible to understand specific political and institutional set-ups for the past as well and present management of natural resources as a response to insecurity? With its diversity of ecological conditions, the Niger Bend offers a privileged historical as well as geographical arena for the study of strategies for natural resource management in relation to political hierarchies and rules and laws. With respect to resource tenure we might be able to reach a better understanding of resource use and management strategies of the Fulbe in this area, and obtain some tools for the comparative analysis of Fulbe pastoral strategies.

Following our hypothesis that ecological and political insecurity impinge directly on the use and management of natural resources we may expect different responses to these phenomena. On the one hand, political and ecological insecurity may lead to a high degree of centralisation of political power and social inequality in order to create secure positions for those in power and their dependants. On the other hand, it may lead to extensive flexibility and mobility in the use and management of natural resources, so as to minimise the risks and create as many options as possible for dealing with calamities. Another point would be the role of crisis situations in shaping technologies and institutions for the use and management of natural resources. To discuss these points we will consider three examples: one from the Inner Delta of the Niger to shed light on the role of calamity in a seemingly stable and fixed system of land use and resource tenure; one from the Hayre, a chiefdom which dominated the mountain range between the Bandiagara plateau and Mount Hommbori; and one example across the border in an area dominated by sedentary cultivators, the Aribinda area in northern Burkina Faso settled in the course of the last century.

Geographical diversity in the Niger Bend

Within the Niger Bend five major agro-ecological zones can be distinguished. The most important of these is the Inner Delta of the Niger which is the most valuable of the flood plains in the middle course of the Niger. In the past, fishermen were probably the first to settle in this unusually rich ecosystem. Later on, rice cultivators and pastoral herdsman were also attracted to the area. Its natural wealth is based on the annual floods that fertilise the flood plain's relatively poor clay and loamy soils of fluviatile quaternary origin every year. These plains provide ample opportunities for fishery and flood rice cultivation. When the water sunsides it leaves vast stretches of burgu (Echinochloa stagnina) pasture on which livestock from all over the region feed during the dry season.
In the north the Inner Delta extends eastwards into a lake system which penetrates the Gurma, called Haut-Gourma by Gallais (1975). It was the second agro-ecological zone to be distinguished. In the northwest of the Gurma and between the lakes, the landscape is dominated by dunes of quaternary origin alternated with depressions where clayey soils can be found (Urvoy 1942: 100, Gallais 1975: 35). The rest of the Gurma to the east with the same substratum as the dune valleys, has a gently rolling relief.

South of the lakes and as far as the geographical centre of the Niger Bend, the landscape is dominated by the Bandiagara plateau and the mountain range to the east which reaches an altitude of 1100 m in Hommbori. The plateau slopes gently down into the valley of the Niger and the Bani in a south-westerly direction (Daveau 1959: 9-25), and its outcrops consist of quartz sandstone. The adjacent plains, north of the plateau and north and south of the mountains, with their massive laterite or their gravel-clayey-sandy soils (Serpokrylow 1934: 6-7), support a dense bush alternating with denuded areas. This vegetation type is called brousse tigrée.

The fourth agro-ecological zone consists of the Seeno-Gombo, Seeno-Manngo and Seeno-Mondoro plains. These plains are of fixed eolic dunes of quaternary origin, with sandy soils and a small percentage (5-10%) of clay and loam (Hiernaux et al. 1984). These dunes are overgrown with annual grasses and trees, and contrast sharply with the brousse tigrée north of the plains.

Lastly, the Mossi block, a very old geological formation forming a gently rolling landscape south and south-east of the plains dominates the south of the Niger Bend. Another complex of brousse tigrée, which acts as a natural barrier between the pastoral north and the horticultural south, is found in between the Mossi block and the plains.

Mean annual rainfall in the Niger Bend varies from 200 mm per annum in the north to 700 mm per annum in the south. Precipitation is concentrated in the months of June-October in the south and July-September in the north. Given the large variety in hydrological, topographical and geological situations, a huge range of micro-climatic variations gives rise to a diverse pattern of resource availability, both in time and space. The population responds to it with a large degree of mobility and flexibility in their ways of using and managing natural resources (Gallais 1975).
Given its diversity one could even question whether this area forms a viable unit of analysis.

In the course of history the Fulɓe spread across the whole Niger Bend. From the 12th century onward they established themselves in the Inner Delta. During the 15th to the 17th centuries they moved into the Gimmballa, the Seeno plain, and southwards towards the Mossi block into Yatennga, Boboolla and Jelgooji, and vested political entities. Only during the colonial period did they advance into areas belonging to the sphere of influence of the Mossi and Tuareg like Aribinda.

From the point of view of the pastoralists (Fulɓe, Tuareg, Bella, Moors) in the Niger Bend, the agro-ecosystems have important connections. The interdependence of these zones depends primarily on the seasonal character of the floods in the Inner Delta of the Niger. A pastoral grazing system which makes use of the Inner Delta as a dry season grazing area cannot exist on its own. The Fulɓe and Tuareg livestock have to leave the flood plain when the area is flooded to seek refuge outside the area on the surrounding dry lands of the Meema to the west and the Gurma, the Seeno and plateaus to the east, until the floods subside. A less important, but equally structural interdependency is the presence of salt licks in the Gurma, north of the mountain range. Once a year the cattle have to undergo the annual salt cure, and herdsmen and cattle from both the Inner Delta, the Gurma and northern Burkina Faso trek to these salt licks (Gallais 1967, Riesman 1977).

These ecological features of the Niger Bend have important political consequences. Any political hierarchy in this part of Africa that was dependent on the pastures of the Inner Delta for its livestock had to find a way to control the dry lands outside the Inner Delta. This control was bound to be weak because permanent pastoral use of these dry lands is almost impossible, due to the absence of watering points for the animals during the dry season.

From a Fulɓe point of view, the Niger Bend is not only an ecological and territorial entity, but also a political entity because the movements of their herds depend on the whole area. Access to pastures and livestock has to be maintained in competition with other pastoral groups. In their pastoral pursuits and their politico-military struggles they had also to deal with a large sedentary agricultural population in the southern and middle belt of the Niger Bend. On the one hand, these sedentary cultivators (Songhay, Dogon, Marka) were and are competitors for space and resources. On the other hand, the populations are essential partners in the sense that they provided and still provision the Fulɓe with cereals, (slave) labour, services and crafts, and social care which have enabled the Fulɓe to pursue their pastoral way of life (see e.g. De Bruijn & Van Dijk 1995, De Bruijn et al. 1997).

So the Fulɓe in this area have always alternated between wet and dry zones, sedentarity and mobility, control and anarchy, political supremacy and marginality throughout history. At present a large number of Fulɓe are having severe problems in sustaining their pastoral existence. The management of the Inner Delta faces increasing problems. The available pasture area has decreased because of the encroachment of rice cultivators (Marka and riimayɓe) onto pasture territories (Gallais 1984: 175, 183-185, RIM 1987: 74). State involvement and development interventions have decisively altered management structures and tenure arrangements over natural resources (Moorehead 1991, Vedeld 1997). More and more pastoralists from the dry lands direct their herds to the Inner Delta in the dry season, and numerous Fulɓe from the Seeno-Gonndo now have their base in the Inner Delta, whereas in the past their movement pattern was the reverse. Their pastures on the Seeno-Gonndo have nearly all been occupied by Dogon cultivators (Gallais 1984: 190-191). These changes lead to a high degree of insecurity concerning access to and control over resources, and result in numerous conflicts between cultivators, pastoralists, fishermen and government officials because everybody wants to make use of the diminishing stock of natural resources (Gallais 1984, Moorehead 1991, Vedeld 1995, 1997).

**Climatic instability in the Niger Bend**

Over the past 25 years, droughts have contributed significantly to the emergence of these problems and conflicts. However, climatic instability is not a recent phenomenon in the Niger Bend. The *Tarikh el-Fettach* (Houdas & Delafosse 1964) and the *Tarikh es-Soudan* (Houdas 1964) abound with examples of ecological calamities affecting the existence of the inhabitants of the Niger Bend (Cissoko 1968). In the Douentza district, the population remembers at least seven times this century when climatic hazard caused major problems for the population (Hesse & Thera 1987).
Chronicles of the Yatenega district in Burkina Faso confirm this picture (Marchal 1980). Detailed reports from these districts indicate that there is hardly a year without some climate-related problem in one or other part of these administrative subdivisions. Weather records of the past 25 years indicate that variability in the amount of precipitation in this area is very high. Moreover, the regional distribution is far from even. The correlation between rainfall figures from different weather stations is quite low (Hesse & Thera 1987). This is compounded by the often unpredictable distribution of rainfall over the rainy season which may worsen the effects of low rainfall. Whether these events indicate a downward trend in rainfall or irreversible climate change is still a debatable issue.

This variation leads to enormous fluctuations in cereal production and forage resources for livestock production. An analysis of data gathered by CIPEA1 from this perspective reveals that a standard deviation of 20 per cent in rainfall is coupled to a 40 per cent standard deviation in pasture production figures (De Brijn & Van Dijk 1995: 284). Millet production varied between 19,000 and 51,000 tons during the 1980s in the Koro district (Harts-Broekhuis & De Jong 1995: 194), and between 13,000 and 42,000 tons in the Douentza district over the period 1975-1986 (Hesse & Thera 1987: 38). The effects of cereal shortages are presently leading to massive population movements in drought years, widespread famine and increased mortality due to weakness. According to historical records the impact of drought periods in the past was even more severe due to the absence of infrastructure, modern trade systems, and food aid (Cissoko 1968).

This rainfall variability has an equally serious impact on the rich ecosystem of the Inner Delta of the Niger which is exploited by Fulbe herders, Bozo fishermen and Marka rice cultivators. The mean annual flow of the river was below 400 m$^3$ in 1984 compared to 1,700 m$^3$ in 1954 (RIM 1987: 14-15), leading to large variations in the flooded area of between almost 40,000 km$^2$ and an all-time low of 5,000 km$^2$ in 1985 (Laë et al. 1994: 144). Pasture, rice and fish production fluctuate accordingly (Harts-Broekhuis & De Jong 1995: 160, Laë et al. 1994: 161). The Niger lake system in the eastern part of the Gambia has dried up completely reducing the livestock production and flood recession farming of the surrounding population to an exercise in contemplation (Lutz 1989: 22). Perhaps the most telling indicator of the consequences of ecological variability is the fiscal revenue of the Mopti region, which fell from almost 2 billion Francs CFA in 1983 to 260 million Francs CFA in 1985 (Moorehead 1991: 241).

Although the impact of these fluctuations is temporary to a large extent, some effects of drought last longer than others. Fish, cereals and annual grasses have a one-year cycle, and as long as there are sufficient surviving adults in the case of fish and seed stocks in the case of cereals and annual grasses, production levels may be restored the moment rainfall recovers. The situation is different for perennials such as trees and perennial grasses, and livestock. On the dry lands outside the Inner Delta large tracts of tiger bush simply dry up. Perennial grasses such as Andropogon gayanus disappear completely under the impact of drought. Livestock numbers declined enormously during the two major drought periods (1972-1973, 1983-1985). From a total cattle population of 300,000 head in 1970 only an estimated 62,000 head of cattle remained in 1986 in the Douentza district (Gallais 1975: 59, RIM 1987: 66). (It must be added, however, that a lot of these cattle have been bought by owners outside the district, and that not all perished). At the local level, the number of animals recovered much more slowly than pasture production (see e.g. Diallo 1977, Swift et al. 1985, Van Dijk & De Brujín 1995).

Nevertheless, the resilience of Sahelian vegetation is remarkable. In 1995, after a couple of years of more abundant rainfall, trees and shrubs seemed to recover, and numerous seedlings can now be found everywhere in the bush. Remarkably even the perennial grasses have been able to re-establish themselves within two years. Around Bankass this type of vegetation dominates fallow lands as well as bush land as in the past. Even more north on the Seno-Manango the grasses seem to have returned (Douma et al. 1995).

The size of the fluctuations and the restoration of several crucial resources make it extremely difficult to disentangle ‘normal’ fluctuations from irreversible ecological degradation.

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1 The data on which these calculations are based are taken from Hiersaux et al. (1985, 1988, 1989, 1990) and Diarra and Hiersaux (1987). This figure is a conservative estimate. The calculations of De Leeuw et al. (1993: 145) indicate that the standard deviation of pasture production for the whole of the Gurma may well be in the order of 60-80%.
HAN VAN DIJK

The Diina of Seeku Aamadu

Before the establishment of the Maasina Empire, with its power-base extending over the Inner Delta and the dry lands towards the west and east, life in the Inner Delta had been dominated by political and military insecurity (see Houdas & Delafosse 1964, Houdas 1964). Several powers tried to gain hegemony over the Inner Delta and its adjacent dry lands. Among these were the Arma based in Tombouctou, the Segou Empire to the south, and the Fulɓe ardo’en, mainly from the jallufe clan, who were based in the Inner Delta itself (see e.g. Gallais 1967, Fay 1995, 1997). The Tuareg used the area as a slave reservoir, and regularly sacked parts of the countryside. A number of Fulɓe epics and eulogies celebrating pastoral virtues probably date back to this period (Ba & Dieterlen 1961, Seydou 1972).

When the Fulɓe, led by Seeku Aamadu defeated the Bambara at Noukouma in 1818, it became possible to establish a pastoral empire with the Inner Delta of the Niger as its base. Seeku Aamadu, a fervent Moslem and reformer, subsequently tried to reorganise economic life in the empire in accordance with the prescriptions of Islam. This led to a number of arrangements with respect to resource tenure, livestock movements and economic organisation, which is locally referred to as the Diina (Arab for religion). In much of the development-related literature it is taken as an official codification of agricultural activities and economic life. In reality it is a very complex and dynamic body of regional and local regulations based on the decisions taken by the rulers of the Maasina Empire, when trying to vest their hegemony over local chiefs and when mediating in conflicts between various user groups (see e.g. Gallais 1967, Moorehead 1991, Fay 1997).

Locally these regulations still form the yardstick against which conflicts and changes in land use and resource tenure are measured. The Diina formed the basis of Fulɓe society in the Delta in virtually every aspect of life. It subjected everybody, Fulɓe and non-Fulɓe, nobles and non-nobles to the same unitary power, and made everybody part of the same social project, under the guidance of a sedentary preferably religious, Fulɓe elite. This project was not merely a political or religious one, destined to set up an Islamic Utopia, it was also a way to re-organise the economy and establish a format with respect to resource tenure between very different groups of people ethnically and occupationally. In addition it was also an attempt to control nature (Gallais 1984: 122-124).

The main measures Seeku Aamadu took entailed the sedentarisation of all the inhabitants of the Inner Delta, pastoralists, cultivators and nomadic fishermen. This also necessitated the dismantling of traditional Fulɓe polities. Economic life was regulated in detail, herd movements were orchestrated and the relations between herdsmen and herd owners were made subject to rules (Gallais 1984: 54-55).

The Delta was organised in administrative units, called leyde (sg. leydi), which were also territorial units for the organisation of land use and natural resource management. The nucleus of the leydi was the Fulɓe settlement with a pasture area around it, the harima, for the village herds. Satellite villages of captives, maccuɓe, were positioned around the periphery, surrounded by fields for the cultivation of rice. Between the villages were the pastures of burgu. Access was controlled by the original Fulɓe fractions headed by a jooro, or master of the burgu, who had conquered the area. The jooro was entitled to levy a duty (tolo) on all animals entering the territory of the leydi who did not belong to the faction who owned the territory. A third category of pasture land, the burgu-beit-el, was formed by pastures which had been confiscated by the central government when suppressing rebellions of Fulɓe groups (Gallais 1984: 138-141).

Of course, this spatial organisation had already existed before the advent of the diina, but now it was given official status by Islamic theocracy. Nevertheless, the reform remained incomplete because of underlying orderings by Marka rice cultivators, Bozo fishermen and Bambara millet cultivators, which could not be abolished (Schmitz 1986, Fay 1997). However, it brought a temporary halt to the endless struggles among and between pastoralists, cultivators and fishermen over resources, and created a central power for the arbitration of conflicts.

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1 The history of the leyde as units for natural resource management is much more complicated and is treated in more detail in Gallais (1967, 1984) and Moorehead (1991).

2 See Fay (1994, 1997) for the organisation of fisheries and fishing territories and their interactions with various occupational and ethnic groups.
This was fine for the innermost area of the Inner Delta, the wududu, or the umbilic of the Maasina Empire (see Map 11.1), where the chances of good floods and adequate rice and pasture production were high, much higher than on the periphery of the Inner Delta. Here and in the dry lands of the Gurma and the Meema, where pastoralists and cultivators alike had to deal with totally different contingencies, there was in general much opposition to this strict regulation of resource use and management and the imposition of Islam (see Vincent 1963, Ba & Daget 1984, Diallo 1993, Gibbal 1994, De Bruijn & Van Dijk 1995). The reforms did not only interfere in long-established patterns of resource use adapted to volatile climatic conditions and political upheaval, but also meant a suppression of all kinds of local cultural forms (see e.g. Gibbal 1994), and the reorganisation of local political hierarchies (De Bruijn & Van Dijk 1995, see also below). It would therefore be wrong to depict the diina of Seeku Aamadu solely as a project to promote the interests of the fulbe and, therefore, of pastoralism. It was part of an internal struggle in Fulbe society, between various interest groups and user groups of natural resources, sedentary versus pastoral, Islamic versus pagan and wetland versus dryland, leading to changes in positions of power, and exposure to risk.4

Reform of natural resource management in the Gimmballa

An excellent case-study showing the ambiguity of the diina is presented by Vincent (1963). In his study of the Gimmballa, he presents a case-study of the region north-east of Lac Debo, where dunes alternate with inundated plains. Before the advent of the diina, Songhay, Sorko, Bambara and Fulbe lived as neighbours but without combining their activities. The Fulbe came to the area in the dry season to make use of the dried-up swamps. Their settlements were mainly on the Gurma side of the area (Vincent 1963: 49). In political terms the area was fragmented, and had to be defended against raids by the Fulbe and Tuareg. This imposed limits on the expansion of the Bambara (Vincent 1963: 51).

Initially there was much resistance to the diina. "Les combats des chefs Peuls contre Cheikou Ahamadou sont la source de toutes les légendes que les griots racontent encore" (Vincent 1963: 53). However, this resistance was not limited to the Fulbe. According to Gibbal (1994), the Songhay and Sorko population had to accept the domination of the diina. Vincent (1963: 54) reports that although they converted to Islam quite willingly, their main motivation was probably the fact that they were subjugated by military force by the Fulbe and made into slaves (Gibbal 1994). As Vincent (ibid.) himself states, they hoped that the Fulbe would be calmed by the diina, and that they would no longer be troubled by the Maasina Empire. Their conversion was therefore only superficial. In silence they remained faithful to their water spirits (Gibbal 1994).

With the ‘acceptance’ of the diina, the use and management of natural resources was adapted to the conditions formulated by Seeku Aamadu. This meant that the requirements of Cereal cultivation had to be reconciled with the demands of transhumant livestock keeping which put an extra strain on a region already much in use for cereal cultivation. Depending on the local balance of power, these measures were put into practice, leading to the orchestration of fallow periods on the dunes and in the swamps where rice cultivation and flood retreat farming were practised. Cattle routes were laid out so that the herds could enter and leave the villages without damaging the crops. Every village was assigned its own pasture. The Fulbe were sedentarised and when the herds departed for the pastures in the Gurma, only the young herdsmen went on trek. The rest of the family remained in the village. The Fulbe often took Bambara cattle with them when on trek (Vincent 1963: 68-78).

However, this was only a partial solution to the problem of ecological insecurity. In this area the floods are very variable from one year to another. As a result, flood retreat farming is risky, and the amount and localisation of pasture is unpredictable. Likewise, the cultivation of millet on the dunes is a high-risk affair due to the variance in rainfall. The only solution to be found is spreading the risk over various crops and production systems. According to Vincent:

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4 At present all Fulbe in the Inner Delta of the Niger and beyond refer to the diina as the basis of their political organisation. However, this must be understood in the present context, where the state is trying to exert control over pastoralists rice cultivators, and fishermen. The diina has now become an ideological weapon which challenges modern discourses on ‘rational natural resource management’ propagated by the state, and conflicts over resources such as pastures (Thomson et al 1989, Moorehead 1991, Van Dijk & De Bruijn 1995, Vedeld 1997).
La crue et les pluies (...) sont ici les facteurs déterminant la localisation saisonnière des pâturages. (...) Dans ces conditions le calcul de rendements à l'hectare n'a pas de grande signification. Les rendements varient du simple au double ou même triple et ce, non seulement dans le cadre de la région ou du village, mais même à l'intérieur du village, pour chaque agriculteur (Vincent 1963: 71, 80).

One could even question the possibility of finding an equilibrium at all between pastoralism and cereal cultivation.

For example, in Dari, 8,000 Fulbé were sedentarised, mainly in Dari itself. This was done for strategic reasons. From this site, dry and wet season pastures could be controlled as well as one of the main roads into the Inner Delta. The pasture territory available for these people was around 80,000 ha. Fields were not present within a 10 kilometres radius of the village. Rîmâyé cultivation hamlets were positioned in the east of the village territory, where the best soils were found on the dune formations for the cultivation of cereals and some pastoral settlements were found along the waterway which led to Lac Niangaye. At the time of Vincent’s research there were only 1,000 inhabitants left in Dari.

He attributes this population decline to the effects of the drought of 1917, and mismanagement by a despotic chief who chased away his subjects. The people did not all die from starvation and many rîmâyé also fled their masters during this drought. They wanted to live near their own fields or they returned to the area they came from (Vincent 1963: 126-127). This indicates that the scheme to control natural resource management was too remote from ecological reality to be successful. It was only enforced for reasons of power, to keep the Maasina Empire together. When that authority collapsed in 1862, and the Maasina Empire was conquered by the Fuutanke, headed by El Hajj Umar Taal, and was integrated into the colonial state, there was nothing to sustain this land management scheme and the exploitation of labour in an area like this. Under the prevailing climatic conditions of the 20th century people opted for more flexible and mobile ways of dealing with the impact of drought, and economic decline. Gallais (1975: 52) speaks about “La caractère pulvérisé des mouvements...” during the colonial period. One could also say that they decided to move from one risk position to another when the power which held them in check collapsed.

The Inner Delta in the 20th century

Even in the core area of the Maasina Empire it has been difficult to maintain the structure put into place by Seeku Aamadu. It has been subjected to fundamental changes over the course of the 20th century, defining new risk positions for various population groups. On paper, the French colonial government left the ordering of the use and management of natural resources in the Inner Delta intact, and respected the local authorities governing this system. However, the basis for a completely new and parallel (or plural) structure of governance over natural resource management was created by the integration of local decision makers into the colonial administration, the abolition of slavery, the nationalisation of land and forest resources by the colonial government, and decision making by colonial administrators at times of conflicts (Moorehead 1991, Vedeld 1995).

This policy was perpetuated by the Keita and Traoré administrations after independence, when all land was turned into the private property of the state, and customary rights were made subordinate to state prerogatives. This was the cause of a new source of insecurity, i.e. the lack of control over crucial resources. All interventions by and duties of non-state authorities became illegal. Anybody could claim access to any type of land or pasture, and leave or enter the Delta at will. This measure created enormous insecurity with political overtones concerning the proper management of the natural resources of the Inner Delta. The government administration was supposed to take over but was not recognised by the herdsmen and cultivators as legitimate (Moorehead 1991, Vedeld 1997).

Numerous administrative decisions had to be made to solve conflicts over frontiers, cattle routes and rest places for the herds, often leading to new conflicts (Gallais 1984). This situation opened the way for new coalitions and abuse of power and rent-seeking by customary as well as state authorities (Vedeld 1997).

Over the last few decades especially, the power of urban population groups has been enforced due to economic integration and
development interventions (Gallais 1984). At the same time the scene for political struggle has been altered radically by the impact of drought, population growth, state intervention in resource conflicts and the degradation of natural resources. These changes have led to more intense competition over resources, and in some places the covert privatisation of land under public control, and pasture territories (Moorehead 1991, Vedeld 1995). Moreover pressure on the Inner Delta from outside has increased. A growing number of Fulɓe (Bella and Tuareg) herdsmen direct their herds to the pastures of burgu during the dry season. The duty levied on livestock entering the pasture territories has increased both in absolute and relative terms, from the counter value of 10 kilos of rice at the end of the 19th century for a herd of 50 head of cattle to 3,000 kilos in 1977 in some places (Gallais 1984: 198).

The impact of these changes in the Gimmballa have been far-reaching. Large parts of the lake system and the tributaries of the Niger which fed the system have dried up. The sedentary population has had to face a serious decline in living conditions, leaving them worse off than in the past (Gallais 194, Gibbal 1994). Livestock populations in the Gimmballa have been nearly annihilated (Lutz 1989).

The consequences for the Fulɓe have been mixed. The sedentary Fulɓe, comprising the political elites and customary authorities, seem to have maintained considerable power vis-à-vis the administration and the pastoral herdsmen. The changes for the herdsmen have been dramatic. Given the increasing pressure on the Inner Delta, and the increase in duties for entering the leyde, they are definitely worse off than in the past. During the droughts many of them lost their herds. These animals came into the hands of urban cattle owners, who are hiring the same herdsmen, or their sons, to manage their herds. This proletarianisation has robbed Fulɓe herdsmen and their families of all fall-back options in case of calamity, such as the marketing of livestock to obtain cereals, and it has also reduced their mobility. Often the salary paid to a herdsman is far from sufficient for the subsistence of a family. Many herdsmen leave their dependents behind leading to socially unacceptable situations. The conditions for herding animals on contract have eroded, and no longer reflect the conditions formulated by Seeku Aamadu in the 19th century.

The Hayre refers to the mountain range which stretches from the Bandiagara plateau to Mount Hommbori (see Map 11.2). The Fulɓe established two chiefdoms. One dates back to the 18th century. Its court was set up in Dalla under the influence of the Maasina Empire in the 19th century. The second chiefdom is Booni and arose out of a rebellion against Dalla during the turbulent period of the fall of the Maasina Empire and the rise of the Fuutanke Empire (see de Bruijn & van Dijk 1995). A third chiefdom of Songhay had its capital in Hommbori (see Marie & Marie 1974). Before the establishment of the Maasina Empire in the Inner Delta, the Hayre was the scene of extensive political unrest. Fulɓe pastoralists led by arduɓe (called weeheeeɓe), originating from the Gimmballa, lived off the herding of livestock, hunting and warfare. Politically and militarily they dominated the area. The political elite was nominally converted to Islam. But outside this group Islam had probably few adherents.

When the Maasina Empire came into being the Fulɓe of the Hayre did not want to adopt its hegemony. However due to internal strife and machinations a chief with his faction came to power, who promised obedience to Seeku Aamadu, in return for military and political support from the Maasina Empire. Due to this (partial) integration into the empire local power balances began to change, leading to changes in risk positions.

Political centralisation and resource tenure: Dalla in the 19th century

One of the measures, which was implemented after the submission to the diina was the sedentarisation of the chiefly court, which had been nomadising until then. The location of Dalla is extremely well chosen. It lies at the bottom end of a valley which cuts deep into the Gandamia mountain block. This valley bottom is able to sustain a fairly large population, while the mountains, which are only accessible by two narrow paths, provide refuge. There were numerous villages of cultivators in the mountains, so that in case of siege cereals could be obtained from the hinterland. In case of attack, people, livestock and horses were able to retreat into the mountains. The fields around Dalla are well watered by run-off
water from the mountains, and the water-table in the valley is less that 5 metres deep at most places. The pastures south of Dalla in the tiger bush area and on the Seeno-Manngo were close enough to provide protection from Dalla to the herds in the rainy and the dry season.

In the chiefdom of Dalla the use of agricultural land, pasture and bush land is just as in the Gimmballa based on a model derived from the Maasina Empire, though adapted to the local situation in the Haaye. Natural resource management and land tenure in the village of Dalla clearly bear the imprint of the political and military insecurity in the 19th century, and provided the political elite and their pastoral vassals better opportunities for survival than their riimayße (war captives). Of course this political and agricultural organization has changed over the 19th and 20th century, which is a reflection of a different distribution of the effects of insecure conditions over society.

Like in Dari in the Gimmballa this organization was based on the careful timing and spacing of various productive activities in the course of the year. In Dalla these movements were organized as follows. Adjacent to the village there was the harima a pasture area destined for grazing the calves and other small stock. Around the harima there were permanent field for the cultivation of millet. These fields were worked by the riimayssé and owned by the political (weeheeße) and religious elite (moodibaaße). The village herds moved between the pastures and the harima by way of three cattle routes (burti), in south-eastern, south-western and northern direction. The care for the livestock was assigned to the jallube, pastoral herdsman, who also formed the military vassals of the political elite.

When the crops were on the fields the herds were taken to pasture on the Seeno-Manngo to be grazed there. In this way the possibility of damage to the crops was minimized. After the harvest the herds returned from their rainy season pastures, because water ran out in the tiger bush area and on the Seeno-Manngo. During the post-harvest and cold and hot dry season most of the cattle was pastured in the surroundings of Dalla and watered at the village wells. The animals were corralled on the fields of the weeheeße at night, so that the soil nutrients of these fields were replenished. When the pastures around Dalla were exhausted the animals were taken to other villages along and in the mountain range where abundant pastures and permanent wells and sources were available.6

As a general rule the control on natural resources in terms of ownership, limitations on access to outsiders, and restrictions for low status groups became weaker the farther one went from the centre. In the rainy season pasture areas, there were no fixed rights on land. Rather fields were cleared by herdsman and if present their slaves, cultivated for some time, and then abandoned for a fallow period, and sometimes even for good. The gathering of bush products by the riimayssé was completely without restrictions. These bush products, wild fonio, wild rice, fruits and the leaves of trees were often important foodstuffs in case famine struck, or in specific seasons, such as the rainy season, when there was a lot of work on the fields, and still some time to wait before the harvest. These bush products were undoubtedly important for the riimayssé, for their masters, by virtue of their ownership of land, livestock and the labour of the riimayssé were having preferential access to milk, meat, and millet in their households. Probably even bush products had to be handed over to the masters in case of famine.

These examples serve to illustrate the point that by means of the political hierarchy, the various claims on resources, labour and their products, the weeheeße in particular, and to a lesser extent the jallube, were better able to survive the consequences of ecological and political calamities. The labour of the slaves and the land did not only produce the cereals necessary for the subsistence of the nobles, but also enabled the nobles to maintain horses for the cavalry. This helped them to stay in power, and gave them a higher chance of survival on the battlefield. The nobles had access to more milk and meat, which probably helped them to stay more healthy and have a higher life expectancy. Under the protection of the Maasina Empire and the rules it specified for the use of land and pastures, they were even able to concentrate nutrients on their land around Dalla. These nutrients were brought there by the herds of the pastoralists, who were not able to fertilize their own fields in the bush, because of lack of water. The manure produced in this way was essential for the production of cereals and hence for the reproduction of the hierarchical relations.

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6 This information was obtained from interviews with some elder herdsmen, marabouts and family members of the present chief of Dalla in 1990 and 1991.
The position of the pastoralists also weakened by this centralization of control over resources. First of all, they lost part of their flexibility to deal with variable ecological conditions. They became part of a land management scheme, which was not of their own design, and became part of a military machinery, which helped others to remain in power.

Natural resource management and land tenure in the periphery: the case of Booni

When the power of the Maasina Empire was in decline, political and military insecurity returned to the Hayre. Oppression by the political elite of Dalla increased and raids by the Tuareg from the northern Gurma began to torment the country. In this period a warlord appeared in the eastern part of the chiefdom of Dalla, where control was less. This warlord, Maamudu Nduuldi, a discontented member of the chiefly family of Dalla was very successful in fighting off the Tuareg invaders. According to the official historiography of the Maasina Empire (Ba & Daget 1984: 160) he advised Ba Lobbo, who commanded the army in the Seeno-Hayre on the best way to fight the Tuareg. According to local sources, however, he was a kind of rebellious warlord, who united Fulɓe herdsmen, as well as riimayɓe, Dogon, Hummɓeeɓe, Bella who escaped their Tuareg masters, and Songhay, under his banner, and was quite successful in raiding other groups, so that people under his command were able to re-establish their enterprise on the basis of the booty they collected under his command (De Bruijn & Van Dijk forthcoming).

The insurgent character of this politico-military organization, its marginality, and the very insecure situation in the Hayre, which lasted until well after the French colonisation, had a clear imprint on the ways in which use and management of natural resources and land tenure were organized. Firstly, the court, or rather the leadership, of this chiefdom was nomadizing. The chiefly family of Booni still possesses land and concessions in a number of places. Secondly, as a consequence, labour power, soil fertility and cereal production were not centralised geographically. Thirdly, the models for social and spatial organisation were never applied in this area and even rejected. Until today the people take pride in

that. In the fourth place, there was no interference in pastoral movements and affairs.

The pastoral herdsmen formed the backbone of the military organization. The cattle and the slaves that were looted were redistributed among the soldiers, on the condition that the chiefly family could take what they needed for their subsistence. In case conflict occurred the herdsmen were able to free themselves from the chief by leaving the area. Lastly, Hummɓeeɓe cultivators south of the Seeno-Mannango (Dinanguru, Duwari, Monndoro), and Dogon cultivators on the mountains were paying tribute, but they were not subjugated and made into a reservoir of slave labour. Instead there seem to have been co-operative relations in warding off attacks from outside, and even some measure of protection for these groups against other neighbouring Fulɓe groups (Foynonkooɓe, Fitoonɓe, Jelgoonɓe) by the Fulɓe chiefdom of Booni (see also De Bruijn et al. 1997).

Present situation in the Hayre

Like in the Inner Delta of the Niger, local control over the use and management of natural resources has eroded, leading to a restructuring of risk positions. In Dalla the political elite remained firmly in control over the fields surrounding the village during the colonial period, by monopolising the contacts with the colonial administration, intimidating liberated riimayɓe, and buying up all the land that was left uncultivated by people who left the village. The riimayɓe, having become nominally free cultivators are now claiming their part of the village land, and have occupied the harima and the burti (cattle routes). In this claim they are supported by the political elite, who was the first to take the most fertile parts of the harima. From this it is clear that the strength of the herdsmen, or pastoral power as a factor of importance in village politics or the village economy has been reduced to almost zero. All herdsmen have left Dalla for good, and have settled in camps on the border between the tiger bush and the dunes of the Seeno-Mannango, where they have become, partly dependent on Hummɓeeɓe cultivators, who occupy more and more land there. A few elder herdsmen remain in the neighbourhood of Dalla, seeking salvation with the marabouts residing in Dalla. The political elite of Dalla has no longer any control over the pasture areas south of the
village. *Riimayße*, and other social categories in the village are successfully claiming fields in the tiger bush area. When conflicts occur between *Hummbeeße* cultivators who encroach on pastoral territory, and pastoral herdsmen, they have to bribe the administration just as anybody else.

The abolition of slavery was the second major change in the Hayre. As a consequence slave labour as the basis for the cereal economy disappeared. The *Fulße*, *weeheeße* and *jalluße* herdsmen alike had to re-organize their undertakings in the direction of agro-pastoralism. This combination of production strategies was not only necessary to compensate for the lost labour of the *riimayße* — with a sufficient number of animals a pastoral household could very well survive without cultivating cereals —, but also to deal with the increasing amount of risk, resulting from progressive integration in volatile markets for cereals and livestock products. Likewise sedentary cultivators and liberated *riimayße* began to invest in livestock as well. Just as the herdsmen invested in cereal cultivation to save their livestock, they used their animals as a reserve, when harvests failed. Another reason for combining both production systems were the benefits to be derived from connecting them by organizing flows of manure from one production system to the other. Obviously there was and is a trade-off in terms of labour requirements between cereal cultivation and livestock keeping (De Bruijn & Van Dijk 1995).

In Booni the situation was slightly different. Here too, local control has been eroded though not to the same extent as in Dalla. One of the reasons is that Booni remained an independent administrative unit, which is not the case for Dalla. Another reason is that the political elite in Booni has been co-opted by a combined World Bank-government programme to promote livestock development on the Seeno-Manango. In this way the customary chief has regained considerable authority over his (former) subjects and the use and management of natural resources, and obtained access to financial and political resources to enhance his power (see Van Dijk & de Bruijn 1995). Nevertheless he, and his colleague in Dalla too, could not and probably did not want to stop all kind of interventions designed to develop the grazing potential of the Hayre, and more particular the Seeno-Manango. As in the past with the Maasina Empire, the colonial and Malian state repeatedly tried to gain control over the area. In the regional economy of the Inner Delta and the Niger Bend, this area could play a crucial role as a pasture reserve. Between 1956 and 1958, seven boreholes were drilled and equipped with windmills to draw water. Due to lack of maintenance they were soon out of order again. Later on after the drought of 1971-1973, a number of pastoral wells were sunk and new boreholes were drilled. The boreholes were to be equipped with solar pumps, free of maintenance so that the pasture areas could be used all year round. From this grandiose scheme one borehole has been put into function as a range management scheme under the authority of a local pastoral association. Given the fact that the herdsmen nor the chiefs have any real authority over these government-owned water resources, livestock from outside has to be admitted on the pastures hitherto in use by local herdsmen only (van Dijk & de Bruijn 1995).

As a result risk positions have been altered radically. During the drought of 1983-1985 the Seeno-Manango was one of the few areas where reasonable pastures could be found. Numerous herds flocked into the region, to exploit the pastures, while making use of the government infrastructure. The administration put pressure on the pastoral association to open the range management scheme for outsiders. A Tuareg chief from the Gurma was assigned a borehole next to the scheme to exploit with his own equipment. The pastures were not able to support all these animals, and around 75% of the cattle, of local as well as non-local origin perished in this apocalyptic disaster. Since these events every rainy season numerous herds owned by urban traders and civil servants, conducted by salaried herdsmen are frequenting the Seeno-Manango. They cause damage to the fields of the local people and use up the pastures. They try to stay as long as possible in the area, because the pastures in the waiting areas for the Inner Delta are hopelessly overexploited.

**Fulße immigrations into Aribinda**

In this section we will take a look at the interrelations between the *Fulße* and their sedentary neighbours. First, we will discuss the use and management of natural resources of these sedentary cultivators and how this was affected by ecological and political insecurity. We then go on to investigate the interdependencies, which have come into existence in the course of this century. Until the pax Gallica
was installed in the region in 1916, there were hardly any Fulbé in the Aribinda region (see map 11.2). Instead they were making raids into the region to hoard slaves and to collect cattle (as far as present). The indigenous Kurumba population constantly had to struggle with neighbouring Jelgoogi, the Mossi kingdoms in the South etc. Only by 1870 when the chiefs of Aribinda obtained large numbers of rifles, so that they were able to defend themselves against their adversaries, and establish some measure of power over the surroundings of Aribinda (Guillaud 1993: 100). This coincided with a period of relative prosperity.

According to Guillaud (1993) the insecure conditions in the Aribinda area can be recognized from the ways in which the population is using and managing natural resources. The most important of these, the cultivation of millet, is very much shaped by political and military insecurity, climatic conditions and the wish to spread the risk of millet cultivation. In the course of this century not the climatic risk has changed but the political conditions under which cereals are cultivated.

The oldest of the millet varieties in use in Aribinda seems to be adapted to the fact that the cultivators were in fact refugee groups. The cycle of the millet was very short (70-90 days), which makes an early harvest possible, before the cavalry of outsider raiders is able to enter the region. There are two other varieties, torodo and anyare kumë, which have the same properties. By the end of the 19th century, another variety enters the scene, the Hayre variety, originating from the Dogon of the Bandiagara escarpment. This millet has an extremely short cycle of 70 days. During the droughts of the first half of the 20th Century, two other varieties entered the scene, one from Gao and one from Ouadalan (Guillaud 1993: 167-168).

Another example of the influence of ecological insecurity in this area is the use of the weeder instead of the hoe to cultivate the fields and remove the weeds during the growing cycle of the millet. Because of recurrent drought there are less weeds, and only a minimal intervention is needed in the crop. With the help of a weeder more land can be cultivated by one person. At the same time there is often only one weeding cycle because of the droughts.

We may conclude therefore that insecurity determined to a large extent cultivation practices by the indigenous population on the one hand, and the influx of Fulbé in the Aribinda region on other hand. It remains to be seen, however, whether insecurity influenced the use and management of natural resources on an institutional level. This problem has to be dealt with at two levels. The first level consists of the institutions of the Mossi-Kurumba-Songhay population. The second level to review here involves the relations between the immigrating Fulbé and the indigenous population.

Before the Kurumba were able to develop any power in the region they were mainly cultivating fields in the neighbourhood of the mountain of Aribinda, which provided protection in case of attack. This precluded large-scale clearings of land away from the protection of the mountains. It also led to the saturation of the space around these mountains with agricultural fields. After the harvest every spike of the millet was taken home to Aribinda.

When the Kurumba began to develop some power after 1870, and thus were able to reduce the insecurity, and began to accumulate slave labour, some nobles began to establish cultivation hamlets away from the mountains. The work force provided some degree of protection at the same time. These cultivation hamlets became the nuclei of new villages later on. These cultivation hamlets were also a means to release political tension in Aribinda itself, between the nobles, who, once having gained power, and status, wanted more. In addition, because of the influx of slave population pressure increased, necessitating extension of the economic land base of the chiefdom. As a result there was a number of migrations away from the ‘fortified village’ of Aribinda to new sites (Guillaud 1993: 100-104).

This is by no means an isolated phenomenon, because a couple of hundred kilometres to the west a similar colonisation process is going on between 1870-1900, on the Sëeno-Gonnondo, where the Dogon leave their cliffs at the Bandiagara escarpment and establish themselves in the plains (Gallais 1975). In Aribinda this gave rise to changes in the ways land was appropriated. Before the colonial era, and before the colonisation of the countryside by migrating
groups of Kurumba, rights to the land were merely fluid territorial claims. As security increased and cultivation hamlets developed into independent villages, rights of access to land became more rigid and localised. As a result rights in land became ranked, from the first occupants, to late-coming migrants, needing land. The strength of someone's claim to land also determined to a certain extent the social status of an individual. To move from one village, hamlet or quarter to another meant a change in social status (Guillaud 1993: 90-93). This was further promoted by the influx of new groups of sedentary cultivators, Songhay from Jelgooji and Hommbori, and Mossi from Yatennga, which led to competition for land.

At the end of the 19th century Fulɓe (Jelgoobe from Jelgooji and Silłoɓe from Yatennga) enter the Aribinda area on their flight from the rinderpest in their home areas, and to escape from oppressive Fulɓe and Mossi rulers respectively. The abolition of slavery in the beginning of the colonial period also promotes the migration of Fulɓe from their home areas. Bella enter the area from Ouadalan. The vassals/dependants of the Fulɓe chiefs in Jelgooji free themselves first and leave their masters to end up in Aribinda. They also leave their home area out of lack of pastures. They arrive in Aribinda in small marginal groups, who adapt to the sedentary population (Guillaud 1993). An additional advantage of Aribinda under colonial rule is that control by the colonial government is much less in this area, due to the absence of a well-developed pre-colonial political structure and the low taxes.

In 1904 there is not a single Pullo registered in Aribinda. At every subsequent climatic crisis new Fulɓe migrants enter the Aribinda region, the Jelgoobe in 1912, and the 1930s and the Gawoɓe since the drought of 1972-1973. Especially in the 1930s numerous Jelgoobe settle themselves in Aribinda, fleeing the bad conditions in their homeland. In most instances they engage in contracts to manure the cultivating Kurumba population (Guillaud 1993: 109-111). In 1954 they make up 12 per cent of the population (1812 people), in 1963 16 per cent of the population (5,376 people), and 20-25 per cent of a total population of around 40,000 inhabitants during the 1980s (Guillaud 1993: 137). The growth of the number of Fulɓe especially takes place in the north of the area. Their number in the south of the area declines, probably due to more severe competition over land in the south in the period of drought after 1968 (Guillaud 1993: 137-138).

Just as on the Seno-Gonndo this new (colonial) situation led to new patterns of interaction between Fulɓe and cultivators. The Fulɓe herdsmen have taken up the herding of livestock on contract of the Kurumba and Mossi, they exchange milk for millet in the villages of the sedentary cultivators and they engage in contracts to manure the fields of the cultivators. In some instances they have even borrowed fields from the indigenous population (Guillaud 1993: 229-231). Contrary to a number of situations in the rest of the Niger Bend the Fulɓe are almost totally dependent on the Kurumba and the Mossi for their survival. Their main problem is to acquire access to sufficient resources in time and space to be able to exploit the pasture land in the Aribinda region.

The most critical resources for the Fulɓe in this regard are water and pasture. When they have no access to water during the dry season they are not able to remain in the area. When they engage in a contract to manure the fields of a sedentary cultivator, they thereby get rights of access to village wells. In addition Fulɓe women get access to the village to market their milk. A second way to get access to village resources is to borrow land from the cultivating population. This loan is mostly paid in milk or in livestock. The acquisition of land is sometimes not even the prime objective of the herdsmen when engaging in this transaction. His major objective is to gain access to village water and pasture resources, during the dry season. In a number of instances the field, which is mostly an abandoned field of low fertility cannot be cultivated because of the danger that the cattle of the herdsmen overruns the village fields, located in its proximity. Cultivating is, in the absence of other mechanisms to deal with ecological calamity, a way to lessen the risk of ecological disaster. It enables the herdsmen to save his animals, which he would have to sell, when he would not produce his own cereals.

So, these Fulɓe opted for different, more flexible strategies to deal with ecological insecurity. Given the political hierarchies, and the ways in which the management of natural resources was organized in their areas of origin these options were not available there. In the Aribinda area the Fulɓe survive by means of flexible contracts with cultivators. In this way they benefit from the services provided by the Kurumba and Mossi in return for manure. A
second cornerstone of their strategies in Aribinda is their extreme diversity both in their positioning in space and in relation to the strategies and prerequisites of cereal cultivation of the agriculturalists in the area. These Fulɓe are clearly at the other end of the spectrum starting with the dîina. They moved away from the political centre and social inequality to become more mobile flexible herding families, without any extensive social organisation and formalised leadership.

Conclusion

It is clear from the case studies that ecological insecurity and related economic and political contingencies play a very important role in the strategies of Fulɓe pastoralists in the Niger Bend. It was also shown that events caused by hazard born out of unpredictable and unstable ecological and political conditions have had a decisive influence on the particular forms of the use and management of natural resources. At every major calamity from ecological, political or economic origin or in combination people respond by shifting from one risk position to another, and by moving from one area to another. This was shown to have a profound impact on how the labour is organized and on the manners in which open and closed resources are appropriated. Political hierarchies governing access to, control over and the use of natural resources are crucial in this process as they define risk positions for specific categories of people. It was shown that these risk positions change under the impact of ecological hazard and political change. Differences in ecological conditions and the consequences of risk thus give rise to a very diverse pattern of resource use strategies and institutions governing access to these resources, in which the quest for control and flexibility alternate in very complex ways.

It remains to be seen whether this historical approach to ecological and political crisis events, and the concepts focusing on insecurity, variability, and instability offer more than descriptive value and can be used as analytical tools for a comparative analysis of Fulɓe land use strategies across the Niger Bend (and beyond). As can be concluded from a fresh reading of the available literature, the information provided by the literature at hand on variability in resource availability, and trends in political and economic developments is far from systematic, and very lacunary. In addition, the information gathered in the past has been collected and analysed within different theoretical frameworks, and for different purposes. As a result much of the information is only of limited value for a comparative analysis as set out by this paper. Yet it seems worthwhile to collect and analyse more sources on the Fulɓe from other parts of West Africa, to continue the analysis along these lines, and try to make a more composite picture of the use and management of natural resources by the Fulɓe.