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**Title:** The new pastoralism: absentee owners, new technologies, economic change and natural resource management in the Sahelian region of far north Cameroon  
**Date:** 2012-09-20
Pastoral modernization: process, organization and techniques

Introduction

The objective of this chapter is to bring out the technological and organizational differences between modern and traditional pastoralism and to determine how the herd owners ensure access to pasture and other feed resources for their herds in spite of the fluctuating ecological, economic, and socio-cultural conditions. Technologically, pastoral resource use and management show their widest gap between these two systems during the dry season, when the scarcity of water and pastures is most significant. During the wet season the gap narrows because water and pastures become naturally available in abundance, bringing both systems to almost the same spatial and technological levels. In spite of this, the pastoralists show differences in terms of organization, production objectives, lifestyles, and livelihood at all periods. The assessment of the differences in pastoral activities over space (spatial gap) and the technology used (technological gaps) between these two pastoral systems constitutes the essential elements of differentiation elaborated in this chapter. At the technological level, discussions will focus on the differences in water and feed provision techniques, feed transportation and storage, and feeding techniques, as well as the nature of transhumance practices. While short-distance rotational transhumance characterizes modern sedentary agro-pastoralism, long-distance migratory movements (wherein traditional pastoralists crowd the Waza Logone floodplain natural pastures and water) dominate in traditional nomadic pastoralism. Spatially and in the dry season, the modern pastoralists remain in the plateau area close to waterholes, farm residues, and supplementary feed, while the traditional pastoralists migrate to the floodplain in search of pastures and water.

During the PRA workshop of January 2007, the sedentary pastoralists identified the way pastoral modernization is carried out. This involves the provision of water to cattle through wells, artificial mares, and pipes; the provision of supplementary feeding for cattle with cotton-seed cakes, cotton hulls, millet stalks, and rice bran; and cattle fattening to generate revenue for the family. In addition, they identified organized milk sales to milk transformation units by women to obtain cash for household use; the improvement of milk production through the feeding of lactating cows with cotton-seed cakes; and regular vaccination and treatment of cattle by qualified veterinary personnel.
The traditional pastoralists are greatly endowed with skills that help them to deal with environmental uncertainty and volatility. Under normal circumstances, regular mobility aims at achieving a rational utilization of the land resources by both people and animals in order to preserve its productivity and ensure the continuity of the pastoral lifestyle. This socio-ecological orientation of the behaviour of the traditional herders defines and governs the fluctuating boundaries of the grazing area in which they locate their camps. The size of the camps of the traditional herders and the pastoral space they use are the result of their adaptability to various constraints and opportunities. Such adaptability occurs close to dry-land sites in flooded areas, near waterholes, and is influenced by proximity to other family members and friends, to food-supply villages, and to the structure, numbers, and functions of animals in a herd (cattle, horses, small ruminants, milk animals, etc). The mobility of the herders therefore embodies production techniques mastered by them (daily herding, voice command, mastery of cattle names, use of dogs, knowledge of the environment, and degree of flexibility in changing circumstances). The traditional pastoral production system particularly operates through the interplay of multiple variables, which include water, conditions of the pastures and its productivity, social tranquillity, and the general conditions of the landscape (flooded or not). Any distortion of these conditions can result in the creation of an imbalance in the system and its eventual change.

Modern pastoralism can be viewed as a process in which new pastoral production techniques are deployed to sustain cattle in the same environment throughout the year in spite of the inherent periodic scarcities of pastures and water. In this case, a series of new techniques are used in raising livestock, through multiple ground-water extraction methods, feed provision and storage techniques, the modification of land use—with the main aim of providing fodder and supplementary feed to cattle—and the practice of cattle fattening as a major source of income. Pastoral modernization is also associated with sedentarization. The change from a nomadic to a sedentary way of life embodies changes not only in pastoral production techniques but also in the pastoral economy, resource utilization, and the lifestyle and livelihood of the people (Chapter 3). During discussions with the herders, it appeared that sedentarization was a key factor in pastoral modernization. In fact, since modernization necessitates investments in infrastructure, sedentarization is a precondition for a permanent change in pastoral production techniques. Once sedentarization has taken place, the provision of fodder and water for cattle during the dry period becomes problematic, and this is unlike the nomadic lifestyle with its open search for pastures and water. In order to provide water and fodder to the sedentary cattle, extra investments are made in well-digging and fodder production from farm residues and/or buying from agro-industries. For pastoral modernization to be viable, commercial cattle fattening and milk production are necessary accompanying measures that help compensate the increased cost of modernization (Chapter 5). Owing to its profitability, cattle fattening has become a profession for some people who have specialized in the buying of weak cattle to fatten them and sell at higher prices during good market periods. However, not all modern pastoralists are involved in cattle fattening, especially when they can subsidize the cost of running the herd by other businesses. On the contrary, nomads sell livestock mainly for the purpose of subsistence.
The process

Within the period of my stay with the pastoral communities, from 2006 to 2009, five nomadic households became sedentary—the old and the very young ones having settled, while the adult energetic ones continued their normal nomadic lifestyle. Alhadji Elie, the first floodplain nomad I visited in May 2006, related to me the following when we met in his new home in 2008, in Guirvidig:

“Mi sodi soudo doh nbe sheide na am. Mi somi wansugo gam ladde timmi, woybe doudi” (“I bought this house with the money I obtained from cattle sales. I am tired of nomadic life because there is no more pasture land and there are many thieves”).

In spite of the fact that the traditional pastoral communities are alleged not to be very open to change, change is occurring among these people, as they are gradually drifting towards a sedentary lifestyle. It can be assumed that they are all likely to settle in the decades to come as their cattle numbers continue to dwindle and their families become larger. It can thus be affirmed that the more difficult the pastoral environment becomes, the greater the tendency of traditional herders to move towards sedentism. These findings are equally confirmed by Swift’s (1996) findings: the more nomadic pastoralists experience socio-economic and environmental hardship and the more they are exposed to sedentary communities and the advantages of sedentism—coupled with access to pastoral resources becoming tighter and more geographically-concentrated—the greater the tendency to shift to a sedentary and agro-pastoral way of life.

Sedentism changes the social organization and allegiance of the herders. The social organization structures of the traditional and modern pastoralists show subtle differentiation when considered in some detail. The modern pastoralists pay greater allegiance to their local lamido and djaoro, in contrast to the traditional pastoralists, who pay greater allegiance to their less influential ardo/lamido. The traditional pastoral groups are normally led by lamiiibe or ardo’en who have the skills and wisdom to guide their community and the use of resources. The traditional system, although not always open to change and innovation, is capable of responding to livelihood stress, through survival mechanisms that ensure continuity. Sedentism and social integration of traditional herders enables them to permanently access and manage the natural resources available to them. The traditional herders, who are not sedentary, have their own systems of managing resources. When pastures and water resources drastically diminish during the dry season, the traditional herders spread over the floodplain and consciously or unconsciously share the resources in clans and groups, each moving away from one another, though not without competition (discussed in Chapter 4).

Usually, within the pastoralists’ community, when the decision to sedentarize and modernize pastoral activities is not induced by hardship or by collective action, it is very difficult to make this decision as it involves the consideration of many parameters ranging from a detachment from one’s own immediate relations and lineage to a change of livelihood and lifestyle. When such a decision is made, however, accompanying measures of pastoral modernization follow and this is reflected in water and fodder provision to livestock. Over the past four decades, the modern pastoralists—through sedentarization and modernization—have ensured tenure in the form of land

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1 Ahadji Elie made this statement during an open discussion in regards to his past nomadic life. His reasons for sedentarization relate to the reduction of pastoral space, increasing number of cattle raiders (thieves), and general degradation of pasture land.
individualization schemes in collaboration with local government authorities. This investment in waterholes and crop cultivation has led to land appropriation, which further helps to explain the differences that prevail between traditional nomadic pastoralism and modern pastoralism (illustrated in Figure 7.1).

Figure 7.1 Characteristics of modern and traditional pastoralism

Field data analysis shows that once sedentary, only about 3 per cent of the herders may return to a purely nomadic way of life, especially when in exceptional cases such sedentism results in an increase in cattle numbers. The analysis of the questionnaire that was administered to 69 traditional pastoral households shows impressive results as regards their willingness to take up a sedentary lifestyle. In this analysis (Table 7.1), 11.59 per cent saw the need to settle but did not know how to begin or where such a settlement should take place.

<table>
<thead>
<tr>
<th>Change strategy</th>
<th>Traditional pastoralists</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of herd size</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Sedentarization</td>
<td>8</td>
<td>11.59</td>
</tr>
<tr>
<td>Regular movement (relocation)</td>
<td>37</td>
<td>53.62</td>
</tr>
<tr>
<td>Change of grazing method¹</td>
<td>24</td>
<td>34.79</td>
</tr>
<tr>
<td>Involvement in crop farming</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Number of respondents</td>
<td>69</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Based on interviews

The willingness to change the grazing method also showed a high percentage: 34.79 per cent. Considering that any change of the grazing method implicitly involves a change of lifestyle, from which sedentarization is not excluded, thus means that on

2 During my stay with the nomadic herders (2006–2009), I encountered four of them who were once sedentary and later became nomadic and did not show any indication of going back to a sedentary life. They think that life is less stressful with cattle when movement is unrestricted. They are opposed to the idea of selling many cattle to invest in few cattle.

3 The change in grazing method would entail abandoning the nomadic movements in favour of rotational transhumance, where cattle are grazed in harvested farmlands near homesteads, accompanied by feed supplementation.
average, 46.38 per cent (that is, the sum of 11.59 and 34.79 per cent) of the traditional pastoralists exhibited a willingness to change, implying that the change is gradual. The majority, 53.62 per cent, did not see any possibility for such a change. Their motives in continuing to pursue a nomadic way of life were linked to the very large herds that they own and the fact that the way they live would be best for them if cattle theft and conflicts could end.

None of the traditional pastoralists favoured the idea of reducing their cattle numbers, no matter what the reason. Their involvement in crop farming was also not imaginable for them for the immediate future. This clearly proves that voluntary diversification as a gradual process goes on in stages, one stage involving another, generally by passing through sedentarization, curbing of cattle numbers, and involvement in crop farming and other income-generating activities. Presently, almost all the well-to-do traditional pastoralists perceive crop cultivation as a menial and dirty job unfit to sustain a family.\(^4\) I would like to think that the notion of *pulaaku* restrains these Fulbe herders from tilling the soil, until they become impoverished—by losing their cattle through epidemics or droughts—and then turn to the soil for a livelihood. As equally confirmed by Azarya (1993), the growing of crops was not worthy of the *pullo*, and this attitude has made them dependent on local farmers for basic subsistence needs. The sedentarization of the Fulbe herders, therefore, could on the one hand be considered a consequence of impoverishment and on the other as a result of the need to diversify livelihood. This is unlike what happens with the wealthy elites who invest their wealth in livestock rearing.

**Organization**

*The herd*

Given the livestock species in Far North Cameroon, a traditional herd is considered as a social group of animals, which may be cattle, sheep, goats, and at times of donkeys (but rarely horses). It is also regarded as a unit of production of blood-related groups of animals of variable sizes, gathered in camps and according to seasons, and finally as a technical system operated and managed under cultural and traditional norms.

In contrast, a modern herd is usually not constituted of blood-related animals, as the animals in most cases originate from multiple sources (bought from the cattle market, introduced from outside), grouped together to form a single unit. A modern herd also constitutes a technical system, which is operated and managed for economic motives. Such a herd is constituted of typical multi-colour Zebu breeds, while a traditional pastoral herd has over 90 per cent red-brown or white Zebu and is blood-related, with an easily traceable genealogy. During discussions with the traditional pastoralists, they indicated to me the possibility of constructing the genealogy of animals within a given herd. This was scarcely applicable to the modern agro-pastoral herds. In addition, within traditional pastoral herds I discovered that female and milk animals dominate, compared with the modern pastoral herds dominated by bulls and steers that fluctuate owing to a higher off-take. In Chapter 5, three forms of herds were identified in the Far North of

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\(^4\) Alhadji Tistle does not see himself settling down in one location to cultivate crops to feed the family; he has many cattle and moving along with his cattle is by far better for him. He is of the strong opinion that crop farming cannot sustain a family.
Herd management
Herd management is diversified and varies with the nature of herd ownership (Table 7.2). Where herds are singly owned, as is the case with most traditional pastoralists, management is devoted to the herd owner and his family. In contrast, with herds of multiple ownership, third-party cattle entrustments are made to a khalifa or a hired herdsman.

Table 7.2  Herd management in relation to ownership

<table>
<thead>
<tr>
<th>Elements</th>
<th>Traditional Pastoralist</th>
<th>Modern pastoralist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd unit</td>
<td>High homogeneity; blood-related animals; over 90 per cent uni-colour; from inherited cattle.</td>
<td>Heterogeneous; some cattle bought from the cattle market to constitute a herd; fewer blood relations; varied colours.</td>
</tr>
<tr>
<td>Ownership unit</td>
<td>Owned by a single family or person. Poorer families also herd entrusted cattle.</td>
<td>Since cattle numbers are few, in most cases cattle from different owners are grouped into one herd.</td>
</tr>
<tr>
<td>Management unit</td>
<td>Taken care of by the herder and his family.</td>
<td>-Multi-owner herd, put under the supervision of a hired herdsman -Absentee owner; entrusted herd of absentee owners put under the supervision of the khalifa.</td>
</tr>
</tbody>
</table>

Source: Based on personal observation

In addition to salting, de-ticking, and disease management, herd management is conducted in symbiosis with measures to ensure access to pastures and water resources. Traditional channels that ensure access to pastoral resources are structured in a hierarchical manner, and individuals are assigned different responsibilities. Grazing and mobility decisions are decisions entirely vested in men—although women may influence movements towards the milk market, as was confirmed by the herders during the interpretations of the Zebu collar data. Drent (2005), however, attributed greater influence on mobility to women. Women also participate in decision-making regarding the sale and slaughter of smaller ruminants such as sheep and goats.

Hierarchically, the hired herder/herdsman bottoms in herd management and conflict-resolution decision-making. In conflict resolution, the hired herder is linked to the dominant lamido through his khalifa or the ardo. The sarkinsanou, the djaooro and the lawane act as intercepting/intermediary authorities, who may settle problems at their level. The analyses that follow illustrate the roles of each individual/authority.

Ngainako (pl: wainabe)
The ngainako is the Fulfulde name given to a herdsman with cattle or a herd manager who owns cattle. The ngainako should by implication be directly involved in the management of his herd(s). There are basically two groups of wainabe: wainabe ladde

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5 During discussions with the herders, I learned that the herd is not only an economic but also a social asset under diverse property regimes and is managed under different systems for different motives. In the modern pastoral system, the herdsman is rarely the owner. The herd may belong to several owners. The management unit may also not be the ownership unit nor the herdsman but a middleman, doing transactions between the owner and the herdsman.
(traditional nomadic herders) and wainabe wuro (modern sedentary pastoralists). The term ngainako (herder) is, however, used discriminatorily in this region because non-Fulbe such as the Mousgoum are rarely considered wainabe except in situations where the family is known to have owned cattle for generations.

Absentee herd owners do not usually bear the name ngainako since they have entrusted management of their cattle to the khalifa (middleman). They are usually referred to as the jagor’mbé (jomu’nai) or patron. Most of the jagor’mbé are wealthy businessmen or civil servants who have benefited from the earlier mentioned state-subsidized rural investment schemes and have invested in cattle. In the cattle management process, the absentee herdsman strongly rely on the information provided them by the khalifa.

Khalifa
The term khalifa is of Arabic origin and denotes a leader. In the Far North of Cameroon, the name khalifa is a product of absentee herd ownership, referring to the supervisor in the management of entrusted herds to hired herders. He is generally regarded as the traditional manager of the herds of a particular family or group of herders. Even after the herd owner is dead, the family may still retain the khalifa. The khalifa acts as a linkage between the herd owner (jargor’ndo) and the kaidal/ngainako (herdsman). He pays the salaries of the herdsman, settles disputes and damages, pays cattle taxes and vaccinations, helps the herdsman to determine when and where cattle have to go for transhumance, provides salt, etc.

Kaidal
The kaidal is a name previously used to describe brave pastoralists noted for their spiritual power and knowledge of pasture, cattle, and the environment. Presently the kaidal is the new name for the herdsman, since the role of the traditional brave kaidal no longer exists in the region. They are the hired herdsman usually with very few or no cattle of their own. They are either paid monthly in cash (7,500 to 10,000 F CFA) or paid a two-year-old bull after every six months. The kaidal of large families that herd many cattle benefit from the sale of milk and milk products derived from the herd.

Lamido wainabe, Katchella or Ardo
Leaving the powerful lamiiibe of the dominant ethnic groups aside, the wainabe ladde also have their own lamiiibe, to whom they pay allegiance. As confirmed by Drent (2005), the lamiiibe wainabe ladde usually lobby for recognition by the government and other local authorities, using money. They compete for this title just for prestige. During my stay with the herders, it was evident that the lamiiibe wainabe ladde wield power only in name and for the lineage which they head. They are mostly ceremonial lamiiibe, who are involved in small-scale conflict management within the lineage or sub-group; they take decision on when to move and where to go. In fact, they are the major decision-makers for the lineage they head.

The lamiiibe wainabe, katchella, or ardo assist their lineage to negotiate for pastures in the territories of the most dominant resident lamiiibe. The khalifa negotiates for pastures on behalf of his patron. Figure 7.2 illustrates this set-up, indicating the level of direct involvement in daily herd management, which is the reverse of the hierarchical setup. Those who are least involved in daily herd management, such as the jargor’dó or ardo, take the most important decisions. The hierarchical levels in herd management
and decision-making are much less complex for the traditional herders because they always live close to the hired herdsmen, while the modern herders are largely composed of absentee herders.

Figure 7.2 Decision-making in herd management

<table>
<thead>
<tr>
<th>New setup</th>
<th>Traditional setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jangor’ndo-herd owner 1</td>
<td>Lamido wainabe/Katchella/Ardo 1</td>
</tr>
<tr>
<td>Khalifa-herd manager 2</td>
<td>Domiant Lamido</td>
</tr>
<tr>
<td>Kaidal-hired herder 3</td>
<td>Ngainako-herd owner, herder 2</td>
</tr>
<tr>
<td></td>
<td>Kaidal-only for wealthy herders 3</td>
</tr>
</tbody>
</table>

Top–bottom involvement in daily herd management and decision-making

1, 2, 3: Hierarchical importance in herd management: 1 = less important; 3 = most important.

3, 2, 1: Hierarchical importance in decision making: 3 = less important; 1 = most important.

Figure 7.3 Pastoral resource access and decision-making channels

The herdsman or the ngainako has gradually taken up the name of a kaidal, the once brave herders who displayed much knowledge in cattle herding by carrying out fact-finding missions on the availability of very good pastures, water, and salt licks, and
directing his people there. The *kaidal* also possessed much knowledge on cattle ailments and treatments. Because of the gradual disappearance of the *kaidal*, the *wainabe* (plural of *ngainako*) are now referred to as the *kaidal*, since they have developed a greater knowledge of the environment they frequently use. The *ngainako* can also refer to a wealthy nomadic herder. The sedentary pastoralists call nomadic herders *wainabe ladde* (bush herders). Directly above the *ngainako* in the hierarchy are found two classes of people: the *khalifa*, (middleman) who thrives on cattle entrustment, and the local group leader who may be the *ardo* (Woila’en), *katchella* (Uuda’en), or *lamido wainabe* (Alidjam’en). These people act as a link to the *djaoro* (quarter head), *lawane* (head of a canton), and the *lamido* (village or community head) for access to resources and conflict mediation (Figure 7.3). The role of the *sarkinsanou* (cattle controller) is much more flexible, as he shuttles from one locality to another but within the territory of his *lamido*. The *sarkinsanou* masters the movements of the herders more than any other persons within the locality because of his interest in obtaining more cattle taxes for the *lamido*.

*The absentee herder, the hired herder, and the middleman*

Absentee herding, although important, is not the predominant feature of pastoralism in Far North Cameroon. Generally, in spite the fact that absentee herders are growing in importance, they are not numerous, and estimates I carried out (see Chapter 5) show that they comprise about 11.8 per cent (33,040) of the modern pastoralists. I also argue that different forms of entrustment are an indicator of the level of absenteeism, which, for the sake of convenience and based on what prevails in the region, have further been split into partial absenteeism and full absenteeism:

- **Full absenteeism** comprises absentee herders who do not have direct involvement in herd management. They live far away from their herds and delegate herd management to a middleman (*khalifa*), who reports directly to them. Full absenteeism constitutes about 12.9 per cent of the modern pastoralists I interviewed during socio-economic surveys (Table 4.7). The results of the direct interview of the sampled population did not vary much (1 per cent margin) with that of the overall waterhole counting estimate of the full absentee herders that was fixed at 11.8 per cent. These are herders who have middlemen live in distant towns such Maroua, Bogo, and Garoua. Full absentee pastoralists are either wealthy politicians or businessmen. Some modern pastoralists (9.4 per cent) resident in the Far North Region who are not absentee herders serve as middlemen for the full absentee herders, but they have been grouped as modern agro-pastoralists. There was no (0 per cent) full absentee traditional herder found in the field. Full absenteeism is sustained by entrustment, viewed by the Fulbe as a revocable contract, whereby animals given to the herder over an indefinite period of time can be retrieved by the owner in cases of perceived mismanagement.

- **Partial absenteeism**, which was estimated at 84.9 per cent, is clearly reflected here through the presence of many hired herders (55.3 per cent) and traditional pastoralists (0 per cent) who have delegated some herd management functions to their hired herdsmen. Although no traditional pastoralist was found to be an absentee herder, some (29.0 per cent) of them...
are middlemen (khalifa)\(^6\) and they have the most abundant family labour since their children do not go to school. There are more traditional pastoralists who are middlemen because it is easier and cheaper (little feed supplementation required) to herd cattle under the traditional set-up than under the modern setup.

Table 7.4  **Typology of herders**

<table>
<thead>
<tr>
<th>Items</th>
<th>Modern pastoralists</th>
<th>Traditional pastoralists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herder type</td>
<td>N°</td>
<td>%</td>
</tr>
<tr>
<td>Absentee herders</td>
<td>11</td>
<td>12.9</td>
</tr>
<tr>
<td>Hired herders</td>
<td>47</td>
<td>55.3</td>
</tr>
<tr>
<td>Middlemen</td>
<td>8</td>
<td>9.4</td>
</tr>
<tr>
<td>Family labour</td>
<td>19</td>
<td>22.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: Analyses of questionnaire on socio-economic characteristics

Livestock entrustment to a hired herder is the predominant labour contract that governs the compensation of the herdsman for the herding of others’ cattle. Toulmin (1994) also asserts that employment based on contract herding is becoming more common and that the pastoral sector is increasingly becoming a business of absentee herd owners. The hired herding contract has a long history in Far North Cameroon, probably since the arrival of Fulbe herders in the early seventeenth century.\(^7\) By the nineteenth century and as the Fulbe pastoralists settled in the region, political and religious elites began entrusting their cattle to herdsmen of close relations within their area of residence. Compensation generally consisted of the milk produced by lactating females, clothing for the herder, and a steer every six months.\(^8\) This system of livestock entrustment has been developed over the years to become much more of a patron–client type hired herding contract. The emergence of this form of labour contract, as discussed earlier in the introductory chapter, is linked to a shift in livestock ownership that occurred over the past decades, resulting from recurrent droughts and the involvement of business-minded people in pastoral activities. There has been an increased concentration of livestock wealth among those classes of people who are either economically protected from droughts (urban elites) or best positioned to take advantage of the predictable price fluctuations (speculators) in livestock prices.

In general, as was indicated in Chapter 1, a declining number of livestock is owned by the traditional pastoralists, while the modern pastoralists and particularly their absentee counterparts are increasingly gaining access to subsidized rural investment schemes and to a greater share of the cattle. This phenomenon of ownership polarization places a larger proportion of the livestock population in the form of entrustments to economically less viable herding families. Livestock-deficient and vulnerable Fulbe families largely depend on catching the attention of the wealthy herders to acquire entrustments to be able to meet their subsistence requirements.

Absentee livestock owners consider entrustment in more economic terms, as a form of cheap labour contract to store their livestock wealth confidentially. Entrusted livestock are at times hidden by civil servants and business persons from relatives and

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\(^6\) A traditional nomadic herder is considered a *khalifa* because he equally owns cattle and takes care of the cattle of other people but is not paid a salary as a hired herder but with gifts.

\(^7\) *Ibid.*

\(^8\) Alkali Babbaye, Woila nomad, interview 2008.
others, whose demands for financial assistance are hard to refuse if all know the owner’s wealth. Entrustments are made between the livestock owner or middleman and herdsman in secret. The identity of the livestock owner is often not even revealed to the herdsman (confirmed by Breusers et al., 1998). The hired herder may only learn of the owner’s identity over a number of years when he either witnesses visits of the owner or is asked to take an animal to the owner’s house. According to the cattle owners, they entrust or take back cattle from a hired herder based on the productivity of the herd (calving rates, weight gain, etc.). Common reasons for an owner to remove his animals from a herd to entrust them elsewhere is evidence of dishonesty and lack of discretion on the part of his herder(s). Therefore, good livestock management is remunerated by a greater number of entrustments. Such entrustment decisions contribute to the observed correlation between livestock wealth of herdsmen’s families and the number of cattle entrusted to them. Although limited ability to attract cattle entrustments may reduce a herding family’s livestock numbers over time, cattle owners are more likely to entrust their livestock with wealthier herd managers. This is due to the fact that severe poverty often leads to the stealing of entrusted cattle by herdsmen.

Furthermore, there are few entrusted animals (khalfadi) in the herds of modern pastoralists, because they prefer to entrust rather than to receive entrusted cattle. They argue that it is economically unaffordable for them to receive entrusted cattle from other new pastoralists. The costs involved in entrusting livestock are significantly less for the traditional pastoralists because they are not involved in cotton-seed cakes purchase. Entrusting animals to the modern pastoral households means that owners have to reimburse the household head or herd manager for all the costs. Moreover, in many cases it means that owners have to purchase cotton-seed cakes, hulls, and sorghum stalks themselves and supply these to the herd manager/khalifa, because purchasing these supplementary feeds is time-consuming and stressful due to unreliable access. Herd managers are compelled to take on these responsibilities for livestock they do not own and over which they do not have the right of sale. For owners, on the other hand, it is simply cheaper to entrust animals farther away to the traditional pastoralists of the floodplain, where there is natural forage and where they do not have to cover the costs of cotton-seed cakes. Many herdsmen prefer entrusting their livestock to the traditional pastoralists because of the relatively low cost of maintaining the cattle, since cotton-seed cakes and hulls are unnecessary. However, one issue remains in the minds of many herd owners who have to consider entrustment as a livestock management option: how to get a faithful khalifa or herdsman. For the herdsmen who have relatives who are herdsmen, entrustment is easier than for those who do not. In other circumstances, the entire herd is entrusted to a khalifa or middleman. When the livestock have effectively been entrusted to an intermediary, they are locally called the khalifadi. The khalifa can then decide to hire a herdsman to take care of the livestock or take care of them himself within his household set-up. The khalifa guardianship is of the overall supervision of the livestock and the herdsman. The established relationship between the herd owner and the khalifa is that the former retains the absolute rights over his cattle and the latter regularly reports to him on events (calving, cattle theft, vaccination, salting, and transhumance) which he has taken decisions upon. ‘Once a khalifa, always a khalifa’,

9 Hasana Gordji recounted to me how after the death of his jargor’ndo the family debated over his khalifakou (ability to take care of their late fathers’ livestock). In spite of the debate, he was still retained by the family. He said: “Nobody within the family knows the animals better than me”.
because it is a profession on which some households have based their livelihood. The khalifa will always do his best to maintain trust with the households for which that he has taken on responsibilities. It is a commonplace to find a khalifa that has been attached to a particular household for many years.

Some of the modern agro-pastoralists who have many cattle are faced with the problem of maintaining them in the modern and more capital-intensive system. In order to diminish the production cost, they have to exceptionally practise the modern and the traditional system by splitting their cattle into three or more herds. The three categories of herds run by the modern agro-pastoralists that were identified in the field include:

- The sourseji or saareji, which graze within the vicinity of the homestead of the owner. This herd is constituted mostly of lactating cattle, from which milk is collected for home consumption and to serve the milk transformation units at the neighbourhood. The saareji are permanently grazed by family labour or by a hired herdsman within the same area, and their feed is supplemented during the dry season.

- The laddeeji or horeji is the herd that is maintained by a hired herdsman, usually not far away from the watchful eyes of the herd owner. The laddeeji constitute the modern pastoral herd of restricted mobility. They are managed through restricted cyclical transhumance. During the dry season they are brought back to the homestead of the owner and given supplementary feed. The herdsman is paid a salary to take care of the cattle.

- The khalfadi are the livestock that are entrusted to a khalifa, who may be a middleman, or to the nomadic herders. The impoverished Fulbe nomads who do not want to be considered as hired herders go in for the khalifa arrangements because that will be their only last hope of perpetuating a lifestyle that they are accustomed to. The khalifa has the overall responsibility over the herd management. If the khalifa is a nomadic herder he benefits from the milk and may also receive a monthly salary. Other advantages that he may obtain include some gifts and gains from lesser transaction costs during the purchase of salt, medicine for the cattle, conflict management, and so on. During the heart of the dry season, the herd owner may withdraw some of the weak animals to his homestead to provide them with supplementary feed. Overall, this system helps the herd owner to diminish the cost of running his herds.

Herd owners and their hired herders

The interview results of this study proved that the herd owner (jagor’do) may be a single person or many individuals who bring together their livestock into one herd and entrust it to a khalifa or directly to a hired herder. Among the absentee owners, there is often a principal owner, who acts as caretaker and a link to the khalifa or directly to the hired herder (ngainako). Although his decisions in herd management are taken in consultation with the other owners, he has ultimate authority over herd management decisions (Figure 7.4). The conditions that may determine the type of decisions a jagor’do takes depend on whether the land on which the herd is kept is his or whether he has greater cattle numbers than the others. No matter what the case, consultations with the other owners are made prior to decisions, or he reports to them when requested to do so; otherwise, they can withdraw their livestock at any time. If the absentee herders are a family of brothers, the eldest of the brothers is associated with the herd.
and the major decisions to be taken as regards the herd management. In this case, his
decisions are best made in consultation with his younger brothers. If not, the brothers
may decide to split from him to form another herd(s), thereby removing labour and
livestock from the household head’s (javīrdo) control. In many households, the father
will increasingly consult with his eldest son about important decisions as he gets older.

Figure 7.4 Hierarchical relations between herd owner and the hired herder

A household head’s authority over herd management also declines as distance
increases between him and his hired transhumant herders. Except in cases of extreme
labour shortage, the household head is based in the home village, owing in large part to
the daily duties incumbent on the household head at home. He makes about two to three
trips each year to visit the transhumant herd at its rainy-season and dry-season
destinations. It is only during these visits that the household head has control over travel
and, to a lesser extent, grazing movements. When he is with the herdsmen, decisions
concerning herd composition and transhumance destinations are made by the household
head.

Usually, distant hired herdsmen retain a significant degree of management autonomy
with respect to transhumance and grazing movements through much of the year. This,
therefore, means that herding quality cannot be maintained by daily supervision of the
hired herder by the khalifa or the javīrdo. Most hired herdsmen in the Far North Region
of Cameroon are young men (15 to 37 years of age) and are in most cases related to the
herd owner or his family. They work as his herdsmen because they are members of the
absentee herder’s family, and there is strictly no formal labour contract. In such
situations, many expectations arise in this form of herd management arrangement. One
important expectation pertinent to the Uuda pastoralists is that over the years the
absentee owner will give the hired herder cattle/sheep so that he can begin to constitute
a herd of his own. A second major expectation is that the absentee herder will make
significant contributions to the dowry (sadaaki) during the herdsman’s marriage. These
expectations are no longer being met by many absentee herd owners. Their failure to fully compensate their herdsmen is most often due to lack of the will to pay for work done rather than lack of the resources to do so.

In other circumstances that I witnessed, a khalifa receives cattle from diverse absentee herders and entrusts them to a single hired herder. The duty of the khalifa and the hired herder is to attract as many cattle as possible. A hired herder who is unable to attract a sufficient number of entrustments may receive less through milk sales. On average, for a herdsman’s salary to be twice his monthly herding salary (10,000 F CFA/month), he would need around 70 entrusted cattle. This estimate is based on the seasonal values of milk sales, average milk-cow in herds, seasonal milk production, and milk-cow retention rates by the owners practised in the region. The compensation gained through cattle entrustment is very small and translates to a subsistence wage with virtually no chance for cattle or money accumulation. Poor families lose herding labour through purposeful reallocation to other productive pursuits (agriculture) and through youth migration to the nearby urban centres, while the rich will often supplement their family labour by hiring herdsmen immigrating from the traditional pastoral families. Youths of the modern sedentary agro-pastoral households have other occupations and some go to school. The herdsmen cannot fulfil the increased tasks placed on them with respect to herding (fewer herdsmen to cover the same tasks), while their chances of being compensated for their labour are less. I observed that under these circumstances the quality of herding has suffered, environmental stress has been augmented, and productivity of the herds has declined. For the herdsmen whose herds have drastically declined, as is the case in some traditional pastoral families, meeting their household commitments fully is basically unachievable. This has a long-term negative effect on the herdsman’s morale. Herd owner/middleman/hired herder relationships based on entrustment are inherently plagued with misunderstandings, especially with the modern sedentary pastoralists who need to hire labour. The herd owners are constantly anxious to know whether the khalifa or hired herder herds the livestock in good conditions that can permit herd growth and animal security. At the same time, the hired herdsmen expect regular compensations from the herd owner for the efforts they engage in to sustain the livestock and protect it from thieves. However, in spite of the efforts of the hired herdsmen, they may be deceived by not being compensated adequately, particularly if the animals destroy crops. The modern sedentary pastoralists suffer most because, unlike their nomadic brothers who entirely devote their time to taking care of the livestock, the modern herdsmen have to pay for labour. The modern herdsmen invest more money in compensating hired herdsmen and purchasing cotton-seed cakes. In order to maintain cordial relationships, herd owners have to appreciate the efforts engaged by the hired herdsmen or the middlemen, and the hired herdsmen should also obey the instructions of the herd owner. However, this is not always the case, as the hired herdsmen are usually disappointed and are regularly on the move in search of better herd owners, whom they may never find. Rural labour in general is poorly compensated in developing countries, and exploitation is a common phenomenon—because, as I observed, justice here is not for the poor.

The movements made between encampment points off the floodplain during the rainy season begin with the first rains. The transhumance herdsmen leave the floodplain, moving with separate herds either to Moutouroua (around 140 kilometers) or to Mindif (around 100 kilometers) to the west of the floodplain. The decision for the herdsmen to leave the floodplain is generally made by the absentee herder and at times indirectly
through his \textit{khalifa}. Once the herdsmen leave the floodplain, all travel movement decisions are made by the herdsman himself. In fact, a number of herdsmen lead the herd to a different destination than that specified by the absentee herder or his \textit{khalifa} during their return from the floodplain. They justify their actions by making their priority the taking of the cattle through areas endowed with fresh pastures and water. Absentee owners prefer Fulbe \textit{ladde} herdsmen whom they think are very skillful and strongly attached to their animals. The Fulbe \textit{ladde} herdsmen can spend more time in the floodplain pastures during the dry season, and although this increases hardship for herdsmen, the livestock benefit most. In addition, frequent travel movements and avoidance of other people and livestock are viewed as good herding behaviour. All of these characteristics require greater effort, attention, social isolation, and physical hardship on the part of the herdsmen, which in the end improves the chances for higher herd productivity by distributing grazing pressure more widely across the region.

\section*{Pastoral techniques}

In this part, I will make some comparative analyses to distinguish between traditional and modern pastoral practices, both at the technological and spatial levels. Such a distinction is pertinent, as the herders have developed different production goals and varying sources of livelihood over time (Table 7.5).

\begin{table}[h]
\centering
\begin{tabular}{|l|p{4cm}|p{4cm}|}
\hline
\textbf{Elements for distinction} & \textbf{Modern pastoralism} & \textbf{Traditional pastoralism} \\
\hline
Use of feed supplements for cattle & Intensive during periods of pasture scarcity & Selective feeding of a few lactating and weak cattle \\
\hline
Use of modern veterinary medicine & Always used & Priority to ethno-veterinary /traditional treatment of cattle \\
\hline
Participation in cattle vaccination campaigns & Full participation due to awareness & Participate to obtain transhumance permits \\
\hline
Water source for cattle during the dry season & From waterholes (\textit{mares}) and wells & From natural streams, lakes, and occasionally from waterholes when negotiations are fruitful \\
\hline
Access to farm residues & Regular, mostly from owned farmlands & Little, through buying of harvested farmlands, and at times no access \\
\hline
Level of sedentarization & Permanent except for transhumant cattle & Temporary, regular mobility of man and cattle \\
\hline
Land ownership & High in the neighbourhood of settlements & None, use open access lands \\
\hline
Sources of livelihood & Diversified & Cattle herding \\
\hline
Degree of collaboration with local authorities & High and regular & Only when necessary, prefer to avoid them \\
\hline
Level of absenteeism & High & Non-existent \\
\hline
Production goals & Profit-oriented, cattle sales made for economic gains & Identity, way of life, social security, sell cattle to meet basic household needs \\
\hline
Intra-household cattle transfer/exchange & Practically non-existent & Present but declining among people of same lineage \\
\hline
Approach to environmental difficulties & Endowed with technology to solve environmental difficulties & Endowed with skills to temporarily deal with environmental uncertainties \\
\hline
\end{tabular}
\caption{The distinction between modern and traditional pastoralism}
\end{table}

Source: Personal field findings
In the ensuing analyses, therefore, the spatial and technological differences in pastoral management that fluctuate according to seasons dictated by pastoral resource abundance or scarcity have been assessed. The widest gaps between modern and traditional pastoralism occur during the peak dry-season period, when water and pastures are most scarce, and the reverse holds during peak rainy season.

Herd management in traditional pastoralism
The traditional pastoralists practise mobility in response to ecological, social, and economic conditions in search of better pastures and adequate water supply for their cattle as well of land that is free of cattle diseases and conflicts. The nomads give the impression of dancing to the tune of deterministic environmental influences as well as socio-economic circumstances, unlike the modern pastoralists who deploy substantial efforts to harness the environment for their use. Sandford (1983) and Rass (2006) confirmed earlier that traditional herds are managed subject to environmental conditions and for their species, breed, and production diversity rather than for single products with value on commercial commodity markets. In like manner, the traditional pastoralists of Far North Cameroon manage and respond to the variable productivity of the Sahel through maintaining diversity of their herds (cattle, sheep, goats) and by regularly adjusting to the dynamic ecological conditions. The practice of mobility has enabled the herders to move their stocks in order to escape the ecologically localized scarcity in time and space within the region. It has also been observed elsewhere that the flexibility of the pastoralists in accessing different common resources is an important risk-coping and/or management strategy (Agrawal, 2001). The livestock are cyclically moved to the seasonally varied grazing lands, from the Maroua plateau zone to the Waza Logone floodplain for the survival of both the herds and the people, a movement in search of water and forage dictated by the distribution of patchy pastoral resources.

To the traditional pastoralists, cattle ownership is the single and most important means through which an individual ensures his/her membership in the traditional pastoral community, while a loss of cattle may suddenly end this lifestyle. This means that the first aspiration of a pastoral nomad is to own a herd in order to establish himself in the community in which he lives. The degree to which he afterwards acquires prominence and esteem will depend on his ability to distinguish himself within the nomadic community through cattle wealth. This makes the traditional nomadic herders highly sensitive to the social and political conditions of the environment because they escape from any environment that poses a threat to the existence of their herds. Culturally, their way of life is guided by a number of codes of conduct/traditional beliefs, and any serious violation of such codes can result in a reduction in the fertility and milk production as well as an increase in the mortality of the herd upon which the offender is dependent. The loss of cattle is tantamount to loss of identity among the purely traditional nomadic herders, and they do everything to avoid such a misfortune. The nomadic communities therefore deploy multiple strategies to assure the survival of their cattle (the basis of the livelihood of their households) in the face of changing ecological and socio-economic conditions. The interplay of changing ecological and socio-economic conditions thus determines where a nomadic family locates its camp.

10 Traditional herders perpetuate beliefs that they think when violated may considerably diminish or wipe out herds. Such beliefs include chewing fried corn or roasted corn and drinking milk at the same time, chewing beef and drinking milk at the same time, allowing a woman to buy meat in the market, selling out a "cursed" animal (keytagee), etc.
and how they adjust to circumstances, including amongst other strategies a drift towards pastoral modernization.

In the traditional pastoral set-up, the herder is the owner and he exercises direct control over his herd. He tries to maintain a diverse species of livestock (mainly cattle, with some goats or sheep) with the main aim of meeting household needs and, at times, of fitting into the environment in which he lives. Each animal has a role to play and fills a specific objective of the pastoral family, either in meat or milk production. Cattle are therefore a livelihood security and in fact serve as the only bank account, to be secured by all possible means. What has sustained this livelihood security over the centuries is the flexibility in herd and environmental management, ensured through mobility. Contrary to the view of some development experts, the objective of traditional pastoralists is not just increasing their herd size; they also have other objectives, such as increasing milk yields, maintaining a balanced herd structure to ensure productivity and re-productivity, and selective breeding to ensure disease resistance. A family with young children, as among the Woila’en, gives priority to milk animals, while a family of the Shoa Arabs, in spite of its composition, gives priority to marketable animals.

According to these traditional pastoralists, herding as a daily routine is part of their lifestyle and custom. Herding by the traditional pastoralists, when clearly observed, is not only guarding and conducting livestock; it reflects a science of environmental mastery, knowing where and when to take cattle to the field, reading the minds of the cattle to know where they prefer to go, and considering the practice part of one’s culture. During my stay with the traditional pastoralists, I saw how the good herders were able to identify all the cattle by name, by cry, and physically. The herder merely glances at the herd to know that all the animals are present or one is missing. They deploy vocal instructions to communicate with their livestock. When an animal cries, the herder is able to know which one and why it did so. The cry of an animal has a meaning. Drent (2005) acknowledged the interpretation of sounds made by cattle by the traditional herders (‘Ouff’ as the sound made by a cow that has fed to satiation). They can detect when an animal has delivered, lost its kid, is sick, or is attacked by a wild animal or a thief. They can also read from the behaviour of the cattle when transhumance time is due. Direct and indirect communications with the animals are irrefutable skills and strategies that these herders use in herding and in range management. Taking the animals for night grazing, especially during moments of pasture scarcity, is commonly practised.

The traditional herders also practise lucci (herd splitting), as was mentioned in Chapter 4. Herd splitting is very advantageous to the herders, as it increases the possibility of greater productivity as a result of niche specialization. Livestock competition for the same vegetation is also reduced, and grazing pressure is diminished as each type of livestock is taken to the vegetation that suits it best. Herd splitting and herd diversity are very important techniques used by these herders to ensure productivity and re-productivity both in the short and long term. As regards the division of labour within the traditional nomadic pastoral system, it is guided by the need to feed and protect animals (from thieves and wild animals) and to ensure the economic and social survival of the household. In general, the young and the able-bodied live in temporary settlements looking after animals and defending them against thieves. Herders on lucci often feed on milk, while those who stay behind in larger camps supplement animal products with millet and rice in their meals. In addition, by practising lucci or herd splitting into different groups and keeping them apart, these
herders decrease the risks arising from the spread of animal diseases that may wipe out their herd. The traditional nomadic herders know that there is a high probability of the occurrence of diseases with increased concentration of animals in the same location.

Although men are the major movers in a traditional pastoral set-up, the women also have a role to play. Women and young girls are also strongly involved in herding. They graze particularly the small ruminants (goats and sheep) close to the homesteads or camps. At times milking and particularly milk processing are largely in the hands of women. A woman may take part in the decision of slaughtering or selling an animal, depending on whether she came with animals into the marriage. If she has animals herself, then she has greater powers of decision when compared with one that does not.

**Long-distance transhumance in traditional herding**

In Far North Cameroon, the Waza Logone floodplain, according to the nomadic herders, is the next best alternative grazing ground, highly valued when the plateau zone is deprived of pastures and water in the dry season. Nomadic pastoralists spend about eight months (November–June) in the floodplain and only about four months (July–October) in the plateau zone. Nomadic cattle seem to be ‘addicted’ to the routine floodplain-plateau cyclical movements, to the extent that the cattle ‘inform’ their master when to move. In the Mindif region, particularly in Gadjia and Kobo where cattle and elephants interact in the wet season, I observed that these animals send a clear message to the herders when water and pastures diminish below their liking. As elephants start moving towards the Waza National Park in October, cattle also start moving towards the floodplain. During this period, the cattle become uncontrollable, and nomads just have to follow. However, the movements from one location to another (for fixed transhumance locations) are no longer pleasurable and easy-going as they used to be, due to the multiple hindrances discussed earlier. Some of the hindrances were identified during the Zebu-collar-data robot demonstration in the presence of the herders, which revealed that the traditional pastoralists prefer to retain established migration routes they have developed based on their knowledge of pasture, rainfall, diseases, banditry, insecurity, and national boundaries, as well as access to markets and infrastructure.

The practice of long-distance transhumance is an inherent component of traditional pastoralism, and it requires seasonal displacement of cattle from the high plateau rangelands to the low-lying floodplain. It is thus a form of altitudinal displacement which corresponds to two distinct ecological niches of anchor: from the high plateau wet-season camps to the dry season floodplain camps.

The herders therefore perceive transhumance here as a system of animal management through land-use alternation. As a system of land-use management, the herders indicated to me that it requires both physical and psychological preparations before departure, as listed in Table 7.6. Transhumance is also characterized by advantages and disadvantages, as listed in Table 7.7.

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11Alkali Babaye relates how cattle transmit messages to them (nomads) when it’s time to move to the floodplain. He states ‘even a cow on heat refuses the male to cross her until arrival at the Yaëré. We just follow the cattle’. 
### Table 7.6  The preparation for long-distance transhumance

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
<th>Associated activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site selection</td>
<td>Recurrent activity, fixed sites are maintained by some herders when encroachments do not occur</td>
<td>Site inspection before departure to ensure that site has water, growth of pastures, and vicinity free from cultivated crops (harvested) to avoid conflicts with farmers</td>
</tr>
<tr>
<td>Separation of the herd (lucci)</td>
<td>Lactating animals, sick adult animals, and calves left behind</td>
<td>Young and adult males and dry females are moved ahead with the herd (fit for long-distance trekking)</td>
</tr>
<tr>
<td>Cattle and human requirements</td>
<td>Food, utensils, and household belongings are carried along on the backs of some of the bulls</td>
<td>The animals are accompanied by the herders, herdmans, and the family, both at the hind and front to avoid crop damage along the way. Food is also bought along the way in neighbouring villages.</td>
</tr>
<tr>
<td>Management responsibilities</td>
<td>Herd owner, hired herder, and elderly sons take over decision-making</td>
<td>Prompt decisions are needed during different situations that may occur along the way (conflicts, sale of sick animals, etc.)</td>
</tr>
<tr>
<td>Legal preparations</td>
<td>Grazing permits and vaccination cards are required for movement to be possible from one locality to another</td>
<td>Herders vaccinate their cattle to avoid diseases and to facilitate their recognition in different territories for permission to graze and local tax payment</td>
</tr>
<tr>
<td>Psychological preparations</td>
<td>Muslim herders consult Allah through their marabout and ask for prayers and meditation</td>
<td>Engagement in spiritual activities to reduce stress through sacrifices and prayers</td>
</tr>
</tbody>
</table>

Source: Based on interviews and personal observations

### Table 7.7  Advantages and disadvantages of transhumance

<table>
<thead>
<tr>
<th>Merit</th>
<th>Demerits</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Greater pasture availability at the early stages of transhumance</td>
<td>- Competition amongst herders for pastures results in malnourishment of cattle</td>
</tr>
<tr>
<td>- Greater availability of water</td>
<td>- Herdsmen suffer from poor feeding because they stay far away from food supply zones</td>
</tr>
<tr>
<td>As a form of rotational grazing, it helps to reduce environmental degradation</td>
<td>Great physical stress is endured due to long-distance trekking</td>
</tr>
<tr>
<td>A disease- and conflict-avoidance strategy</td>
<td>- Exhausted cattle are sold at very low prices due to distance from the market</td>
</tr>
<tr>
<td>A means of preparing the youths to face life’s realities related to traditional pastoralism</td>
<td>- Feeble animals may be left to die and abandoned to nature</td>
</tr>
<tr>
<td>A strategy to reduce incidental death of cattle</td>
<td>Poor accessibility to veterinary services and hospitals. People and animals face greater health problems</td>
</tr>
<tr>
<td>Transhumance results in higher calving rate when pastures and water are ensured</td>
<td>Greater livestock theft occurs particularly during lucci due to reduced number of people (manpower) supervising the herd</td>
</tr>
</tbody>
</table>

Source: Based on interviews and personal observations

Although not without constraints, the traditional pastoralists of Far North Cameroon have developed a highly efficient system of livestock production over time. During discussions with the herders, it appeared that the high calving rate that ensured herd growth, cherished the most by the herders, was due to the favourable conditions of transhumance. The herders own breeds adapted to the conditions of the environment and relevant to the needs of their livelihoods and communities. The herders do not just carry out herding by chance; they own livestock species adapted for a set of characteristic, such as tolerance to adverse ecological conditions, milk production, long-
distance trekking ability, colour, fertility, disease resistance, and desired behavioural characteristics. They select the types of animals they desire through genealogy. The species are varied according to the adjustments they need to make for household consumption, trade, and security. Herders make long-term choices between cattle, sheep, goats, and donkeys. Selective breeding within individual species, transhumance, adjustments to daily grazing patterns, and the varying of herd size and composition are all aimed at optimizing foraging in response to rainfall and other local pasture conditions. The herders select settlement sites according to the availability of water, pastures, and fuel wood and do their utmost to avoid hazards, disease, and predators. At the socio-economic level, the traditional herders practise complex social and economic stock exchanges based on reciprocity and shared husbandry knowledge, which help to minimize the impact of cattle theft, disease, and mortality.

Through personal observations and discussions with the herders, I was able to distinguish the other levels of benefits that the traditional pastoralists derive by perpetuating nomadism and transhumance. The system of herding encompasses technical aspects that ensure its social and economic sustainability. As the main activity of this pastoral production system, long-distance transhumance and nomadism reflect an economic rationale and ensure five major functions, which together define the system and its rationality. In practical terms, transhumance and nomadism serve the following functions:

- Obtaining and transferring pastoral know-how indispensable for the overall sustainability of the pastoral production system in its various components—namely, ecological knowledge, techniques in herd and range management, and transfer of indigenous medicinal knowledge.
- Balancing the stock biological reproduction, which relates to the determination of the size and composition of the herd in terms of males and females to ensure its long-term reproduction. An uninterrupted herd growth may ensure a balanced herd size. Improvements in animal healthcare have in recent times led to significant improvement in herd growth.
- Ensuring herd production in different ecological niches, which translates into the number of cattle/livestock needed to provide a sufficient production that ensures at least subsistence for a household.
- Establishing and perpetuating social and economic relations, which is essential particularly in traditional households. This aims at ensuring the continuity of the system of gift and traditional loans, religious and traditional ceremonies. It also ensures sustainability and greater personal prestige and social status through increased cattle numbers and respect for the ancestral traditions of keeping animals.
- Emancipating the young herdsmen, whereby herding as part of the culture is learned, used, mastered, and transmitted from generation to generation.

**Traditional range management**

The mobility of the pastoralists as a form of range management has been subject to a series of challenges by government policy-makers (Agrawal, 2001), who are in favour of Western-style pastoral modernization projects (in the form of ranches). Previous attempts to run ranches in Sahelian Africa, as confirmed by researchers (Markakis, 1999), ended in disruption of the natural process of adjustments that regulate the balance between people, land, and livestock. Pastoral modernization as discussed in this
chapter is not necessarily carried out in the form of Western-model ranches. Pastoral modernization has been studied in this research work as a flexible system where mobility and supplementary feeding are combined to increase productivity.

The regular long-distance movements of traditional pastoralists in search of water and pasture differentiate them from the highly sedentary and less mobile modern agropastoralists who carry out short-distance rotational transhumance and supplementary feeding of their cattle. The patterns of movement of the traditional pastoralists, however, vary considerably, ranging from the constant roaming of pure nomads to the seasonal long-distance migrations of less modernized, semi-sedentary pastoralists. In addition, although the modern pastoralists make visible investments in terms of water and feed infrastructure, the traditional pastoralists also, apart from their regular mobility, deploy a range of indigenous ecological techniques to ensure the survival of their cattle during hard times. They assess the environment not only from seasonal perspectives but also from the forage and water potentials of the landscape, which determine its grazing capacity. The traditional ecological knowledge of the pastoralists has been defined as “the cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission on the relationship of living things with one another and with their environment” (Berkes et al., 2000). Traditional ecological knowledge is therefore more than merely beliefs; it is directed towards gaining a useful understanding of how ecological systems work and interrelate and how predictive outcomes in respect to matters of practical concern can be affected (Freeman, 2004).

The traditional pastoralists use early bush fires as a range management technique, which according to them helps prevent bush encroachment, induces and improves (re)growth (confirmed by Geerling, 1982; De Bie, 1991), and also reduces the chances of parasitic infestations. The herders informed me that they ignite early bush fires at the start of the dry season when pastures still retain some moisture and when temperatures are low, to avoid devastating the whole landscape. The early bush fires carry advantages over late bush fires in maintaining the status quo of the environment, leaving woody species untouched, and allowing fire-sensitive and fire-climax species to flourish. The herders ensure the re-growth of particularly the floodplain perennial grasses (Hyparrhenia rufa), palatable and nutritious enough for cattle after burning (see Chapter 4, ecological influences).

In addition, mobility is not just a simple response to pastoral resource variability but also an efficient range management tool. Mobility in this case is not a disorderly movement, but an organized, well-conceived, and planned movement full of technical know-how that avoids environmental destruction. Herders regularly look for the best pastures, and over-exploitation is avoided because they move out before the pastures are exhausted. They exploit territories best known to them, that have the right pastures, and that they possess traditional rights to exploit and where, in most cases, they have established connections with the local inhabitants. Households, lineages, and friends move in conjunction with one another, communicating before, during, and at destinations, spreading out or closing together as the need arises. The main priorities for the traditional pastoralists in range management rest in their capabilities of accessing good quality water, pastures, and disease-free zones over space and time. These essential ecological factors determine the mobility rhythms and drifts of the herders from areas of scarcity to areas of abundance in their attempt to avert degradation and livestock mortality.
Contrary to the negative perceptions of some development planners, the traditional pastoralists are very skilled, and they use these skills to minimize herd losses. The traditional herders guard cattle against attacks by predators especially during night grazing, by driving cattle against the wind in order to detect the smell of any nearby predators and eventually avoid the path. The traditional herders also carry out night grazing on the dew-wetted pastures in the Waza Logone floodplain. Night grazing is a technique that allows cattle enough time to eat as much as possible in the less nutritive dry-season pastures, to be able to resist the harsh conditions. Night grazing is highly valued by the herders because they know that at night, when dew falls, the dry grass is moistened and easy for cattle to digest.

During discussions with the older traditional herders, I learned that the traditional pastoral range management knowledge is gradually being eroded because more of the younger generation pastoralists are attracted to the urban way of life. However, the imprints of the traditional techniques are still very symbiotic with the environment and may continue to be useful in the future as the elders through learning by doing and storytelling ensure transmission from one generation to the next. Understanding and preserving these traditional techniques is vital in the perpetuation of the traditional pastoral system. Although many of the traditional pastoralists are changing their mode of pastoral production by involving themselves in other income-generating activities, such as diversifying into crop production, commerce, and trade, others continue to manage their livestock in the traditional way, as illustrated by the case of Hamanjam Haman in Figure 7.5.

*Figure 7.5*  The case of Alhadji Hamanjam Haman, floodplain nomad

The traditional pastoralists of Far North Cameroon are unquestionably skilful, and they have over time adopted a cyclical movement adjusted to prevailing conditions in which pasture use is scheduled for specific periods within the same year. The pastures to the west and southwest of Lake Maga (*Giriyage*) and to the east of the lake at Pouss are usually deferred for the later part of the dry season, when the Logone floodplain has
little to offer. As the herders drift to the floodplain in late October–early November, they pass through the Maga pastures but do not graze on them. They move straight into the Logone floodplain to return to the lake borders in March–April, when the floodplain pastures are exhausted.

The cattle also help the traditional pastoralists not to overexploit their environment by refusing to graze in areas that already have plenty of urine and dung deposits.

“When you take cattle where they don’t want to graze, they just run around and get out of control. Next time you wouldn’t take them there”.12

The herders regularly monitor their livestock and the environment for signs that indicate a need to move and the best direction to take. The monitoring of milk yield, calving rate, animal weight, livestock faeces, morbidity rate, and the number of cows in heat is a regular activity of the herders to determine pasture quality. When the pasture quality fails the test of these indicators, they have to move to other locations. It has also been observed elsewhere that traditional pastoralists evaluate pasture quality by taking livestock to the same pastures for seven consecutive days. During this time they examine the soil types, the presence or absence of forage species, the behaviour of livestock (sleeping pattern, eating schedule, and the quality of skin and hair), and the presence or absence of wildlife. Good pastures, for example, support gazelles and wild boars; bad ones are inhabited by brightly coloured lizards; and pastures used by elephants and ostriches are good only in the dry season (Ba, 1982). The use of rangeland monitoring indicators helps to safeguard their cattle from environmental catastrophes. For instance, the deferment of the use of pastures to a later period of the dry season and the capacity to avoid over-grazing or to move just in time result in better rangeland management over the theoretical carrying capacities. The pastoralists avoid areas already used or recently abandoned by others, keep an appropriate distance from one another, and avoid faeces-abundant and trampled zones.

It was also observed during this study that the way the herdsman guides his animals during grazing affects the ability of the animals to eat a variety of forage available over the grazing trajectory. Although the good herder possesses a mental map of the location of pasture types within a 5 to 6 km radius13 from a well-known encampment point, the goal of herding is not to push the animals directly to the best grazing sites. Traditional pastoral herding is methodical, shuttling from the campsite in the morning through pastures, water points, pastures again, and then back to the camp in the evening. What the herder may consider the best pasture may not match the animals’ preferences on a particular day. Even grazing sites preferred by the majority of the herd one day may not prove appealing the next. Grazing demand is affected not only by the characteristics of the grazing site but also by the time of the day and the grazing route prior to reaching the grazing site (forage offered and distance covered). Some herders I discussed this with think that pushing cattle to move at a constant rate and along a constant course agitates them and lowers their grazing effectiveness. Calm animals that are grazing well can be easily disturbed by the behaviour of other animals and humans around them. At any one time, different animals in the herd will require different forage types. Therefore, the primary goal of the herder is to offer his herd a variety of fodder types during the

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12 Alkali Babaye, personal discussions, south of Maga, 2008.
13 The grazing radius of herdsmen was determined by handing two GPS Garmin devices to a herdsman early in the morning and collecting them at the end of the day on return. Herdsmen were taught how to start the second GPS after 6 hours, following the shutdown of the first when the batteries ran down.
grazing period. An experienced traditional herder guides his herd gently by steering animals to move in their favoured route, and by so doing he spares the range from degradation.

The elderly herders usually put the grazing ability of the younger herders to the test. Accordingly, the young good herders often direct their herds along the boundaries of vegetated surfaces, and by doing this they provide a wider variety of forage types to the herd. The young herders are also expected in areas of open view to allow the herd to spread out within a preferred grazing site to make easy foraging. Such a herding style requires a higher level of watchfulness and thoughtfulness throughout the grazing period. The pattern of grazing pressure resulting from conscientious herding is more spread out than that resulting from careless herding. However, whether in the upland plateau or the floodplain, daily grazing movements of livestock are largely under the control of the herd. During the dry season, the herd provides animals with a sufficiently long grazing period to allow cattle to selectively graze and ingest specifically the tough and dry pastures. By the end of the dry season, livestock nutrition is often determined by grazing time offered to the cattle. Therefore, the maintenance of sufficient grazing times for livestock across the year requires long-term, sustained efforts by the herders. However, this form of grazing (through free-range movements), although valued by the traditional pastoralists, is increasingly restrained by population growth, agricultural intensification, and technology change (Boserup, 1965)—a situation that causes them to modernize their herding practices.

Modern pastoralism

As mentioned in the introductory chapter, there are two ways of getting into pastoral modernization: from poverty and from wealth. The wealthy new herders that benefited from the government-subsidized rural investment schemes (Chapter 1) invested heavy initial capital to grab market opportunities in the modernization effort. The poor traditional pastoralists, who must have suffered from pastoral decline, benefited from the infrastructure put in place by the wealthy herders and defunct projects. The poor herdsmen in most cases pay for the services provided through water and vaccination infrastructure or have to group together to afford such facilities. However, according to the data mentioned earlier, most of the modern agro-pastoralists of Far North Cameroon were predominantly nomadic and strictly dependent on pastoral resources subject to temporal and spatial variations. A smaller proportion of the modern pastoralists largely comprised sedentary agro-pastoralists, a few civil servants, NGO workers, and business persons. While many of the modern herders have relinquished the responsibility of herd management to a third party (the khalifa and/or ngainako), a few others still carry out daily cattle herding within the household set-up. The sedentarization of the pastoralists in the Far North of Cameroon actually began in the 1970s and intensified after the droughts of the 1980s, which increased the poverty of families without sufficient stock to maintain an exclusively extensive pastoral subsistence. The impact of the droughts was further amplified by the effects of the earlier creation of large-scale irrigation agriculture and wildlife sanctuaries that took away a significant part of the herd’s dry-season transhumance territories. The creation of the Waza National Park (170,000 ha), the Kalamaloue Natural Reserve (4,500 ha), the Maga Dam (40,000 ha), and the

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14 These chapters on ecological, economic, and socio-cultural influences aim to show the limits to perpetual mobility (new range ecology), which pave the way for modernization.
SEMRY rice irrigation project (13,000 ha), and the expansion of dry-land cropping and peasant rice fields as well as population growth have all together taken over land that was once utilized for dry-season transhumance. In order to cope with the ensuing negative effects of the drastic reduction of these livestock-sustaining resources, the herders had little choice but to change their traditional herding system.

In addition, the downstream consequences of the creation of the Maga Dam were far-reaching: the floodplain became drier and less supportive to transhumant cattle, milk yield diminished, and herders could no longer see their cattle feed to satiation. According to the discussions I had with these herders, traditional nomadic herders began—over the years and also increasingly—with what seemed at first experimental but later became permanent changes in livelihood strategies beyond what they had been used to. This process began with partial-to-permanent sedentarization and the taking up of crop farming activities while still sticking to their pastoral way of life. They resorted to crop cultivation as a means of adaptation to impoverishment, which eventually triggered many other livelihood changes.

The sedentarization of these pastoralists is a direct response to the pressures and exigencies they have been subject to and to which the emerging changes in livelihood and herding strategies are ongoing adaptation processes. This seems to be in line with Salzman’s (1980) ‘model on adaptation and response’, where sedentarization was viewed as a process in which individuals more often than not voluntarily shift their emphasis from one available option or activity to another in response to pressures as well as opportunities. The involvement of pastoralists in crop cultivation coupled with a sedentary lifestyle has reduced the mobility of herds and household members, making them more dependent on market forces and wage employment. Increased sedentarization in this region is thus largely the consequence of a declining livestock-to-people ratio, exacerbated by human population growth and droughts. As pastoral households fell below the subsistence threshold (pastoral decline), they gradually became sedentary in order to engage in other income-earning activities, beginning with crop farming.

The sedentary agro-pastoralists continued to pursue cattle herding in addition to other activities, and their principal purpose was still to maintain stocks, particularly those of greater market demand such as cattle, sheep, and goats. As pastoral modernization progressed within a household and as households’ activities become more market-oriented, the less valuable stocks, including donkeys and horses, disappeared along the line in contrast to what prevails within traditional pastoral households, who need donkeys and horses the most during transhumance. Cattle are mainly kept by the modern agro-pastoralists for milk and beef and most importantly for sale to generate cash. The expansion of cash-crop production must have in one way or the other favoured the rapid insertion of the pastoralists into the agro-pastoral system. The introduction of profitable cash crops such as peanuts, onions, tomatoes, and cotton caused the crop-farming pastoralists to enlarge their sphere of activity and acquire more land for farming and grazing, to arrive at the current state where they are expanding to the detriment of their traditional nomadic brothers in Mindif, Moulvoudaye, and Pétté. With this unprecedented expansion, they have unleashed a process of land privatization to accommodate their growing pastoral and crop-farming activities to the detriment of their less land-attached nomadic brothers.

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Shefu Baba, herder in Makabai who became sedentary in 1985.
Modern pastoral techniques
Within the modern pastoralist households, short-distance rotational transhumance of livestock is practised because of spatial and temporal variability of resource availability resulting from multiple land uses close to homesteads that vary over the seasons. Transhumance, being a seasonal movement of livestock, provides the herders opportunities to exploit pastoral resources made available through unstable environmental conditions. Modern pastoralism in this case is not synonymous with mixed farming because it is not carried out within a fixed base, and the land holdings used for the activity are not entirely owned by the herder. The herders in this system use both the open-access and owned pasturelands/harvested crop fields close to their homesteads. In addition, in contrast to the traditional pastoralists, the modern herders use technology to harness nature to reduce the impact of unpredictable rainfall fluctuations, disease outbreaks, breakdowns of water supply points, and devastating bush fires. Pastoral modernization is considered here as a coping strategy for the unpredictable environmental conditions, where supplementary feeding becomes an alternative to pasture scarcity and where artificial waterholes (mares) replace natural streams.

Short-distance/rotational transhumance
Short-distance transhumance and rotational grazing are practised by the modern pastoralists in contrast to the long-distance transhumance of their nomadic brothers, as illustrated by the case of Alhadji Booderi Garga (Figure 7.6). Rotational grazing carried out on a seasonal basis permits agro-pastoralists to cultivate lands around their homesteads in the wet season when cattle are away. Cattle dung helps fertilize the lands close to the homesteads, as cattle are fed and/or enclosed in these locations. Water is provided to cattle during the heart of the dry season through deep wells, where water is extracted by water-pump machines and pumped into concrete-wall basins for cattle to drink. During this difficult period of pasture scarcity, cattle are given supplementary feeding in the form of cotton-seed cakes, cotton hulls, and millet stalks.

Short-distance rotational transhumance is a herd management method adapted by the herders and it seems to me that this technique is in response to the potentials offered by the modern herder-harnessed environment and the production of the natural vegetation. The system allows, through the movements of livestock, the balanced use of the various plant species. In addition, by practising rotational transhumance, the herders ensure that localized pressure over resources is reduced (alternative carrying capacity stabilization), as—in addition to feed supplementation—only a limited number of animals are allowed to graze a given pasture land. In fact, seasonal rotation of livestock makes possible the restoration of pasture in one locality as the herd is moved to another locality and as they stay there for a prolonged time. Modern sedentary agro-pastoralists move only cattle and the herdsmen within a given vicinity, while traditional nomadic households move with the entire household and cattle over great distances.

In strictest sense, modern pastoralism is not very intensive, as can be imagined. It still remains an extensive system of pastoral production practised by sedentary agro-pastoral groups, who rotate the grazing locations of their animals according to seasons and pasture/fodder availability over a few kilometres from their permanent homesteads (5 to 10 km, while traditional pastoralists may cover over 180 km a year according to Zebu collar data results).
Figure 7.6  The case of Alhadji Booderi Garga of Markabai, Maroua neighbourhood.

<table>
<thead>
<tr>
<th>MAKABAI-MAROUA</th>
<th>MOUTOUROUA</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Use of cotton-seed cakes, cotton hulls, and millet stalks for supplementary feeding of cattle</td>
<td></td>
</tr>
<tr>
<td>-Open-field grazing,</td>
<td>-Cattle feed on natural pastures in open fields,</td>
</tr>
<tr>
<td>-Water from deep wells with the help of water-pump machines</td>
<td>-Drink water from natural streams and waterholes</td>
</tr>
<tr>
<td><strong>February to May</strong></td>
<td><strong>June to October</strong></td>
</tr>
<tr>
<td><em>Hot dry season (pastures and water most scarce)</em></td>
<td><em>Wet period of abundant water and pastures</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GAZAWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Open grazing on harvested cotton and peanut farmlands,</td>
</tr>
<tr>
<td>-Water obtained from wells and artificial mares</td>
</tr>
<tr>
<td><strong>November to January</strong></td>
</tr>
<tr>
<td><em>Cold dry season</em></td>
</tr>
</tbody>
</table>

In addition to supplementary feeding of cattle and water provision techniques deployed, the only practice within the system, which reflects an intensive character is the stabling of cattle for fattening, but this involves few animals per household (average of 3 per household in villages and peri-urban areas). In addition, the modern pastoralists deploy a range of techniques to sustain their cattle during periods of pasture and water scarcities. These techniques include water provision techniques, feeding techniques, and feed storage and feed transportation techniques.

**Water provision techniques**

Modern pastoralists have, over time, developed several techniques (Table 7.7) of water provision for their cattle as an alternative to open-river watering. Instead of using surface water as the traditional pastoralists do, underground water has become a major resource to the modern pastoralists. Private and communal wells are dotted here and there, and dug for a single purpose: to provide water for cattle. Over time, however, private well owners have developed a multi-functional character, providing water to households and for irrigation farming. The private well owners with their water pump machines carry out irrigation agriculture close to their wells. They accord greater attention to market gardening over the provision of water to cattle. However, market gardening is becoming more profitable and is certainly going to increasingly occupy more space near water sources, a situation which will eventually become a limiting factor to pastoral modernization. When this happens, poorer modern pastoralists may be edged out or be forced to further group together to be able to afford well-digging, water-pump machines, fuel, and manpower to manage the system. Studies in other areas show that pastoralists ensure access to water and pasture in dry lands by digging their own wells and watering points (Rass, 2006). For example, Thébaud and Batterbury (2001) found that in customary systems and during the dry season, herds need to stay within a radius of 5 to 15 km around the wells to be regularly watered. Implicitly, therefore, access to pastures is determined by rules of access to wells. The introduction of modern hydraulic systems (boreholes particularly since the 1960s and cement-lined wells since the late-1970s and early-1980s) has therefore modified property regimes over water and
pastures, with wells mediating access to pastures. The adoption of modern wells has also increased the number of animals supported by one water point. Since different groups of users may use the same water, the pastoralists have developed regulations governing access to the resource, whereby those having priority rights16 of use are also responsible for the sound management of the resource (Niamir-Fuller, 1999; Toulmin, 2002).

Table 7.8 Water provision techniques

<table>
<thead>
<tr>
<th>Technique used</th>
<th>Modern pastoralism</th>
<th>Traditional pastoralism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual wells of sandy-mud-built basins</td>
<td>Highly used when waterholes dry out during peak dry season</td>
<td>Open-lake and river watering of cattle in the Maga and Logone areas</td>
</tr>
<tr>
<td>Water-pump machine wells of concrete-wall-built basins (usually private investments)</td>
<td>Highly used by peri-urban pastoralists on a drink-and-pay basis.</td>
<td>Used by traditional pastoralists on a strictly temporary basis, particularly during transit</td>
</tr>
<tr>
<td>Extensive waterholes (<em>mares</em>) where water-pump machines are used to extract water and pump it into concrete-wall basins for cattle to drink</td>
<td>Large investment; used where the pastoralists are organized and supported. Operates on a drink-and-pay basis</td>
<td>Relatively absent</td>
</tr>
<tr>
<td>Open-access waterholes that can be natural or artificial and where water-pump machines are not used</td>
<td>Popularly used but temporary; present at the end of the wet season</td>
<td>Popularly used during transit but temporary; present at the end of the wet season</td>
</tr>
<tr>
<td>Pipe-borne water with concrete-wall-built basins</td>
<td>Urban pastoralists of Maroua</td>
<td>Non-existent</td>
</tr>
</tbody>
</table>

*Photo 7.1* Water-pump machine and wells  *Photo 7.2* Pipe borne water

**Water management projects**

Water management has been and is still an issue of great concern for pastoralists, crop farmers, and the rural population in general. Individual and collective actions are undertaken to ensure water supply through the creation of wells, waterholes, and even small dams to furnish water for man and animals. Table 7.9 illustrates some important water projects realized so far in the region.

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16 They apply the notions of tenure and territoriality (Van Dijk, 1996) to assert control over local resources.
Table 7.9  Overview of water projects

<table>
<thead>
<tr>
<th>Location</th>
<th>Number &amp; Type</th>
<th>Institution responsible for its creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindif-Moulvoudaye</td>
<td>11 Waterholes</td>
<td>9 by USAID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 by PRCPB&lt;sup&gt;17&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 by AEM&lt;sup&gt;18&lt;/sup&gt;</td>
</tr>
<tr>
<td>Bogo</td>
<td>1 Waterhole 5 Wells</td>
<td>Common Initiative Group(GIC) of Bogo</td>
</tr>
<tr>
<td>Pette</td>
<td>2 Waterholes</td>
<td>1 by SPHP&lt;sup&gt;19&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 by CBLT&lt;sup&gt;20&lt;/sup&gt;</td>
</tr>
<tr>
<td>Zina</td>
<td>1 Waterhole</td>
<td>By CBLT</td>
</tr>
<tr>
<td>Guirvidig</td>
<td>1 Well (out of use since Maga Lake was created nearby in the early 1980s)</td>
<td>MINEPIA&lt;sup&gt;21&lt;/sup&gt;</td>
</tr>
<tr>
<td>Maroua and Neighbourhood</td>
<td>24 Water-pump wells (7 zones) 3 Pipe-borne water basins</td>
<td>Individual investments</td>
</tr>
</tbody>
</table>

Source: Field findings

Barbed-wire fences protected the community-constructed waterholes I visited, by preventing cattle from getting direct access to the water. A water-pump man is recruited to ensure regular watering of cattle, while the waterhole is maintained through cooperation of the users. Herders contribute according to the sizes of their herds. Water-pump machines are used to pump the water from the waterhole to nearby concrete-built basins. For some of the waterholes, the barbed wire is falling apart and sedimentation has greatly reduced their water holding capacities. Water collection into the waterhole comes from direct precipitation and from runoffs channelled to the waterhole. Before the runoff enters into the waterhole it passes through a filter basin of cement walls whose floor is full of rock-spread that reduces the velocity of the water and allows the deposition of sediments. The filtered water then trickles over a concrete surface into the waterhole for storage. In populated neighbourhoods such as in Mindif, man ends up using more than 60 per cent of the water intended for cattle. Waterholes that lasted for more than 3 months now last for less than 2 months owing to human use and high evaporation rates.<sup>22</sup> In dry-land and rocky areas, small dams are dug within river channels to provide water for cattle during the dry season. However, fencing these zones is difficult, and cattle frequently gain access to the water, leading to its depletion. In addition, these dams are susceptible to high sedimentation and erosion by the variable rainfall of the region, since they are found within the river channel.

The creation and management of waterholes involves very large investments. Except for USAID and CBLT, which both constructed waterholes free of charge, other organizations demand the financial participation of the herders. Herders were requested to make financial contributions of 20 to 25 per cent of the total construction costs, estimated at 8 million F CFA for a well and 50 million F CFA for a waterhole. In general, a contribution of 1 to 2.5 million F CFA was made to buy a water-pump machine, and build a barbed-wire fence around the waterhole and concrete-wall basins for cattle to drink. In contrast, traditional pastoralists are organized differently and have

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<sup>17</sup> Projets de réhabilitation et de création de points d’eau pour bétail.
<sup>18</sup> Association des Eleveurs de Mindif.
<sup>19</sup> Section des pâturages et de l’hydrologique pastorale, MINEPIA.
<sup>20</sup> Commission du Bassin du Lac Tchad.
<sup>21</sup> Ministère d’Elevage, de la Pêche et de l’Industrie Animale.
<sup>22</sup> Analysis made from meteorological data show a tendency of increasing temperatures.
no permanent point of anchor to create and manage a waterhole.

*Feed storage techniques*

The modern pastoralists deploy a series of techniques of fodder and feed storage not used by the traditional pastoralists. These techniques are widely varied and are aimed at protecting forage resources by all possible means till peak dry season, when forage/feed in open fields is hard to come by. Millet/sorghum stalks, cotton leaves, cotton-seed cakes and hulls, and peanut leaves and stems constitute the principal fodder used in feeding cattle and other ruminants. During this period (April–May), sedentary cattle are at risk of starvation and death. These feed/fodder storage techniques are outlined in Table 7.10.

*Table 7.10 Feed storage techniques*

<table>
<thead>
<tr>
<th>Storage technique</th>
<th>Underlying motive for the technique</th>
</tr>
</thead>
</table>
| Suspension on poles’-supported roof and on roofs of homes | -To prevent attack from termites  
                           -To keep away from small ruminants and cattle |
| Dry, sandy riverbed storage, surrounded by thorny branches | -To prevent attack from termites  
                           -To keep away from small ruminants and cattle  
                           -To keep millet stalks moist due to water vapour evaporating from beneath the sand, so that they can be easily chewed by cattle |
| Large rock-surface storage surrounded by thorny branches | -To prevent attack from termites  
                           -To keep away from small ruminants and cattle |
| Warehouse storage of expensive cotton-seed cakes and hulls | -To prevent access by bandits  
                           -To protect from the harmful effects of the weather (intense sunshine that may deplete the nutrients) |

Source: Field data

*Photo 7.3* On sandy river bed  
*Photo 7.4* On a large rocky surface

*Photo 7.5* Suspended on poles  
*Photo 7.6* Suspended on a roof
Feed transportation techniques
Taking the feed to the cattle necessitates human effort to make it available in the quantity and time. The feed is thus transported both manually and mechanically to the feeding spots, as indicated in Table 7.11. The methods vary according to the possibilities of the pastoralists and the distance from the source area. Millet-stalk retailers\(^{23}\) have recently emerged in the Maroua neighbourhood, carrying millet stalks from house to house for sale to the herders who cannot produce these themselves. Pick-up trucks are used to bring in large quantities of millet stalks from rural areas to peri-urban and urban areas for sale to the pastoralists. In like manner, pick-up trucks are deployed in the supply of cotton-seed cakes and hulls to distant herders. The provision of cotton-seed cakes and hulls to herders has become a very lucrative business.

Table 7.11 Feed transportation techniques

<table>
<thead>
<tr>
<th>Transport type</th>
<th>Suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual: As head load; use of bicycle, ox- or horse-driven cart, donkey, etc.</td>
<td>- No fuel or much repairs needed</td>
</tr>
<tr>
<td></td>
<td>- Affordable by many</td>
</tr>
<tr>
<td></td>
<td>- Useful over short distance</td>
</tr>
<tr>
<td></td>
<td>- Low quantity</td>
</tr>
<tr>
<td>Mechanical: Use of a motorbike or pick-up vehicle</td>
<td>- Costly due to fuel and repairs</td>
</tr>
<tr>
<td></td>
<td>- Suitable over long distances</td>
</tr>
<tr>
<td></td>
<td>- Could be used to carry weak cattle</td>
</tr>
<tr>
<td></td>
<td>- Higher quantity</td>
</tr>
</tbody>
</table>

\(^{23}\) In Makabai, Sanda bought a donkey from money obtained in millet-stalk retailing, and this has increased his capacity in providing more millet stalks to the herders. In the evenings at about 5pm he could be seen on his donkey shuttling from one home to another selling millet stalks to herders.
**Feeding techniques**

The development and use of feeding techniques (Table 7.12) also vary according to means and locality. Rural modern pastoralists are not very different from urban modern pastoralists (except for pipe-borne water availability) because they basically use the same methods. Wealthier pastoralists use concrete-wall-built elongated basins in which they spread the feed for cattle to eat. Priority is first given to weak and lactating cattle before the others. Metal-built basins are the most popular in the region as the material is cheaper. In most cases, the feed is mixed cotton-seed cakes and hulls, with more hulls than cotton-seed cakes because the latter are very expensive for some herders.

Feeding with millet stalks usually follows a certain procedure. The millet stalks are spread over the ground surface and small ruminants (sheep and goats) are allowed to eat the softer and more palatable leaves first before the cattle are provided space to eat the tougher stems. According to the herders, this is a form of objective feed rationing that occupies the cattle in chewing hard, sweet stems in one place overnight, causing them not to go on the rampage in the neighbourhood. This also justifies the fact that the modern pastoralists do not go herding at night, in contrast to the more mobile traditional pastoralists who accord greater value to night herding.

**Table 7.12  Feeding techniques**

<table>
<thead>
<tr>
<th>Technique</th>
<th>Feed type</th>
<th>Suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of concrete-wall-built elongated or round basin</td>
<td>Cotton-seed cakes / Cotton hulls</td>
<td>Expensive but suitable for cattle feeding</td>
</tr>
<tr>
<td>Use of metal-built elongated or circular basin</td>
<td>Cotton-seed cakes / Cotton hulls</td>
<td>Cheaper but cattle risk getting wounds at the mouth and feet</td>
</tr>
</tbody>
</table>
| Open-ground spreading of feed                   | Millet stalks / Peanut leaves and stems / Cotton-seed cakes / Cotton hulls | -Risky because cattle trample on the feed  
- The possibility of disease spreading is very high  
- Good for millet-stalk feeding                                                                  |
| Use of a small bag tied to the mouth of the animal | Cotton-seed cakes / Cotton hulls / Millet grains | Selective feeding of individual, usually weak and lactating, animals. Also used by traditional pastoralists.                              |

Source: Field findings

**Photo 7.11**  In a metal basin  **Photo: 7.12**  In a concrete-wall basin

The difference in technology between modern and traditional pastoralism, as can be seen from the foregoing analysis, is very strong and in fact strongest in the dry-season
period, when water and pasture scarcities are most pronounced. During this period, a series of techniques as already enumerated above are deployed to extract surface and ground water and make it available for cattle. Much money is also spent to obtain supplementary feed for cattle in the form of cotton-seed cakes, cotton hulls, and millet stalks, in contrast to the traditional nomadic herding strategy of open pasturing and watering of animals.

Gaps in the pastoral systems

Modern and traditional pastoralism in the Far North Region of Cameroon exist on various scales, with overlaps due to a contiguous process of change affecting all levels. The differences that prevail between one form of pastoralism and the other are a matter of the extent of spatial and technological adjustments to seasonal fluctuations of pastures and water. However, at the level of the practices carried out and depending on the period, a drift from a very high to a very low contrast is noticeable between modern and traditional pastoralism in the wet season. Thus, the gap that exists between modern and traditional pastoralism is subject to fluctuations over seasons, space, intensity, and extent, being widest in the dry season and very narrow in the wet season. The disparity between the systems is dictated firstly by water and then by pasture availability/scarcity. However, the production objectives of the systems and the livelihood options and strategies of the households maintain a wide gap throughout the year.

In distinguishing the systems through characteristics’ definition, of the various forms of pastoralism carried out in Far North Cameroon a comprehensive understanding of how each operates and where overlapping occurs becomes possible. Traditional pastoralism occurs in three forms:

- **Nomadic pastoralism**, in which a very large number of cattle are herded by pastoralists who are on a perpetual move and who do not carry out any form of crop farming.
- **Absentee nomadic pastoralism** or commercial nomadic pastoralism, in which the herders herd the cattle of rich absentee cattle owners and may themselves own few cattle. They also move from place to place in the same way as the nomads but under the watchful eye of the herd manager or the *khalifa*. The *khalifa* may himself be a nomadic herder. Most of the hired herdsmen are of nomadic origin and have the necessary skills and are used to the lifestyle.
- **Transhumant pastoralism**, in which the pastoralists have begun a partially sedentary lifestyle, cultivating during the wet season and entire households going on dry-season transhumance when water and pastures are exhausted within the vicinity of their settlements.

Traditional pastoralism is in this case characterized by long-distance movements of herdsmen and their cattle in search of pastures and watering points. Nature dictates the rhythm of their movements, and very little efforts are made to tame nature in their pastoral production process.
On the other hand, modern pastoralism occurs in two forms:

- **Transhumant agro-pastoralism**, in which the sedentary pastoralists carry out crop farming and carry out a cyclical transhumance in different locations during the wet season and the cold dry season. The short-distance transhumance carried out during the wet season enables the herders to cultivate the vicinity of their settlements when the cattle are away. The cattle return only during the dry season to feed on farm residue and supplementary feed when surrounding pastures are exhausted.

- **Agro-pastoralism of open grazing but restricted mobility**, in which both man and cattle have stabilized, man having a fixed home and the cattle also having permanent but temporarily varying grazing area. During the wet season, the cattle move to the adjacent hills and return to the village in the dry season after harvest. This can be seen as a short-distance wet-season transhumance of restricted mobility to fixed locations, where the eye of the cattle owner is never far away from his herd. It is a system that has a close relationship with mixed-farming, but is not mixed-farming itself because of the variability of land ownership and exploitation. Apart from the dry-season night paddocks and individual farmlands where millet stalks are collected, the rest of the pastoral space is communally owned and used. The most important characteristic of modern agro-pastoralism of restricted mobility is the development of the night paddock manuring farming system. In this case, the manure collected from the night paddocks is spread out on nearby farmlands to improve soil fertility, and the paddocks are also not spared from cultivation. The supplementary feeding of cattle by millet stalks, cotton-seed products, and other farm residues is also a common phenomenon. Multiple techniques are also employed to ensure water provision to cattle, as illustrated above.

The common ground between modern and traditional pastoralism can be found in the practice of transhumance, as illustrated in Figure 7.7. As traditional pastoralism progresses towards agro-pastoralism, it passes through a series of transitional stages that involve a high degree of transhumance. Agro-pastoralism of open grazing and restricted mobility is considered here to be the system that has attained a high level of technological transformation.

As mentioned earlier, the spatial gap between modern and traditional pastoralism is a vital element to consider if a definite determined distinction should be made. In line with this reasoning, a seasonal herding pattern has been taken as the best determining line, as illustrated in Figure 7.8 and Map 7.1 showing the spatial dividing line, although with some flexibility between the two systems.

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24 Grazing space used during various seasons of the year. In the wet season, both the modern and traditional pastoralists share adjacent pastures and watering points, while in the dry season they stay far apart. This implies that competition is stiffer during periods of scarcity.
The adoption of the seasonal pattern for distinction clearly shows the position of traditional pastoralists’ cattle in the floodplain areas during the dry-season period, while the modern pastoralists’ cattle are found within and at the fringes of major agricultural villages, particularly in peri-urban areas. However, a few seasoned and well-adapted traditional pastoralists, notably from Nigeria (the Uuda’en), who could be termed ‘peripheral nomads’, share territory with the modern pastoralists by buying harvested farmlands and water for their sheep and cattle.

The spatial gap comes almost to a close during the wet season when traditional pastoral cattle must return from the floodplain to the highland-plateau wet-season grazing grounds to graze on the same grounds with the modern pastoral cattle. The most important differences that remain at this time lie in the objectives of the herders, their lifestyle, and their livelihood (Chapter 3).
Spatial variability of pastoral resource use

The utilization of pastoral resources shows some remarkable variations when the different pastoral groups and their practices are spatially juxtaposed and compared. In the dry season, except for entrusted cattle, the modern pastoralists graze within or quite close to their homesteads. In contrast, the traditional pastoralists travel to the floodplain to enable their cattle’s access water and pastures, as illustrated in Figure 7.9. The principal relations that remain between some of the modern pastoralists and the traditional pastoralists are the cattle entrustment linkages.
In the wet season, as mentioned earlier, the disparity between the two systems narrows, as illustrated in Figure 7.10. The cattle of the modern pastoralists and those of the traditional pastoralists graze and drink water in the same areas within the upland plateau of Pétté, Mindif, Dogba, and Moulvoudaye. Except for individually carved-out or restricted zones as in Mindif, they have equal access to both water and pastures.
Conclusion

The analyses in this chapter were based on the hypothesis that modern pastoralism is sustained by human efforts that surmount ecological adversities with technology in water and fodder provision for livestock. The discussion of the results brought out the technical, ecological, and organizational differences between modern and traditional pastoralism. The pastoral techniques deployed by the modern pastoralists to sustain pastoralism involve the digging of wells and mares, the use of water-pump machines to pump water into concrete-built basins, the use of farm residues, and the use of cotton-seed cakes and hulls. A variety of feed storage, transportation, and feeding techniques, as was discussed, have been developed by these pastoralists with the main aim of enhancing pastoral production. The spatial and technological gaps between these two pastoral systems are widest in the dry season and narrowest in the wet season.

While the sedentary ago-pastoralists dominate in the pastoral modernization process, the nomadic pastoralists still cling in a declining manner to their traditional methods of cattle herding. The traditional pastoralists deploy a range of techniques to sustain their cattle and perpetuate their livelihood in this difficult environment. The practice of perpetual mobility, long-distance transhumance, and herd-splitting (lucci) by the traditional pastoralists in an attempt to exploit different ecological niches helps them to compete fairly for pastures over a wider area without necessarily damaging the environment. They also monitor milk yield, calving rate, animal weight, livestock faeces, morbidity rate, and the number of cows in heat to regularly determine pasture quality. When the pasture quality fails the test of these indicators, they have to move to other locations. The movement of cattle against the wind to avoid predation during night herding is also a time-tested practice that yields positive results for the herders in predator-prone environments. If today traditional pastoralism still survives, it is thanks to its flexibility, which is, however, gradually undermined by mounting ecological and socio-economic difficulties.

The next chapter focuses on the theoretical and policy implications of the research results as well as perspectives on pastoralism. Although traditional pastoralism is being squeezed out by ecological, economic, and socio-cultural constraints (limits to perpetual mobility advocated by the new range ecologists), it is still likely to survive for some time. However, modernization in response to emerging market and technological opportunities (Boserupian view) will be the prevailing system in the future. Nevertheless, both systems still sustain livelihoods.