

# The Elusive Granary

Herder, Farmer, and State in Northern Kenya

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Peter D. Little



This book examines the social and political dimensions of Africa's current food and environmental crises. Written by an anthropologist, it focuses on the changes and the problems faced during this century by one particular ethnic group, the Il Chamus (Njemps) of Kenya, and traces the area's transformation from a food-surplus "granary" in the late nineteenth century to one that is currently dependent on food imports and aid. By documenting the history, social structure, and ecology of the area, Peter Little is able to show that the crisis among the region's herders is rooted in processes that preceded the devastating droughts of the past decade. Drought is in fact a "normal" state of affairs in semiarid Kenya, but the processes that have inhibited herders from adequately coping with it are not. These trends include growth in absentee herd ownership, which competes for local pastures; engagement in wage labor, which constrains local labor supplies; and a form of sedentary pastoralism that overuses certain range areas while underusing others.

The author analyses the relationships between social, political, and ecological variables, and he treats topics such as land management, food production, marketing, state policy making, and labor organization in an integrated fashion. The concluding discussion on the contradictions of development shows how little government and foreign donor programs have done to alleviate poverty and underdevelopment in the area.

This is a book that challenges many of the stereotypes about African social life, agriculture, and ecology, and it will be of interest to anthropologists, academics and practitioners in development studies, historians, ecologists, and geographers.



THE ELUSIVE GRANARY

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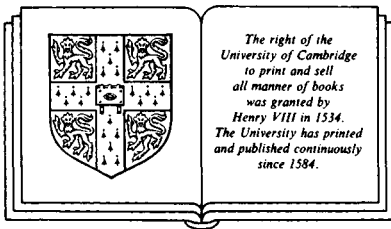
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PETER D. LITTLE



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For Ellen



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## Preface

Current discussions of Africa are dominated by themes of hunger, drought, and environmental devastation that shape the outsider's perception of the continent. Sweeping generalizations are substituted for the empirical data and analysis required for understanding the origins and directions of Africa's contemporary crises. These broad characterizations are perhaps nowhere more apparent than in Africa's semiarid rangelands, described as overgrazed, overpopulated, and overrun by "tradition-bound" herders. By addressing one particular dry region of Africa – northern Kenya – this book argues for the importance of localized data and careful analysis in deconstructing stereotypes about African agriculture and ecology.

The book has been taking shape for several years. It reflects more than a decade of my thinking about social and agrarian change in rural Africa. Although the work presents a detailed case study, it is motivated by a strong conviction that analyses of pastoral change should be placed in a comparative perspective. The first and most important period of field research for this project took place during 1980 and 1981 and resulted in my doctoral dissertation (1983). This was followed by shorter stints of fieldwork in the summers of 1984 and 1985 and the fall of 1986, and by extensive reviews of secondary data and archival materials in Kenya, England, and the United States. My perspective on pastoralism in Africa – and particularly in northern Kenya – has evolved considerably since the early phases of research. The work of 1980–1981 emphasized household economy and regional marketing, while the later phases of research focused on ecology (1984 and 1985) and development (1986). I witnessed two devastating droughts – 1979/1980 and 1984 – that provided insights into the distinctions between climatically induced cyclical changes and longer-term structural trends. On the other hand, the research benefited from observations during relatively good years, such as 1985 and 1986. In short, while the bulk of information for this book was collected during 1980–1981, I have been able to supplement it with more recent field data. By supplementing all the field data with archival materials I have been able to document important changes in Baringo, Kenya, from approximately 1900 to 1986.

Along the way, several institutions and individuals have supported the work for

## Preface

this book. Research in Kenya was made possible by funding from the Social Science Research Council, the American Council of Learned Societies, and Indiana University. The Institute for Development Anthropology (IDA) provided a generous sabbatical that allowed me to complete several chapters of the manuscript. At IDA, David Brokensha, Michael Horowitz, and Thayer Scudder have provided helpful comments on different aspects of my Kenyan research. Vivian Carlip of IDA completed the bulk of the book's editing, for which I am very appreciative. While attending Indiana University I benefited from the ideas and suggestions of the late Harold Schneider, Ivan Karp, and Emilio Moran. Harold Schneider was particularly supportive of my research, providing professional and intellectual guidance at all stages of the work. He will be sorely missed.

In Kenya, institutional affiliation was provided by the Institute for Development Studies, University of Nairobi. I am particularly grateful to the Institute and its faculty, especially Professors S. E. Migot-Adholla and Charles Okidi. I also thank the Office of the President, Republic of Kenya, for granting me permission to conduct research in Baringo District, and to the staff of the Kenya National Archives for helping track down obscure historical documents.

Several individuals in Baringo District assisted with the research for this book. First are my research assistants – Dickson Keis, Nickson Lolgiso, Johnson Lenapir, and Francis Lekituli. On more than one occasion they provided me with the encouragement and collegiality essential to endure the rigors of fieldwork in northern Kenya. Second, thanks are extended to the government officers and advisers posted in Baringo, particularly Senior Chief Charles Nabori, Njemps Location, and Jeffrey Lewis, Baringo Pilot Semi-Arid Area Project (BPSAAP) – and currently of the World Bank. David Anderson, who shared a tent with me for several months in Baringo, was also a valued friend and colleague. His Scottish humor, culinary skills, and insightful suggestions about my work greatly aided the process of field research. His own writings on Baringo in the 1980s have immensely improved my understanding of the area's history. Third, I wish to acknowledge the support provided by the Catholic Mission in Marigat. Finally, and most important of all, I am grateful to the Il Chamus people for sharing their extensive knowledge and rich traditions with an outsider. They graciously tolerated the probing and often perplexing questions of a Western anthropologist. It should be noted that the author takes full responsibility for the contents of the book, and none of the views expressed should be attributed to the above-mentioned institutions or individuals.

My final debt of gratitude is to Ellen Fishburne Little, who has tolerated a part-time family member longer than is perhaps justified. In effect she has subsidized the writing of this book by assuming a disproportionate share of the tasks of raising three children – Nelly, Katey, and Peter D. While it may sound terribly chauvinistic and outdated, this book simply could not have been written without her support. I dedicate the book to her with love and appreciation.

# 1

## **Introduction: the study of agrarian change among African herders**

A group of elders huddle in the shaded area outside a small retail store, seeking reprieve from the midday heat of northern Kenya. The wind swirls a red glow of sand that eventually covers everything in its path. Conversation among these herders focuses on the latest development initiative in the area – irrigated agriculture – and the possibilities for wage employment that it might create. Their low-keyed tone implies that they are not particularly enthusiastic about the prospect. Their herds have been devastated by the droughts of the 1980s, and they find themselves especially vulnerable now, as well as increasingly dependent on wage employment and nonpastoral foods (imported grains, for example). While droughts are a normal occurrence in the dry regions of Africa, herders are confronted with processes of change that go well beyond the effects of climate. Their economies and their social structures are clearly in a state of transition – and nowhere is this more apparent than in northern Kenya.

The study of agrarian change in Kenya has a long history that has provided excellent data and a number of analytical insights (Kitching 1980; Leys 1974; Cowen 1981; Collier and Lal 1986). Kenyan materials figure prominently in recent dialogues on the agrarian “crisis” in Africa, a topic of widespread interest to journalists, academics, and policy makers (Berry 1984; Cohen 1988; Commins *et al.* 1986). The geographic coverage of Kenya, however, has been uneven. Both theoretical and empirical work concentrate mainly on the country’s central highlands, where commoditization of land and labor are widespread, and where state and capitalist enterprises have a long history of relationships with rural communities. Debates about the nature of agrarian transformation in Kenya – and in Africa generally – have excluded discussions of pastoral areas (see Cowen 1981; Schatzberg 1987), which are assumed to have been “only marginally under . . . the capitalist colonial economy” (Gutto 1981: 49).<sup>1</sup> For example, a recent journal issue devoted to agrarian change in Kenya includes only one article on the rangelands, limiting itself to a few paragraphs on a group-ranching scheme (Review of African Political Economy 1981), while Kitching’s (1980) seminal work on social and economic change in rural Kenya focuses mainly on cultivation areas.

Scholars who have studied herding groups are at least partly to blame for their

inability to engage in larger debates on agrarian transformations. By “buying into” the argument that rangelands were outside of state and market influences, researchers in the past analyzed local social and ecological processes without concern for larger politico-economic issues. Herders were (and are), they imply, content to look after their animals, uninhibited by commercial processes and government bureaucracies. Recent studies of pastoral areas, however, demonstrate that these areas were clearly affected by state policies and commodity markets that, *inter alia*, differentiate pastoral households, increase pressures to enter wage-labor markets, and create contradictory and sometimes destructive land-use systems (Anderson 1982; Sperling 1987; Hogg 1987). In a recent publication, Hogg argues that a “new pastoralism” is emerging in Kenya, “where poverty and dependence is becoming a permanent way of life to many pastoralists” (1986: 319). This situation, characteristic of many of the pastoral areas of northern Kenya, calls for new approaches to study.

Recent data from pastoral areas are instructive with respect to at least four areas of concern in studies of agrarian change and crisis in Africa (Berry 1984). The first encompasses the nature and origins of rural differentiation, which until recently was considered nonproblematic in pastoral areas (see Sutter 1987; Starr 1987; and Watts 1987). Incipient forms of class are emerging in these areas, where inequities in property ownership are now the norm rather than the exception. Another issue germane to the study of agrarian change is the relationship between rural producers and the state. This topic is of particular interest in pastoral studies because African herders are politically marginalized in most states, as both colonial and postcolonial policies have discriminated against them. A third topic of major concern involves questions of land tenure and land rights (Berry 1989; Downs and Reyna 1988). Recent studies among pastoral peoples document privatization of communal lands, the presence of land-use conflicts, and – again – the role of the state in local tenure systems (Bassett 1988; Peters 1988; Behnke 1985). All are issues critical to understanding the nature of agrarian change in Africa. A final subject, similar to this third topic in that it links studies of herders to the larger debate about African agriculture, is analysis of the social and political causes of land degradation. It is clear that environmental problems in Africa are related to social and political processes that diminish the productivity of the resource base (Blaikie and Brookfield 1987; Little and Horowitz 1987). Recent case studies of herding populations are providing insightful data on such relationships (Watts 1987; Ibrahim 1987; Arhem 1985).

This book supports Sara Berry’s position that the agrarian “crisis” literature is based too frequently on aggregated data and on assumptions about African agriculture rather than on location-specific findings (Berry 1984: 61–62). By analyzing the history, social structure, and ecology of the Baringo District of Kenya – and, in particular, the Il Chamus area – I show that the “crisis” among the region’s herders is rooted in processes that preceded the droughts of 1979–1980 and 1984. The crisis in Baringo is simple in concept but complex in origin: whether one wishes to term it an ecological, agrarian, or economic “crisis,” the predicament is that more than one-third of pastoral households do not earn enough

income to meet subsistence costs. This fact must be central to analyses of environment, agriculture, and other issues. The climatic disasters of the 1980s are used as an entry point to show that drought is a “normal” state of affairs, while the processes that have inhibited Baringo’s herders from adequately responding to it are not. These trends include growth in absentee herd ownership, which competes for local pastures; engagement in wage labor, which constrains local labor supplies; and a form of sedentary pastoralism that overuses certain range areas while underusing others. In this and subsequent chapters I draw on materials from elsewhere in Africa to show that the Baringo case is not unique.

### **The political economy of pastoral change**

One intellectual influence reflected in this book derives from recent work on the political economy of rural Africa (cf. Barker 1985; Bernstein 1981; Watts 1983). Notions of political economy have come to define the conceptual framework under which pastoral production and ecology are addressed. Until the 1970s very little research had been conducted on the ways in which politico-economic variables affect pastoralism, particularly in Africa. Then studies of the Sahelian drought made it clear that much of the devastation associated with that crisis was related to state policies and the penetration of international capital (Franke and Chasin 1980; Watts 1983). Outside of the Sahel it is also increasingly apparent that pastoral systems should be examined within a politico-economic framework. Many of the social and economic changes that threaten pastoral systems are grounded in political processes. Some of the more important of these transformations are discussed below.

#### *Transformation of tenure systems*

Recent studies show that pastoral tenure systems are subject to both external and internal pressures. Changes in tenure systems resulting from the loss of rangelands to agricultural encroachment, to private and state development schemes, to wildlife parks, and to planned settlements are well documented (Anderson and Grove 1987; Bassett 1988; and Hitchcock 1980). Local regulations on resource use often prove ineffective in halting encroachment by nonpastoral groups and organizations. The state itself plays a major role in undermining the power and autonomy of local organizations that are vested with resource-management responsibilities, leaving a vacuum for nonherders to increase their control of resources. In the Sudan, for example, the state took control of range regulation from local authorities in the late 1960s (Haaland 1980), while in Botswana indigenous institutions have been supplanted by District Land Boards that currently regulate access to land and water (Gulbrandsen 1980). In both cases nonherders have been able to benefit from the changes. The usurpation of power by African states, however, has been incomplete in many cases, creating for farmers and herders what Runge (1981) calls a problem of “assurance.” In such situations producers lack confidence in the capacity of either state or local institutions to

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regulate access to resources, creating ambiguity about who has legal rights to range and water sources. It will be shown that uncertainties regarding land rights in Baringo result in a proliferation of land-use problems, including cultivation and settlement of areas that should be restricted for pastoral use.

Civil servants, traders, and urban-based herd owners take advantage of the uncertainties surrounding pastoral land rights by staking claims to water points and land. This process, which has been described for Niger (White 1987), Somalia (Behnke 1988), Botswana (Peters 1988), and Kenya (Hogg 1987), aggravates the general impoverishment of many pastoral areas. White, in a recent study of the Wodaabe of Niger, shows that many herding families have been relegated to herding animals owned by merchants and other nonpastoralists: "They are now obliged to resort to migrant labour or herding animals belonging to outside investors as stop-gap measures in order to survive" (1986: 24). The absentee herd owner usually has the political clout to negotiate exploitive management contracts, as well as to gain control of valuable pastoral resources. In Botswana, for example, nearly one-third of all water points in the communal rangelands are owned by civil servants, who are "in a position to influence government policy" (Behnke 1984: 275). In sum, the transformation in resource ownership and control has been coupled with changes in livestock ownership, whereby animals are increasingly owned by nonpastoralists. As will be shown in chapter 7, this process is well advanced in Baringo.

Pressures to transform tenure systems also stem from local factors. In Baringo, so-called "progressive" herders (see footnote 4, chapter 4) have fenced off farm and range areas for private use. Similarly, Behnke (1988) describes a case of spontaneous range enclosure in Somalia, where wealthy herders have staked out areas of up to fifty hectares near important dry-season water points. The herders first fenced off plots of two to three hectares for cultivation, then gradually expanded them to include areas for pasture. As they convert land to pasture they reduce the cultivated area for crops. Somali land laws legally recognize ownership of "fenced off" land for cultivation but not areas enclosed for livestock production, so the herders pursue a strategy of "agricultural sedentarization" that circumvents official restrictions and allows them to enclose lands for pastoral use. The spontaneous "privatization" of communal lands and water occurs elsewhere in pastoral Africa (for Botswana, see Peters 1988).

"Tradition" is sometimes invoked by Africans to justify private claims to land. It can be manipulated and redefined to suit particular circumstances, and can be very dynamic rather than static. The use of indigenous tenure concepts ("tradition") to stake private claims in farming areas of Kenya has been described in detail (Njonjo 1981; Glazier 1985). For pastoral zones, the process is best described for Maasai areas of southern Kenya, although there is evidence of its occurrence in northern Kenya as well (Louise Sperling, personal communication). Wealthy Maasai herders utilize the traditional concept of *olopololi*, which refers to a small grazing area reserved for calves, to facilitate land speculation. Work by the staff of the International Livestock Centre for Africa (ILCA) describes how Maasai herders have demarcated individual plots of up to several hundred hectares

of land, and called them olopololi. In contrast to past practice, they graze adult cattle there and lease portions of these units to neighboring private ranchers (Grandin 1986; Peacock *et al.* 1982; de Souza 1984). Frequently the size of the olopololi has little relationship to the grazing requirements of the individual's herd, since it is invoked for purposes of land speculation (Grandin 1986). From 1980 to 1983 the area covered by privately owned olopololi increased by 33 percent in parts of Kajiado District. The cumulative effect of this process is especially felt in one part of Kajiado District – Meruishi – where individual olopololi account for 20 percent of pastoral lands (de Souza and de Leeuw 1984).

In sum, the politics of land rights in pastoral areas reflect phenomena similar to those described for farming zones of Africa (see Downs and Reyna 1988; Watts 1988; Bassett 1988). These include the use of state “connections” to legalize land claims by local chiefs and other notables; the emergence of absentee property owners who reside in urban areas; the support of “tradition” to justify land speculation; and the spontaneous privatization of lands owned in common. Showing that the two types of areas – pastoral and farming – are affected by similar political and social processes makes it easier to formulate a general model of tenure transformation in Africa.

### *Herder differentiation*

Current contradictions in pastoral land rights in part reflect increased economic differentiation among herders. Recent studies of herder differentiation in Africa document three important findings. First, the level of inequality in pastoral systems has been greatly underestimated. Data from Senegal (Sutter 1987), Niger (Starr 1987), Kenya (Grandin 1983; Little 1983), Tanzania (Kjaerby 1979), and Somalia (Little 1989) demonstrate that up to 45 percent of livestock units are frequently owned by only 10 percent of herders, while the bulk of households (up to 50 percent) may own 15 percent or less of the total herd. Such inequities in animal ownership are comparable to patterns of land distribution in certain commercial smallholder zones of Kenya (cf. Buch-Hansen and Kieler 1983; Cowen 1981; Haugerud 1983).

A second important conclusion of recent studies is that herder differentiation influences a range of microeconomic activities. Sutter, for example, notes for Senegal that “such differences in the size distribution of livestock holdings have considerable ramifications on pastoral productive strategies” (1987: 201). This is equally true for Il Chamus herders of Baringo (see chapters 4 and 5). In East Africa both milk and animal marketing strategies of rich and poor herders differ considerably, with important implications for consumption and expenditure patterns (Grandin 1988; Kjaerby 1979). Engagement in wage employment and investment in nonfarm businesses also vary according to wealth differences (Sperling 1987; Hogg 1987; White 1984), while strong differences in the consumption of cereals and meat relate to distinctions based on herd ownership. In short, microeconomic analyses of household activities that rely on statistical averages, ignoring their ranges and variances, are flawed. An effort is made in



chapters 5 and 6 to refine the concept of herder differentiation by examining its nonpastoral dimensions, including wage employment.

Finally, recent data reveal an increasing polarization of livestock ownership since the late 1960s and constriction of the class of "middle" livestock owners. This process is of theoretical importance because "middle peasantry" debates have assumed a particular significance in the study of agrarian change in Africa (Anyang'Nyong'o 1981; Cowen 1986; Watts *et al.* 1988). After all, it is the "middle" group that is expected to benefit most from smallholder programs that promote export crops (World Bank 1981; 1984). A case study of one Maasai group ranch in Kenya shows that between 1969 and 1983 the middle livestock-ownership group had virtually disappeared; "wealth had either increased or decreased markedly from the 1969 figures" (Graham 1988: 3). Studies from elsewhere in Kenya show that the rich and poor categories are significantly larger than the "middle" group (see chapter 4), although time-series data are usually lacking. Livingstone, for example, shows that the "poor" category of herders in southern Kenya encompasses more than 50 percent of producers, with 37 percent in "dire straits" (1986: 262). In examining cattle ownership, he draws upon data (Theuri 1979) showing that the four categories of "middle" owners (those who possess between thirty and sixty-nine cattle) account for only 13.3 percent of owners, while the five poorest categories (those who own fewer than thirty cattle) and the four richest groups comprise 80.1 and 6.3 percent of herders, respectively. Sutter's work in Senegal does not show such a "constricted" middle group of herders (in this case, owners of twenty-five to forty-nine cattle) as in Kenya, but at 22 percent of households they are less than one-half of the size of the poorest categories of herders (owners of 0 to twenty-four animals). Here 48 percent of herders own herds of fewer than twenty-four cattle, while 30 percent own herds of fifty or more (1987: 200). The question of what is happening to "middle" livestock owners is critical for trying to compare processes of differentiation in pastoral areas with those in agricultural regions.

### *The relationship between herder and state*

Lonsdale (1981) shows the contradictory roles of African states in shaping rural social structure, while Bunker (1987, 1988) demonstrates the importance of "dissecting" the state to account for national, regional, and local differences. In dealing with a unit as complex and amorphous as the state, considerable attention should be given to its differences and inconsistencies. States, like rural communities, are not homogeneous entities with shared interests at local, regional, and national levels. For the herder, encounters with the state can be via the local chief, a national land policy, or, indirectly, government-sanctioned price controls.

The study of herder/state relations takes on special significance because pastoralists play such a peripheral role in most states. Herders rarely have had the political power that other groups have experienced (Horowitz and Little 1987). As Bishop points out in the case of Mali, "pastoralists . . . frequently suffer loss of

grazing rights, when disputes with farmers lead to administrative intervention” (1988: 7). With few exceptions, the policies of African states (colonial and independent) can be construed as antipastoral, especially *vis-à-vis* policies for settled agricultural and urban populations (Galaty *et al.* 1981). While anthropologists often assume that the state’s influence in pastoral areas is relatively recent, historians demonstrate the important role of the colonial state in shaping pastoral society and economy (Spencer 1983; Anderson 1982). For example, what are called “traditional” homelands in northern Kenya are often lands that herders were relocated to and/or able to occupy only because the state forced out another herding group (Hjort 1981a; Waller 1984). Colonial rule “resulted in restrictions on the movements of herdsmen often coupled, depending on individual administrators, with paternalistic attitudes that saw ‘vigorous measures’ needed to enforce the ‘correct way’ for herdsmen to behave” (Sobania 1988: 227). The colonial state’s demarcation of “native reserves” and “tribal grazing areas” represented the ultimate policy intrusion into pastoral land use. In Baringo each of the major ethnic groups – the Il Chamus, Pokot, and Tugen – occupied new lands (native reserves) in the twentieth century because of military and resettlement policies of the state.

The colonial state’s influence on pastoral marketing systems was also strong. The works of Spencer (1980; 1983) and Mosley (1983) show how Kenyan herders were affected by quarantine and marketing policies that, for example, forced them to supply animals for British troops during World War II (this policy was enforced in Baringo: see chapter 3). It is argued that state policies in the colonial era had a greater effect on the supply of cattle from pastoral areas than did price or other market variables (Mosley 1983: 107). Ironically the influence of the state on marketing behavior was stronger in pastoral areas than in many of the commercial agricultural areas of Kenya, where the impact of the government is generally assumed to have been greater.

The notion of an “exit option” is often invoked in studies of state/peasant relations in rural Africa (Hyden 1980, 1986; Bunker 1987). This hypothesis, which argues that peasant freeholders, because they are relatively self-sufficient, can opt to withdraw from the market when policies are unfavorable, has not to my knowledge been tested for pastoral economies.<sup>2</sup> Is the “exit option” a concept that has relevance to pastoral areas? On the surface it would seem applicable, for herders are often distant from major markets and assumed to be relatively self-sufficient (cf. Dyson-Hudson and Dyson-Hudson 1980). The economic reality, however, is far more complex. Consumption and expenditure patterns alone dictate that most African herders no longer have a viable “exit option” (see discussion in chapter 6). They purchase significant amounts of grain (especially in the dry season), tea, sugar, and other necessities, requiring them to interact with the commodity market and perhaps also with the labor market. In most cases they sell animals and/or labor to earn the cash needed to buy the goods that allow the household to survive.

Data from certain pastoral areas show that, contrary to the conventional wisdom, herders may hold less of an “exit option” and be more dependent on the

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market than commercial smallholders. In comparing household budgets of smallholder coffee producers of Embu, Kenya, with those of Orma herders of northeastern Kenya, Ensminger and Rutten note that, ironically, the pastoralists are far more dependent on commercial production and market purchases than are the coffee producers (1987: 24; also see Haugerud 1984; Ensminger 1984). Coffee is the vital cog in Kenya's market-driven agricultural strategy, while the Embu area is in many respects similar to the Central Province of Kenya, which has been a focus of agrarian-change studies. The Embu area has good infrastructure and is relatively close to major urban centers, such as Nyeri and Nairobi (it is a distance of approximately 130 km to the latter). The Orma, on the other hand, occupy the Tana River District, which has poor infrastructure and is distant from Nairobi (in excess of 400 km). In a geographic sense, therefore, the Orma are considerably more isolated from major markets than are the Embu coffee growers. How then can they rely on the market more than do the export-oriented peasants? As Ensminger and Rutten show, "traditional" Orma herders are less self-sufficient and subsistence-oriented than Embu coffee producers, who grow most of their own food.<sup>3</sup> The implications of market dependency among the Orma and similar herding groups are that cash income and purchases increasingly serve as indicators of welfare, and thus it becomes particularly important to understand state policies that affect herders' relationships with the market.

## The special case of the Il Chamus of Kenya

The Il Chamus<sup>4</sup> of Baringo District, Kenya, provide a particularly interesting case of pastoral change that allows a local-level interpretation of an African "crisis". They are part of the larger Maa-speaking "complex" of East Africa that mainly includes specialized pastoral groups (Maasai and Samburu), but also some who practice cultivation as well (Arusha and Il Chamus). Early explorers and administrators frequently referred to the Il Chamus as the "agricultural Maasai" until they began to accumulate cattle herds comparable to those of other pastoral groups. Located in the transition zone between northern (Samburu, Turkana, and Pokot) and southern (Maasai) Kenyan herding groups, they have experienced several important economic changes in this century – from irrigated agriculture to pastoralism to wage employment combined with agropastoralism. Since the 1880s the Il Chamus area, in contrast to many parts of northern Kenya, has been perceived as a location of exceptional agricultural potential – an area "capable of producing anything" (Thompson 1885: 265) and "the most fertile part of the eastern area of the Province," (Colony and Protectorate of Kenya [CPK] 1926: 8). The location is frequently referred to as a potential "granary" and this view has helped shape the state's relationships with the community. The group in effect has had a "roller-coaster" relationship with the state: initially it was the government's economic and military ally, but later it was undermined by government policies. Since the 1920s most droughts and famines in Il Chamus (and generally in Baringo) have been associated with punitive state policies,

the most serious of them market and land related. Using archival and field data, I show how the area's dependence on the market has increased over time, reaching a point in the 1920s and 1930s when an exit option was no longer a viable strategy.

The term crisis has special significance in the Baringo context. The area was one of the first in East Africa to receive famine relief, and it has been the subject of special "rehabilitation" studies dating back to the 1930s (CPK 1931).<sup>5</sup> According to some observers, Baringo, including the Il Chamus area, had already reached an economic and ecological "end point" by the 1930s (Maher 1937). This is in spite of the fact that only forty years earlier the area produced enough surplus to supply food to trade caravans (see chapter 2).

The Il Chamus example provides an excellent context for unraveling the concept of crisis; accounting for local discrepancies and changes in labor use, consumption, and marketing strategies; and relating these to ecological problems. By treating the notion of crisis as problematic – that is, as a concept to be accepted or rejected on the basis of analysis rather than as an *a priori* assumption – this study demonstrates the importance of social and temporal specificity in addressing the issue. Although the local economy had periods of general prosperity, periods of hardship affected certain social groups more severely than others. What may be termed crises had different implications for discrepant groups: some herders did well even during times of economic and ecological decline. Contradictions are found in other aspects of the Il Chamus and Baringo economies – for example, the export of grain from one part of the region, while a neighboring location is importing it; or the pursuit of agricultural strategies that actually jeopardize the area's main livelihood, pastoralism. The Il Chamus area provides a good illustration of why the agrarian "crisis" in Africa needs to be addressed within the broader context of social change. The "crisis" that is observed may be more symptomatic of the tensions and contradictions inherent in social change, than of a doomsday situation of economic and environmental collapse.

### **Analytical framework for the study**

In addressing a topic as complex as agrarian change, it is necessary to devise a theoretical schema that accounts adequately for scale, time, structure, and behavior. Economic and anthropological studies of agrarian and pastoral systems in Africa are frequently ahistorical, and use units of analysis (scale) that do not capture the significant political processes affecting change. Other analyses overemphasize either the structural and political-economic dimensions or the behavioral aspects of agrarian transformation, and do not adequately try to incorporate both sets of variables. Thus, advocates of decision-making theory often neglect the larger structural context while emphasizing the behavioral aspects. Marxists, on the other hand, frequently focus on structural issues and neglect the behavioral dimensions of resource allocation and decision-making (see Blaikie and Brookfield 1987: 24).

*A model of land management and welfare*

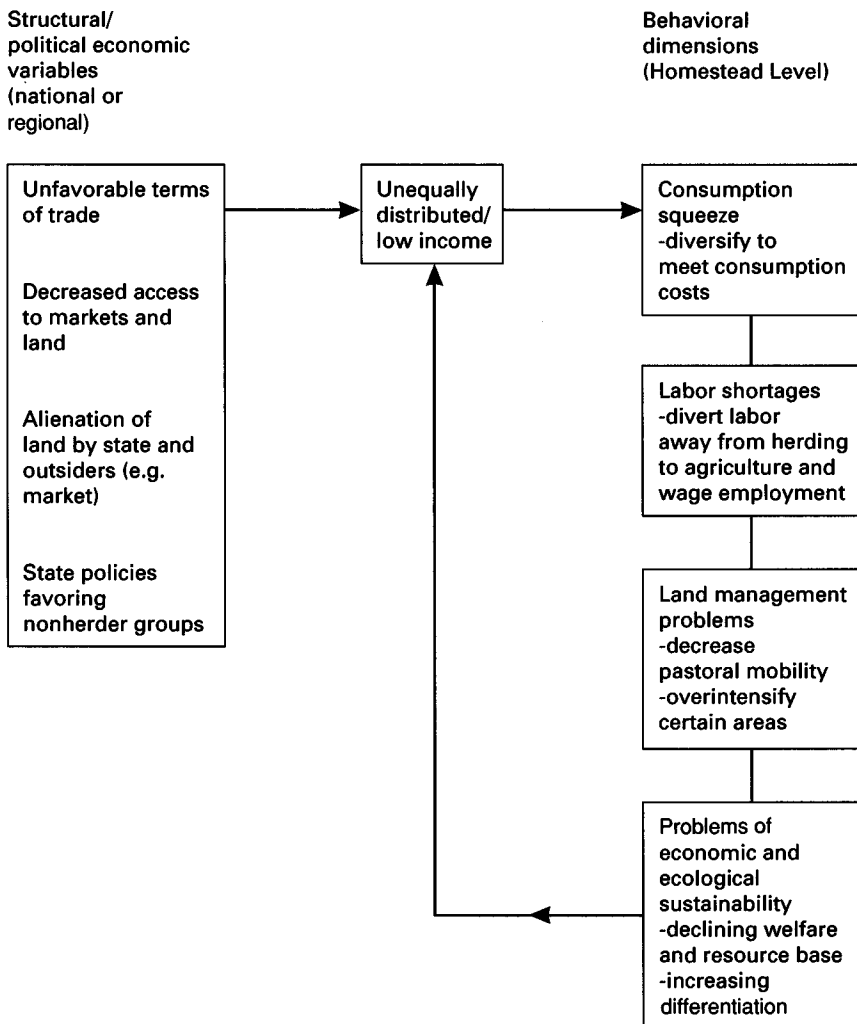
This study advocates a model that incorporates both structural/political-economic and behavioral variables. It is adapted to the particular circumstances of Baringo, but is likely to have general applicability to other areas of Africa. Figure 1.1 provides a greatly simplified representation of the model. It starts with the premise that low, poorly distributed income is the major cause of land-management problems in Baringo. The structural/political-economic parameters affecting income differentiation and poverty are listed separately and include such factors as access to markets and land, and the terms of trade. These are distinguished from the behavioral aspects of the model, which are manifested at the homestead and intrahomestead levels. While the causes of low, unequally distributed income tend to be structural and historical in content, analysis at this level alone does not reveal the behavioral processes that also influence the direction of change. Thus, it is important to trace the extent to which differentiation and low incomes affect homestead decisions about production, marketing, and land management, as well as the ability of homesteads to earn a living without degrading the resource base.

The model traces the cycle of poverty and change among homesteads that ultimately results in land-management problems. In the Il Chamus case, the scenario starts with low-income pastoral homesteads who confront problems of producing sufficient food and income to meet consumption and expenditure needs. To make ends meet, they divert labor from herding to wage employment and other nonpastoral activities. They also begin to mortgage their futures by selling off productive animals (assets) from their herds (see chapter 5) and by entering into client-like relationships with wealthy absentee herd owners who overuse local pastures. The latter group does little to enhance the resource base, but, instead, pursues short-term goals of profit accumulation. The diversification into wage employment and other activities constrains the amount of labor available for livestock and agricultural production (for a Latin American example of this, see Collins 1987). Labor shortages, in turn, result in land and herd management practices that are harmful to the local ecology, ill-adapted to drought conditions, and unsustainable over time (see chapter 7). Wealthy herders and outsiders benefit from the local impoverishment by purchasing "cheap" animals at stress (drought) sales, hiring local pastoralists to manage their herds, and alienating common pasture for private use. The net results for the majority are problems that become evident physically in localized resource degradation and socially in increased impoverishment and market dependency.

The model in figure 1.1 requires considerable data on a range of topics, including regional marketing, household economy, and local land use. Careful consideration of different units of analysis and of the linkages among them are necessary as well. The methodological implications of conducting such a study are discussed later in the chapter, but here it is appropriate to highlight the important units that provide the basis for this approach.

*Units of analysis*

This work accepts the premise that pastoral groups have always formed parts of regional economies and systems of exchange.<sup>6</sup> These may have been ethnically differentiated, but in some cases they were not. The greater the specialization in livestock production, the greater the need for herders to maintain trade with neighboring agriculturalists and hunter-gatherer groups. In East Africa trade in grains, animals, meat, honey, and skins was substantial, and in some cases, entailed

**1.1 Model of land management and welfare**

long-distance travel by traders (Marris and Somerset 1972; Bernard 1972). The recurrent threat of drought and famine made these trading relations critical to herders, perhaps even more so than for other rural producers. Colonial and postcolonial policies drastically changed these regional systems of exchange, affecting relations between and within ethnic groups and reducing population mobility. The need to look beyond the ethnographic unit (i.e. the ethnic group), the standard unit of analysis for most East African anthropology, is especially apparent in addressing change among herders.

Regional analysis literature on dendritic markets, which are systems where “local-level centers are controlled by higher-level centers” (Smith 1976: 35), is especially instructive in the Baringo case. There, the marketing system that evolved in this century is essentially dendritic and has been strongly influenced by state intervention. It is comprised of several petty retail centers that are dependent on one large town, Nakuru, for their supplies and market. While intraregional trade can take place in these systems, its occurrence is limited, and prices are determined by factors external to the region. With the penetration of the colonial administration into the district to maintain order, collect taxes, and exploit resources (especially labor and livestock), administrative centers that also served as marketplaces (petty retail centers) were established. As will be demonstrated in chapter 3, the marketing system made the area increasingly dependent on imported foods.

The study of agrarian change in the Il Chamus area requires analyses at three different levels. First, the homestead (*enkang*) – the major unit of production, consumption, and investment – must be accounted for in any theoretical schema. It is the most important decision-making unit with respect to allocations of labor and capital and is a principal focus of this study. Second is the neighborhood (*latia*), an important unit where grazing and irrigation are organized, and where land and water tenure rules are made and enforced. The neighborhood, as will be shown in chapter 2, has experienced radical changes over the past seventy years that have served to strengthen its role in production and community reproduction. Finally, there is the region, a level where many of the policies of the state are played out (cf. Smith 1976), and one of sufficient scale to capture macro-level activities affecting neighborhoods and homesteads. Such policies might include public investments in market and transport infrastructure, administrative facilities, and/or settlements. Regional systems closely adhere to administrative boundaries today, although considerable interaction across borders still takes place.<sup>7</sup>

The study’s approach draws attention to linkages at several levels – homestead, neighborhood, and region – and emphasizes only those regional ties that explain the sustainability (or nonsustainability) of local systems – in this case, the Il Chamus community (including its neighborhoods and homesteads). It does not attempt to analyze an entire region, but rather to examine Il Chamus economy and society *from a regional perspective*, not an ethnographic one. I chose the region as an intermediate concept that includes enough of the larger politico-economic arena to assess marketing and macro trends, but that is nevertheless sufficiently

“close to the ground” to take into account local processes. This framework finds commonly used dichotomies, such as precapitalist versus capitalist or commercial versus noncommercial, too general to be useful in the II Chamus context. Almost any notion of dualism (e.g. farmer/herder or state/local) is ripe for analytical annihilation in this case.

Examining phenomena at three different levels demands careful specification of the linkages that will be studied. A focus on linkages – particularly those based on trade – gives definition to a region-based study, allowing different units to be addressed in an integrated rather than a disjointed fashion. In this book the production, marketing, and consumption linkages associated with two commodities – livestock and grain – are traced using a multilevel schema. It will be suggested that much of the change that has occurred in Baringo, and specifically in the district’s II Chamus area, is traceable to the dynamic relations between grain- and livestock-related activities. I will show how each set of activities has been affected over time in terms of profitability, insurance against famine, and ecological change.

In investigating economic behavior at the homestead and intrahomestead levels, it is difficult to disaggregate the influences of livestock and grain. Producers calculate the value of livestock in terms of grain, while grain’s value is estimated relative to livestock. Direct barter exchange between the two takes place. Fundamental differences between the two commodities are apparent at certain other levels, however. From the point of view of the region and neighborhood, livestock is produced locally and exported; grain is produced locally but only in small amounts, while the bulk of locally consumed grain comes from imports. At the homestead and neighborhood levels, exchange of livestock cements social relations among in-laws, kinsmen, and age mates, and creates considerable social status for its owner. Grain, a low status commodity, has none of these social attributes but allows homesteads to survive long dry seasons when alternative foods are scarce. This reality structures domestic economic activities, forcing herders to engage in ways of acquiring grain (e.g. through purchase or farming), while maintaining a predominant interest in pastoralism. Where cultivation is feasible, grain production is used to supplement pastoral incomes. The combining of agriculture with livestock production is complementary in some cases, competitive in others.

### **A note on methodology**

The field research for this study included intensive (homestead and neighborhood data collection) and extensive (regional data collection) research phases (Little 1980; see also International Livestock Centre for Africa 1978). The intensive research consisted of sixteen months of fieldwork (1980–1981), with most of the time spent in three neighborhoods: Loropili (including parts of Ngambo), Kailerr, and Salabani (including parts of Meisori) (see figure 1.2). Follow-up visits to each of the settlements took place in both 1984 and 1985. Each neighborhood represents different levels of commitment to and experience in agriculture, and



## The elusive granary

has a different degree of dependence on grain purchases. As the study progressed, their economies were found to be more diversified than had been anticipated, with wage employment and, in some cases, fishing being important components. Comparative data on production, marketing, employment, land tenure, and residence and marriage patterns were collected from the three neighborhoods. Formal surveys, detailed case studies, and participant-observation techniques were used to gather information.

Much of the data collection in the three neighborhoods required visits to homesteads every week: reliable information about labor allocation, consumption, production, and certain other activities cannot be obtained from “one-shot” surveys. A core of forty-four homesteads provided most of the homestead-level data.

In contrast to these microeconomic data, some information could be collected from less intensive surveys (seven to ten days in duration). More than fifteen surveys were completed during 1980–1981 and in 1984, covering such topics as herd ownership, nonfarm employment, retail businesses, and migration. The data gathered during these exercises provided a larger context (“universe”) to assess the homestead-level information. The study also benefited from having access to survey data of the Baringo Pilot Semi-Arid Area Project, covering crop production, demography, and herd ownership. This project started at about the same time as my study.

The regional phase of field research (two months) presented fewer problems than the work in Il Chamus since collection of in-depth sociological data was not required. Most of these data are based on surveys of one-to-two weeks duration. Surveys assessed the amount of agricultural change that had taken place in areas outside of Njemps, with an emphasis on shifts from food to export-crop production and changes in marketing. Particular attention was paid to the amount of commodity flow that exists (or existed) between the pastoral sector of Baringo and the high-potential agricultural areas. Surveys were administered in the Tugen Hills and in southwestern Baringo, which supplied most of the region’s (including the Il Chamus area’s) grain until recently.

Field sites for the regional phase of the study included Poror, Sinonin, Sigoro, and Kamngoech, all in Eldama Ravine Division; and Kabartonjo and Talai, both in Kabarnet Division. In addition, market surveys limited to the maize and finger millet trade were conducted in Lobo, Kibingor, and Kipcherere sublocations of Baringo, areas that still supply grain to Il Chamus. Intensive interviews with more than fifteen livestock and grain traders from Baringo, including the above field sites, were also carried out during 1980–1981.

Archival materials were helpful for all phases of the project. Documents were consulted at the national Archives and the Ministry of Agriculture library at Nairobi (1980 and 1981); the Baringo district headquarters in Kabarnet (1981); the divisional headquarters in Marigat (1980, 1981, 1984); and the Public Records Office (1984 and 1985) and the Commonwealth Studies Institute in London (1985).

### Outline of the book

The next chapter of the book describes the social, historical, and ecological processes that transformed the Il Chamus economy from an irrigation to a pastoral-based one. This is followed by an analysis in chapter 3 of the regional and local commodity markets, focusing on the commercial relations between Il



1.2 Research site, Njemps location

## The elusive granary

Chamus and the larger regional economy and how these have changed over time. Chapters 4 and 5 analyze the social and economic contexts of production in Il Chamus, showing the effects of market changes and of diversification on different classes of producers. Chapter 5 in particular examines the relationships among nonfarm investments, pastoral activities, and rural differentiation. The analysis in chapter 6 builds on discussions in chapters 4 and 5 by showing how economic diversification leaves certain categories of homesteads at risk. This chapter shows how the notion of “crisis” is closely related to low incomes and high food expenditures, compensated only in part by a massive food-aid program initiated in the 1980s. By looking at ecology and resource management in the context of social change, chapter 7 relates environmental problems in Baringo to low and poorly distributed incomes, labor shortages, and institutional uncertainties. The dilemma of ecological sustainability and the vulnerability of local land-use systems is highlighted by a discussion of the effects of recent droughts.

In the final chapter (8) the analysis goes full circle to ask the question: what have development policies and programs done for the area? How have international donors and the state striven for a “granary” in Il Chamus and how have they responded to local ecological and economic problems? The chapter shows that the local response (or lack thereof) to development initiatives is tied to certain assumptions by outside organizations about labor availability and pastoral ecology. In this chapter, I return to the question of agrarian change and crisis among herders and argue for the inseparability of the social, economic, and ecological dimensions of agrarian crises.

## 2

### **Society, ecology, and history**

Important historical and ecological processes have shaped Il Chamus society. The ecology of Baringo – characterized by well-watered highlands, lush swamps, and barren lowlands – figures strongly in the history of the region. The different ecological zones provided both opportunities and constraints to populations who migrated to the area. Located among prime wetland-grazing areas in the center of the Rift Valley, the Il Chamus area in particular has played a pivotal role in the histories of both northern pastoralists, such as the Samburu and Turkana, and southern groups, such as the Purko Maasai (Anderson 1982; Sobania 1980; Waller 1985). In the nineteenth century the Baringo basin became the scene of important pastoral migrations and fierce warfare that caused social upheavals and discontinuities. At the same time, however, the breaking off of pastoral families and clans from the main groups that used the area intermittently, contributed to the growth of the Il Chamus community. Thus, what emerged as the Il Chamus is a mosaic of different ethnic groups and clans who either settled in the area or periodically used its rich resources.

Defining a meaningful region in northern Kenya requires placing it in a historical context that distinguishes carefully between the precolonial and colonial periods. According to Waller (1985), two large regional systems operated in the nineteenth century, incorporating many of East Africa's important pastoral and agricultural groups. The first was the central Rift Valley system that included the Purko Maasai and other Maa-speakers, including the Il Chamus, as its geographic core, but also incorporated Kalenjin groups like the Tugen and Nandi, and such Bantu groups as the Kikuyu and Kamba. The second region was the Lake Turkana basin that "was more diffuse" and included the Turkana, Dassenetch, Samburu, Boran, and other predominantly pastoral groups (1985: 358). Waller notes that these systems were integrated through networks of exchange and population movements, and that to some extent "they overlap geographically and socially" (1985: 357). In contrast to this otherwise informative schema, I would suggest that for much of the nineteenth century the Il Chamus community was more a part of the Lake Turkana basin system – or perhaps a southern subregion of it – than of the central Rift Valley region, mainly because of its strong ties to the Samburu and

## The elusive granary

Laikipiak Maasai. More important than this, however, the community seems to have been at the intersection of the two systems, which may account for its turbulent history and social complexity.

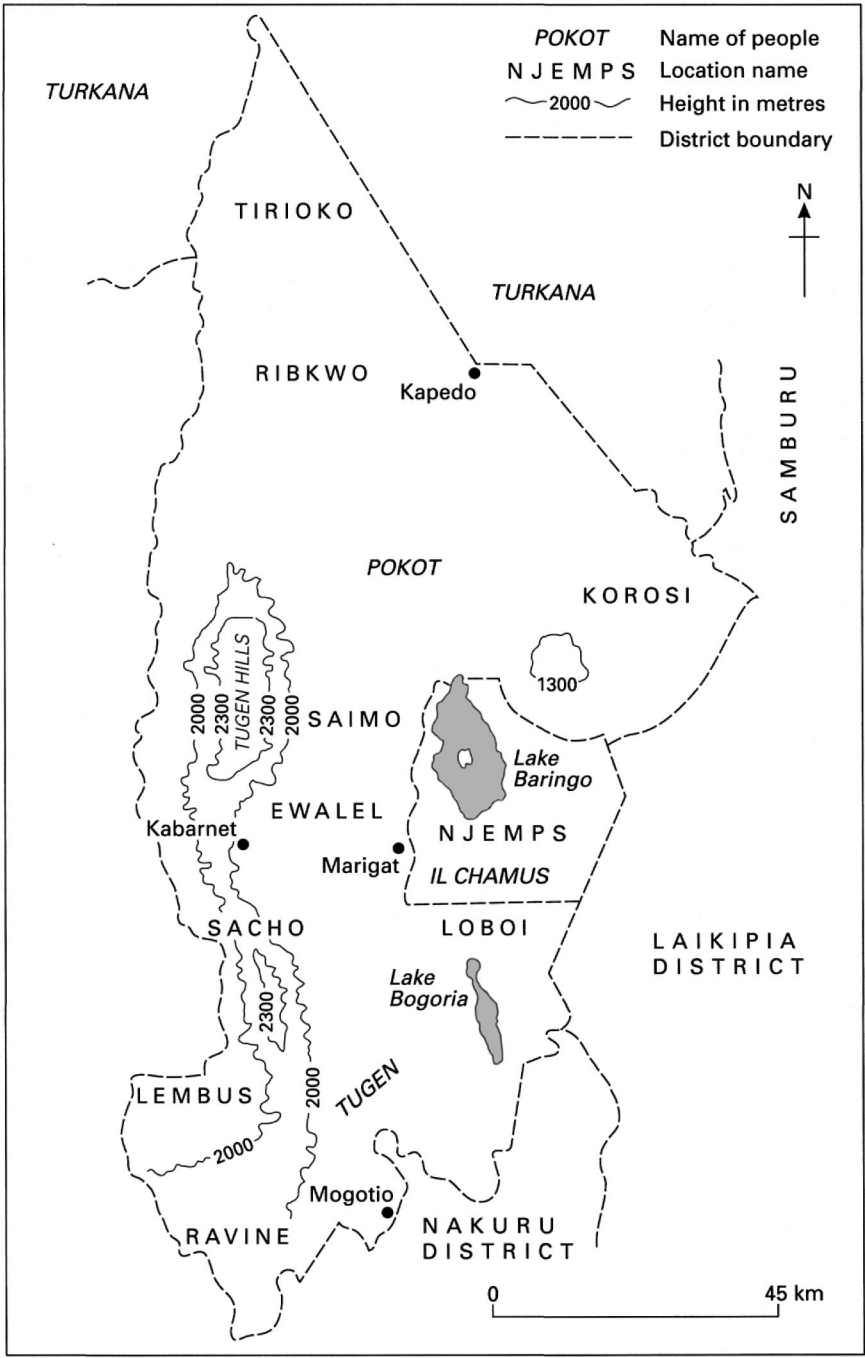
The advent of colonialism drastically altered these regional relationships. It created opportunities for the Il Chamus by allowing them to maintain their herds without fear of attack, but it also brought a halt to the fluidity of population and livestock movements, as well as to patterns of regional trade. These large regional systems were fragmented by administrative boundaries and policies and, as a result, by any meaningful economic criteria the Il Chamus became part of a region increasingly defined by the borders of Baringo District (see figure 2.1). This region was composed of the Tugen, Pokot, and Il Chamus, and interactions with the first two groups – which had been considerable in the precolonial period – became prominent for the Il Chamus in the twentieth century. The remainder of this chapter discusses the general ecological, historical, and social characteristics of Baringo, placing the Il Chamus community within this wider regional context.<sup>1</sup>

### Agroecological zones

The Baringo region is characterized by steep environmental gradients that divide the area into several agroecological zones. Altitudes range from over 2,500 m above sea level (asl) in the Tugen escarpment to under 1,000 m asl in the central and northern parts of the district (see figure 2.1). Rainfall varies along this gradient from approximately 1,500 mm per annum in the higher elevations to less than 500 mm in the lower zones. Changes in elevation (and rainfall) are most dramatic on the eastern and western edges of the Tugen Hills where, in some locations, 1,500-m drops occur over a distance of 15 km. Vegetation change along this gradient is also striking, with temperate forests along the highlands, dominated by *Juniperus procera* and *podocarpus gracilio* (Gichoi and Kallavi 1979: 3), and desert-like browse, such as the drier *Acacia* species, on the valley floors. Production systems in such environmentally varied regions are often highly specialized, with strong trade linkages between the different ecozones (Porter 1972: 36).

### Land-use classification

Land-use potential in Baringo, defined largely by the availability and reliability of rainfall, tends to be closely associated with environmental gradients. A climatic study conducted in the area shows that there is a very strong positive correlation (significant at .01) between changes in elevation and rainfall amount (Kenya 1984). Differences in rainfall divide the region's 10,700 square km into three general agroecozones based on rainfed agricultural potential: (1) a lower highland zone (good potential rainfed agriculture); (2) a lower midland cropping zone



2.1 The Baringo region

## The elusive granary

(medium potential rainfed cropping); and (3) a lower midland livestock zone (low potential rainfed agriculture).<sup>2</sup> The high potential rainfed zone (approximately 10 percent of Baringo's land) is concentrated in the Tugen Hills and in the southwest portion of the district, with the better agricultural land located in Eldama Ravine Division. In these areas altitude is 2,000-2,500 m asl, and average annual rainfall is around 1,200 mm. Major crops produced in the zone are maize, beans, wheat, coffee, and pyrethrum. Livestock are kept, and owners tend to invest in grade or cross-bred cattle.<sup>3</sup> Rocky terrain and steep slopes are major constraints in parts of the Tugen Hills, making agriculture difficult even where rainfall is adequate.

The lower midland cropping zone lies at 1,400–2,000 m asl, and occupies the southern part of the region and the middle slopes of the Tugen Hills. Like the high-potential zone, it is predominantly inhabited by the Kalenjin-speaking Tugen. It accounts for approximately 2,500 km<sup>2</sup>, 25 percent of the district's total land. Annual rainfall here ranges from 800 to 1,000 mm, permitting a maize crop in most years. Soils have poor structure and are easily eroded in this zone, however. On the eastern slopes of the Tugen Hills, for example, soils are particularly shallow and the structure is weak/medium. The soils are classified as dark brown to strong gravelly clays (Gichoi and Kallavi 1979: 6).

A mixed agropastoral economy characterizes Baringo's medium-potential rainfed zone, with the production of livestock more important in the lower elevations and crops more significant in the higher parts. Swidden cultivation based on maize and finger millet (*Eleusine corcana*) is found throughout the zone. Pyrethrum is the only export crop produced in the zone, and its production is limited to the upper elevations.

Most of Baringo District lies at 900–1,400 m asl, and is predominantly semiarid rangeland. Annual rainfall in this zone varies from approximately 400 to 750 mm, and only at higher elevations is a maize crop feasible in most years. The lower end of the zone (900–1,000 m), which has low and uncertain rainfall, accounts for over 50 percent of Baringo's territory. Even in areas where average annual rainfall seems adequate, the rainfall "is scattered into three seasons making each one too weak and short" (Jaetzold and Schmidt 1983: 282). This restricts successful dryland cropping to such drought-resistant crops as sorghum (*Sorghum vulgare*) and finger millet, and even these should be cultivated using water-harvesting techniques (Kenya 1984). Soils are generally good in most of the lowland areas, especially in the Lake Baringo basin, where rich alluvial soils are abundant. The results of a survey in the basin indicate that soils are well supplied with bases (potassium, calcium, and magnesium) but in some areas they have a weak structure and are limited in organic content (e.g. nitrogen) (Baringo Pilot Semi-Arid Area Project 1980). Because of the low rainfall, the production system is heavily focused on ruminants, both large (cattle and camels) and small (sheep and goats), with the composition of stock species determined by factors such as water availability and the proportion of pasture in the particular area. Camel production is, for the most part, limited to the Pokot area of northern Baringo, where average annual rainfall is the lowest in the district.

*The ecology of the Il Chamus area*

The Il Chamus, a group of approximately 9,000, are located in the lowland zone, where, except for small pockets of irrigated agriculture, the economy has emphasized livestock production during the past eighty years. They are divided administratively into Il Chamus and Mukutan Locations.<sup>4</sup> Their area includes the Lake Baringo-Bogorio basin and the foothills extending east of Lake Baringo to the Laikipia escarpment. It is approximately 750 square km in size and its southern boundary is 70 km north of the equator. The lake basin, or, as it is commonly called, the Njemps flats, is bounded on the east and west by the walls of the Rift Valley – the Tugen range to the west and the Laikipia escarpment to the east, both rising over 2,500 m asl.

The ecology of the area is characterized by brush *Acacia*, especially species of *Acacia reficiens*, *A. mellifera*, *A. nubica*, and *A. tortilis*, that dominate the landscape and create an ideal environment for goats. Annual grasses in this area include *Eragrostis* spp., *Aristida* spp., and *Digitaria velutina*, but these are sparse throughout the year (FAO 1967). Vegetation increasingly consists of weed-like forbs, such as *Portulaca* spp. and *Tribulus terrestris*, some of which are unpalatable (e.g. *Heliotropium* spp.). Thus, in most of the flats, vegetation comprises less than 20 percent of ground cover, with most of this accounted for by forbs (Olang



1 The Lake Baringo basin



## The elusive granary

1982). With the exception of the swamps, vegetative cover is virtually nonexistent for eight to nine months of the year:

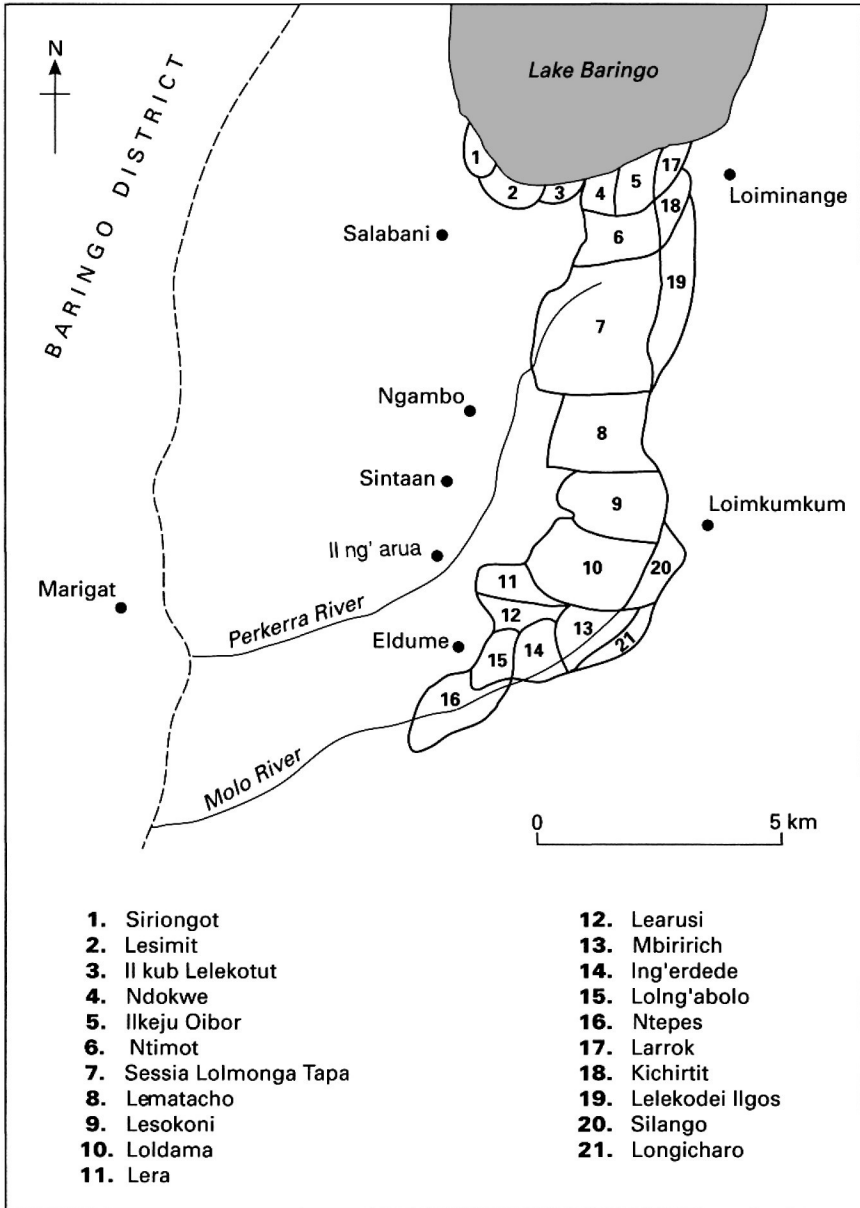
One very striking feature of the vegetation in semi-arid Baringo is the complete lack of perennial ground cover away from the swamps. Although immediately after the rains there is often good growth of ephemeral herbs, they quickly die back. Reports from early travellers indicate that these areas were not always in this degraded state, and it is generally agreed that the main changes have taken place over the past 50 years. In virtually all areas, other than the swamps, productivity in the grass/herb layer is low. (Kenya 1984: 64)

Perennial grasses are concentrated in the wetlands (*ilmanie*) of the Perkerra-Molo basin and along the shores of Lake Baringo. Dominant grass species there are *Cynodon dactylon*, *Cynodon plectostachyus*, and *Echinocloa haplocada*. Apart from scattered clusters of trees, the swamps are almost completely covered by perennial grasses. Swamp grazing is usually under water for only one to two months of the year, immediately following the onset of the rains. The brief period of inundation allows vegetation to recover from the previous dry season.

### **The importance of swamps**

The swamps contain the most productive pastures, forming the core of the local grazing system.<sup>5</sup> They are carefully differentiated by herders, with what appears to the outsider to be a single pasture classified into as many as five or six distinct, named grazing areas. Figure 2.2 shows the names of the different swamps in two of the most important grazing areas, the Molo-Perkerra basin and the lakeshore west of the Molo River. It should be noted that the entire Molo-Perkerra wetlands are usually referred to as the Lematacho swamps (including on maps), although it is only one of several swamp grazing areas distinguished by herders. Because Lematacho is near both a road and Ngambo center, the swamp was frequently observed by early administrators and, consequently, its name used to refer to the whole wetlands.

Vegetation differs in particular wetlands, with the southernmost extension of the Molo-Perkerra swamps having a higher concentration of salty and unpalatable grasses than pastures closer to Lake Baringo. There is also some annual variation in the amount of swamp grazing, depending on the level of the lake and the flooding of the rivers. Since much of the grazing is concentrated along the lake and in the river basins and deltas, a high level of the lake can disrupt grazing patterns. For example, an FAO range-survey team noted in 1967 that “due to the rise of lake waters in recent years, which has covered considerable grazing at Meisori, Kampi ya Samaki, Loimatashu and Salabani, there has been a big influx of Njemps to the Longarua sub-location” (FAO 1967: 1). The lake level tends to fluctuate in multiyear cycles depending, in part, on the flow of sedimentation to the lake. Since the 1970s, the lake has been receding, opening up considerable amounts of grazing. Based on satellite images, it appears that the lake receded between 1972 and 1979 due to extension of the deltas of the Molo-Perkerra and Mukutani rivers



2.2 Location of important swamp grazing

(Kenya 1984: 117). It is likely that the lake will continue to recede in the period 1984–2004 because of the continued extension of these deltas (Kenya 1984: 119). The level of the lake changes even within years, as it rises in the wet season and recedes in the dry season, when grazing is needed most.

### **Climate**

In comparison to other range areas, annual rainfall in Il Chamus (based on Perkerra Scheme's data) is relatively high (640 mm) but its effectiveness is limited due to its erratic distribution during the year.<sup>6</sup> High temperatures and an evaporation rate that exceeds annual precipitation by a factor of four also curtail the effectiveness of the rain. Although annual rainfall is unimodally distributed, a reliable rainy season of more than two months cannot be defined on the basis of available data. The largest amount of precipitation usually occurs from March to August. The "average" rainfall for the first part of the rains (March–June) is 170–300 mm, but at 60 percent reliability the middle two months – April and May – together have only 50–100 mm. This makes rainfed agriculture in the area very risky (Jaetzold and Schmidt 1983: 282).

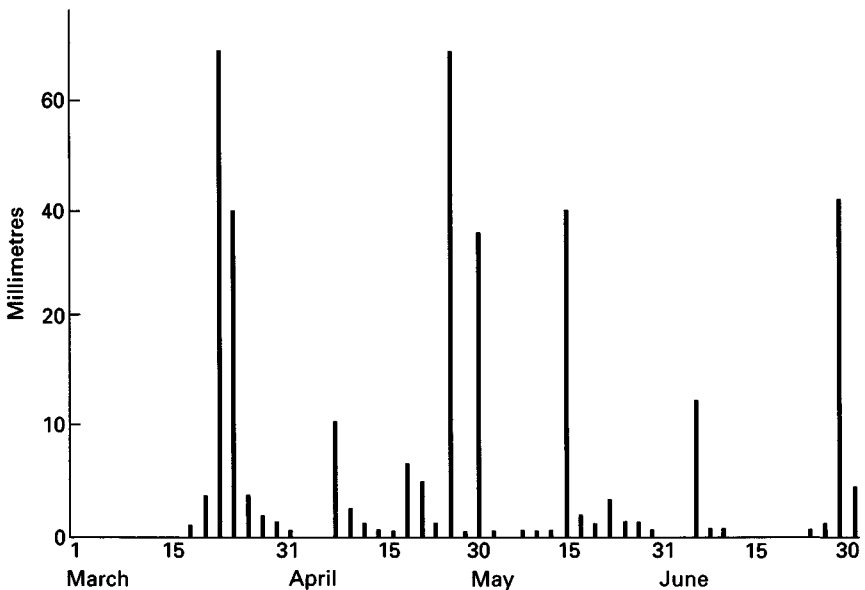
Using the definition that dry months in East Africa are those with less than 60–70 mm of rainfall (FAO 1967), then all months but April, May, July, and August can be classified as dry months. It should be noted that severe drought months, defined as monthly rainfall of less than 15 mm, occurred at least once in all months during 1958–1981, with the exception of August. Very low rainfall, defined as less than 30 mm, occurs at least 10 percent of the time in all months, with the exception again being August where it takes place only 8 percent of the years (1958–1981). At the other extreme, nine of the twelve months of the year were leading rainfall months at least once during 1958–1981.

Aggregation of climatic data by month hides important trends that can be determined only on a daily basis. Daily rainfall data are especially important for months when rainfall is concentrated within a few days. This can result in crop failures during months of seemingly adequate precipitation. For example, in 1981 monthly rainfall for March, April, May, and June was above average for all months except May, when it was less than 10 mm below the norm. However, most of the maize crop failed during the year. An examination of daily rainfall reveals that four days accounted for 53 per cent of March's and 93 percent of May's rainfall, and one day provided 52 percent of June's rainfall (see figure 2.3). This erratic pattern of rainfall is not unusual for semiarid areas of Africa. Monthly data for Il Chamus also do not reveal the dry period during May–June, when particularly low rainfall occurs. Observations of dryland agriculture in 1980–1981 and 1985 show that dry periods in the first two months of the crop cycle (i.e. before the crops flower) are likely to do severe damage to maize and finger millet crops. The probability of thirty consecutive days in May–June where total rainfall is less than 15 mm, an amount often disastrous to most crops, is slightly better than 50 percent. The occurrence of such an annual dry spell is among the most predictable climatic events in Il Chamus.

### Social history of the Baringo Basin

In a regional context, the Il Chamus homeland contains some of the most important grazing and water points in the Rift Valley between Lakes Nakuru and Turkana. As noted above, excellent swamp pastures are found along the fringe of Lake Baringo and in the Molo-Perkerra drainage area. The hills southeast of the lake also contain excellent perennial grasses and dry-season pasture. During the past two centuries, the swamps and, to a lesser extent, the Ol Arabel hills have provided seasonal grazing for a number of different groups. Herders have been attracted to the area also because water is available throughout the year from the lake and the Perkerra River. The latter rises in the highlands of southwest Baringo and traverses the dry rangelands before emptying into the swamps south of the lake. A near-perennial river, the Molo, has water ten to eleven months of the year and also traverses the basin en route to the lake.

The Il Chamus originally settled the Baringo area to take advantage of water for irrigation and fishing, and to hunt in the plains south of the lake. Over time, the concentration of good grazing and water proved to be a curse in one critical respect – it attracted to the region larger, more powerful herding groups who frequently raided the community. The group's history is replete with stories of stock raiding and pillage by invading groups. The constant threat limited pastoral activities in the precolonial period to goats and sheep rather than cattle rearing, since the smaller animals were not sought after by neighboring groups. As an elder explains:



2.3 Daily rainfall pattern, 1981

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The Il Chamus did not keep many cattle then because the Turkana would take them. The Turkana sometimes would take goats but we would hide them in the bush, as well as take them by boat to islands in Lake Baringo. We could not hide cattle because they are large and they make footprints that can be easily followed.

Other oral accounts confirm that the Il Chamus and their flocks sought refuge on the lake's islands during periods of trouble. In warfare they were no match for larger groups like the Turkana and Pokot.

The excellent pastoral resources of Baringo were the source of struggles among the Il Doigo Samburu, Loosekelai Maasai, Laikipiak Maasai, Turkana, Pokot, and eventually the Purko Maasai, all of whom sought seasonal rather than permanent occupation of the area (Anderson 1982: 41–45).<sup>7</sup> Control of the Baringo basin in the nineteenth century would have provided relatively easy access to important Maasai-controlled grazing areas further south around Nakuru and Naivasha. It was precisely this that motivated the Purko Maasai, in alliance with other Maasai groups, to capture the area from the Loosekelai during the 1860s (Anderson 1982: 42). The insertion of the Purko into the basin at the time placed them in close proximity to the Turkana, the other dominant group of the Rift Valley, who had moved as far south as the northern shores of Lake Baringo. Toward the end of the century, Baringo served as a border zone between these two most important pastoral groups of the Rift Valley, the Turkana and the Maasai.

### *Origins of the Il Chamus community*

Written and oral histories point to the presence of a Maa-speaking group, the Il Keroi, inhabiting the Lake Baringo area prior to the Il Chamus (Dundas 1910). They were there by at least the late eighteenth century, since around that time Uasingishu Maasai refugees of the war between the Maasai and L-Oikop are said to have joined the community at Lake Baringo (Vossen 1978; Weatherby 1967). Further evidence of an early Uasingishu connection is corroborated by the migration pattern of the Il Keroi after they were dispersed. Elders note that many of them resettled on the Uasin Gishu plateau. While the ethnic origins of this earlier group are not known, they are likely to have had strong ties to the Kalenjin (i.e. the Okiek), in addition to the Uasingishu. Their reliance on hunting and fishing and their lack of cattle suggest comparisons between them and such Maa-speaking hunters and gatherers as the Il Torobo (“Ndorobo”) (see Galaty 1982). Those families who claim Il Keroi heritage are distinguished today from the general Il Chamus population, and are referred to locally as the “true” Il Chamus.

The earliest movement to the Lake Baringo area of clearly recognizable Il Chamus clans, the Il Mae and Il Kapis, probably took place during the latter part of the eighteenth century. Both of these clans came from Kalenjin areas to the west, most likely from the Tugen and, to a lesser extent, Marakwet regions. The Odompere lineage of the Il Kapis clan originated, in part, from Marakwet, and both the Il Mae and Il Kapis have strong historical links to the Tugen. The Il Kapis

were later to incorporate several families from the Laikipiak Maasai, while the Il Mae later allied with the Lokumwae clan of the Samburu. These clans encountered and defeated the Il Keroi, forcing them to succumb to their control or flee the area.

By the early 1800s the Il Doigo Samburu were grazing their livestock around Lake Baringo and were in contact with the Il Chamus (Dundas 1910: 50). The Il Doigo engaged in livestock-for-grain trade with the Il Chamus at the time. Although some Samburu families probably joined the community during this period, significant incorporation of Samburu into Il Chamus society did not take place until around the 1840s. It was at this time that the Looskelai Maasai from the Mau escarpment took control of the Baringo basin. The Il Doigo were defeated and pushed north of the lake where they were confronted and again soundly beaten, this time by the Turkana (Anderson 1982; Dundas 1910). By the mid nineteenth century the Samburu had retreated to the Leroghi plateau, northeast of the lake. The grazing vacuum south of the lake was filled by Looskelai, while Turkana and Pokot occupied the grazing area north of the lake. Il Doigo war refugees who did not move to Leroghi settled among the Il Chamus and turned to irrigated agriculture.

Looskelai control of the basin was short-lived, for the Purko Maasai saw them as a threat to their dominance of the Rift Valley and began military campaigns (Anderson 1982: 42). In the 1860s the Purko defeated the Looskelai and took control of the lake region. Some Looskelai were to join the Il Chamus community, while others retreated back toward the Uasin Gishu plateau. The Looskelai Maasai ceased to exist as an independent group after this defeat (Waller 1985).

The Kalenjin connection, though not as well recognized as the influence of Maa-speaking groups, has had a profound demographic effect on the Il Chamus. Several clans trace historical ties to Kalenjin groups, and since the late nineteenth century the major immigrants into the area have been Kalenjin-speaking Tugen. Throughout the nineteenth century, and perhaps even earlier, the Il Chamus traded grain and livestock with the Tugen. The highland Tugen, who harvested their cereals earlier in the season than the valley cultivators, sought grain from the Il Chamus early in the year and then later on sold them grain after their harvest. During drought periods the Tugen worked on the irrigation works in exchange for grain, with some settling permanently in the area.

In spite of their demographic prominence, Tugen influence on Il Chamus culture and institutions has been minimal. There has been a conscious effort of acculturation on their part, and thus their influence on material and other aspects of culture is barely noticeable. This is in stark contrast to the impact of the Maasai and Samburu, whose influences are seen in almost every facet of Il Chamus culture. The Tugen adopt the dress and cultural style of the Il Chamus – and, indirectly, of the Maasai and Samburu – and often become completely “Il Chamusized” within a generation. The rapid assimilation of Tugen into the community can be partially explained by practical (the area has permanent water points and grazing) and status reasons (the Il Chamus are more closely associated with livestock rearing and wealth than are the Tugen).

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The final important piece to the puzzle is the Laikipiak Maasai, who were in contact with the Il Chamus from at least the early nineteenth century. According to Waller (1985), they were a part of the loosely defined, Lake Turkana basin system. The Laikipiak used what were eventually to be Il Chamus grazing areas around Ngelesha, southeast of Lake Baringo. During the early-to-mid nineteenth century, Laikipiak raiding parties, in transit to the Kerio Valley and points further west, would stop off at Il Chamus to rest and acquire food. During periods of drought and/or outbreaks of cattle disease, Laikipiak sought refuge among the Il Chamus, or, ironically, would raid them for food. The most dominant Il Chamus lineage, Leparsalaach, originated from Laikipiak around the early nineteenth century. During this period it is likely that Laikipiak-related hunting groups were settled around the Mukutan area and at the time had frequent interaction with the Il Chamus.

The most significant Laikipiak movement to Baringo followed their defeat by the Purko in the 1870s, an event from which the Laikipiak never recovered (Jacobs 1979). Because this event closely correlated with the first visits of European explorers and traders to the area, the Laikipiak–Maasai element was noticeably overstated in early accounts (Thompson 1885; Gregory 1896). Later work, based on very little actual field research, also exaggerates the Laikipiak–Maasai connection (Huntingford 1953). The overemphasis may relate, in part, to the fact that the Il Chamus *laibon* (religious leader) came from Laikipiak and his family has had, and continues to have, considerable influence in the area. There is nonetheless only one contemporary clan (Loiborkishu) that derives solely from Laikipiak, although former Laikipiak families are incorporated in other clans.

### *Clan formation*

Population movements and historical relations in Baringo are usually defined in terms of clans. In a situation of considerable fluidity, clans were points of reference, although “what clan means in any given context is itself a puzzle” (Waller 1985: 350). The succession of clans, which “over a wide area are laid bare like geological strata through the accretion of different groups to a permanent core population” (Waller 1985: 350), attests to the area’s legacy of turbulence. Until the end of the nineteenth century clans still were being added to Il Chamus society. The contemporary clan groupings and alliances reflect, in part, the major chronological events of the nineteenth century.<sup>8</sup>

Table 2.1 indicates the different clans of Il Chamus, their origins, and the major divisions. There has been a process continuing up to the twentieth century of larger clans creating alliances with and, in some cases, absorbing smaller ones. While families of these smaller clans may claim allegiance to their original group, for all practical purposes they are members of another clan. More than twenty clans are cited, but only twelve function independently and assume significance in rituals, marriage negotiations, and politics.

The clans in table 2.1 have been divided into the Il Chamus or “true” Il Chamus clans and the Il Toijo clans, the latter deriving from the Il Doigo and other

Table 2.1. *Il Chamus clans and their origins*

Clan							
Grouping	Clan	Samburu	Uasin Gishu	Maasai Laikipiak Maasai	Tugen	Rendille	Il Keroi
Il Chamus	Il Kapis	X <sup>a</sup>		X	X		Y <sup>b</sup>
Il Chamus	Il Mae (incl. Lokumwae)	X		X	X		Y
Il Chamus	Il Mero				X		
Il Chamus	Loiborkishu			X			
Il Chamus	Kapsang (Ngang Leleboo)			X	X		
Il Chamus	Sakaam (incl. Parsaina)						X
Il Toijo	Il Murtanat	X	Y				
Il Toijo	Il Pasikir		X				Y
Il Toijo	Loimisi	X			X	Y	
Il Toijo	Il Toimal	X		Y	Y		
Il Toijo	Il Kesiani	X					
Il Toijo	Il Kunguan	X					

<sup>a</sup> X – of major historical importance

<sup>b</sup> Y – of minor historical importance

Source: Based on Anderson (1981b) and author's field data.

Samburu sections.<sup>9</sup> The “true” Il Chamus clans have historical links to the Il Keroi, dating to the time of their dispersal by the Il Mae and Il Kapis, and, in many cases, to the Tugen and Laikipiak Maasai. After their defeat by the Purko, it is likely that the non-Toijo clans welcomed the Laikipiak to counter the Il Toijo/Samburu dominance.

Table 2.1 also demonstrates the overwhelming importance of the Samburu connection. More than half of the present clans originated, in part, from Samburu, often via the Il Doigo section. The influence of the Samburu clan, Loirugishu, which has four counterpart clans in Baringo, has been strongest. Often fragments of Samburu clans, sub-clans, or phratries became identified with very different structural levels in Njemps.<sup>10</sup> For example, while the Masula is a phratry (supra-clan) in Samburu, encompassing several different clans, it is a clan of only minor significance in Njemps. On the other hand, the Il Toijo, a large clan grouping (phratry) incorporating several Il Chamus clans, has a less prominent role in Samburu clan organization (Spencer 1965: 73; also see Spencer 1973). There it is a small clan of minimal importance. Because most clans and clan factions joined the Il Chamus community to escape harsh conditions elsewhere, they had to be adaptable and make whatever alliances and relations were necessary. The configuration of Samburu clans in Il Chamus, therefore, may have been more a result of circumstance than structural logic.

It was common for immigrant “strangers” to seek assistance from allied clans. For example, Tugen coming to the area often were (and are) incorporated into the



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Il Mae and Loimisi clans, while Samburu and Uasingishu were adopted by the Il Kunguan and Il Pasikir, respectively, and Turkana and Pokot accepted by the Il Murtanat. A similar pattern of ethnic affiliation continues today, especially during periods of drought.

### *Precolonial settlement*

The irrigation settlements of Il Chamus provided a source of food and livelihood for impoverished pastoralists and war refugees. This source of labor made possible the development of a large complex of irrigated agriculture, which was particularly labor intensive (see chapters 4 and 5). Thus the area offered opportunities for victims of drought, cattle disease, and warfare, and this influx of laborers, some of whom settled and acquired their own farms, was a key input for the irrigation system. The community's population of around 1,800–2,000 remained stable during the latter part of the nineteenth century because, while there was considerable migration to the area, periodic population movements back to the pastoral areas also occurred when pastoral conditions improved (Anderson 1981b: 6).

Arab trade caravans, en route from the Kenya coast to Uganda and eastern Zaire, depended on the settlements for food supplies. The Il Chamus community was considered to be one of the most dependable sources of grain along the entire route. It was one of four Maa-speaking agricultural settlements – the others being Arusha, Ngrumann, and Pagasi (Jacobs 1968) – that played important roles in East Africa's overland commerce. Trade caravans reached the area as early as the 1840s, and European explorers began to visit in the 1870s. After long treks through the grainless, hostile Maasai territories, the Njemps flats appeared to be “the very promised land” (Von Hohnel 1894: 433). In exchange for sorghum and grain, the local people received glass beads, cloth, metal wire, and, in some cases, livestock.<sup>11</sup> While prior to this trade they had exchanged surplus grain with neighboring herders and Tugen farmers, the scale of this commerce was of a different magnitude. By the 1870s, the Baringo basin was being visited by several trade caravans a year seeking food to replenish their stocks. While caravans could not always be assured of food (Von Hohnel 1894: 434), the supply was regular enough so that Il Chamus settlements appeared on several nineteenth century maps and were known to most traders (see East African Protectorate 1897). Even more than in the past, the irrigation sector required large amounts of labor beyond what was available locally.

Most immigrants to Lake Baringo came from pastoral backgrounds where settlements were usually dispersed. In Il Chamus, however, settlement was confined to two large villages at the south end of the lake that were surrounded by two rows of *acacia* fence for protection against raiding groups.<sup>12</sup> Each of the villages had its own irrigation, the larger of the two (*enkang Labori*) using the water from the Perkerra River, while the other (*enkang Lekeper*) relied on the Molo River. Their names referred to their location along the rivers, with *Labori* meaning “down the river” and *Lekeper* meaning “up the river”. Clan division

Table 2.2. *Il Chamus age generations*

Labori	Lekeper	Approximate Initiation Date
Il Kipiku	?	1816*
Il Tuati	?	1832*
Il Nyangusi	?	1846*
Il Peles	Il Kilami	1860*
Il Kidemi	Il Memiri	1874*
Il Kinyamal	Il Tareto	1888*
Il Kileku	Il Parakwo	1901
Ririmpot	Il Kireo	1914
Il Napunye	Il Takisho	1927
Il Paremo	Seuri	1939
Il Mirisho	Il Kitoip	1949
Il Medoti	Il Barisho	1958
Il Kiapu	Il Taapunye	1969

\*These dates are based on Anderson's (1981b) estimates.

Source: Anderson 1981b and author's field data.

reflected, in part, this settlement pattern: certain clans were found in only one village.

The precolonial settlement pattern has considerable significance for Il Chamus social structure. Over time the Labori/Lekeper split segmented the group into two sections: the Il Chamus Labori and the Il Chamus Lekeper (see table 2.2). Since the mid nineteenth century, when the division occurred, these sections have operated their own age-set ceremonies, selected their own leaders, and – until the twentieth century – restricted marriage to their own members (for plausible reasons for the split, see Little 1983). Each section had an age set of young men (*il murrān*) to protect the settlement, and skirmishes between the two villages were not unusual. The two clan groups, Il Toijo and “true” Il Chamus, do not correspond to this sectional split, as certain clans are found in both sections.

In the late nineteenth century the two sections of Il Chamus separately made treaties with European powers. First, the Il Chamus Lekeper signed a pact with the Germans in 1888, pledging their loyalty to the German empire. Two years later (1890), Il Chamus Labori placed themselves under the jurisdiction of the Imperial British East Africa Company and registered with the British Consular General of Zanzibar (Foreign Office 1890). A few years later the Germans ceded control in the area, and the two groups were combined under the Imperial British East Africa Company. Thus, the sectional rivalry in nineteenth century Njemps was sufficient for European powers to negotiate competitive allegiances, capitalizing on and reinforcing an already existing division.

### *The period of pastoral expansion*

*Pax Britannica* permitted a buildup of cattle and the settlement of areas previously unoccupied due to threat of warfare. In a stepwise fashion, Il Chamus moved out

of the Lekeper and Labori villages, first settling around the Baringo administrative post at Loiminange (1901–1904), and then moving to Mukutan, the site of a later administrative center. The Mukutan station, “which may be designated ‘the place in the wilderness’, was originally founded to protect the Njamusi and Suk [Pokot] people against the possible raids of Turkana” (East African Protectorate 1905: 5). While there was movement to areas without British protection, most families initially settled near administrative posts before moving to other areas.

The pursuit of pastoralism became the main endeavor, with irrigation declining to insignificant levels in the area by 1910 to 1920. Cooperation with the British in raids against the Pokot and Turkana resulted in rewards of cattle that allowed the Il Chamus to increase their herds. Exchanging small stock for cattle with Somali traders was another means of building up herds. Growth in the number of cattle among the Il Chamus in 1900–1920 was considerable: during this time local herds increased from an estimated 2,000 to about 12,000 cattle (estimates based on data from CPK 1914, 1915, 1916, and 1921).

The expansion of pastoralism and the subsequent dispersion of families reduced the importance of the Labori/Lekeper dichotomy. Families of each section were scattered among the new settlements, which tended to be dominated by the Labori because theirs was a larger population. Several neighborhoods of dispersed homesteads were established in a relatively short period of time (1900–1920), contrasting sharply with the earlier irrigation-based villages. The Lekeper and Labori maintain separate age-set systems but the relative autonomy of each section, in comparison to the precolonial period, has decreased.

### **Reasons for the shift to pastoralism**

Reasons for the shift to pastoralism are complex. The commonest explanation is that most Il Chamus were herders by inclination but farmers out of necessity. They maintained a preference for pastoralism over agriculture even during the irrigation era, awaiting an opportunity to return to livestock production (Huntingford 1953; Thom 1978). In short, they were what Mohammed calls “nomads on the waiting list” (Mohammed 1973, cited in Salzman 1980: 13). Since Samburu and Maasai who joined the community frequently left the area and returned to herding, the theory seems plausible. The mimicking of social practice and material culture from herding groups also indicated a cultural preference for pastoralism over agriculture.

A second explanation for the shift, which has been suggested by Anderson (1982), hypothesizes that because of problems with irrigation, farmers were “pushed” rather than “pulled” toward pastoralism. The historical evidence for this is quite strong. By the late nineteenth century most of the major trade caravans and hunting expeditions were passing north of Lake Baringo, where untapped sources of ivory still existed. Even before this time, the Arab slave trade, and hence the caravans to Uganda and Zaire, had slowed to a trickle. The loss of this commerce could not be made up by sales on the local market. Thus, the intricate irrigation system of Baringo found itself without a lucrative outlet for its produce by the late nineteenth century (Anderson 1981b).

Environmental and engineering problems with the irrigation system may also have been factors. Increased deepening of the Perkerra River made irrigation at *enjang Labori* difficult without large inputs of labor (Anderson 1981b). The timing of these problems closely correlates with the period when markets were being lost. With labor already a scarce factor and becoming even more so with the expansion of herding activities, the opportunity costs of maintaining an irrigation system became very high. The complete departure from irrigation at *Labori* occurred in 1917 when the Perkerra River changed its course, leaving the area without a source of water. While irrigation was still possible, it would have had to come at the cost of digging new channels, planning a new grid of fields, and building a new weir. This would have been especially difficult then because already most *Il Chamus* had moved out of the area and were pursuing pastoral activities elsewhere.

A third explanation for the shift to pastoralism involves a closer look at the “economics” of pastoralism versus agriculture. The returns to labor, the scarcest factor of production, are significantly higher for livestock than for grain production (this is discussed in detail in chapter 5). A producer faced with such a choice would opt for livestock production, or, if it were possible, a combination of pastoralism and grain production, with the latter providing cereals for subsistence. Except in a few cases, however, it was of an either/or choice, since it was difficult to combine transhumant pastoralism with irrigated agriculture of any significant scale without jeopardizing the former. Under these conditions herders temporarily returned to irrigated agriculture during livestock die-offs (drought), but only in the case of *Eldume* did a form of permanent agropastoralism persist during the twentieth century. Thus, although irrigation problems coincided with the shift to pastoralism, the transition is likely to have taken place regardless.

### **Pastoralism and the ecological crisis**

The Baringo lowlands, including the *Njemps* flats, has become notorious for its claimed environmental problems, with most of the blame being given to pastoral activities. The concern for the area has attracted a substantial amount of ecological research (Knight 1965; Pratt 1963, 1964a and 1964b; Bogdan and Pratt 1961; Sands *et al.* 1970; Pratt and Knight 1964; FAO 1967). Often photographed in range-management books and articles, the area has been bluntly described as an “overgrazing end point” (Brown 1963), “an ecological emergency area” (Kenya 1974), “the agricultural slums of Kenya” (Maher 1937), and “an embarrassment to Kenya” (Ministry of Agriculture 1966). These negative descriptions are applied to an area that less than fifty years earlier had been depicted as the “promised land” for agriculture.

The ecological condition of *Njemps* was first pointed out in detail to colonial administrators by Maher (1937). His recommendations for its rehabilitation parallel those of thirty and forty years later (Brown 1963; Kenya 1980; Ottley *et al.* 1978; Institute for Development Studies 1979), and include suggestions for a more diversified economy with greater emphasis on nonfarm employment and crop production, improved range management practices, and the substitution of

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agricultural products for pastoral products in the local diet. Unlike more recent appraisers, Maher saw most of Njemps' and Baringo's problems as caused by the predominance of goats, which were said to consume young grasses and to destroy woody vegetation. He argued that the reliance on goats resulted in environmental degradation and an impoverishment he refers to as the "goat standard" (Maher 1937: 115).

Although there has most likely been a decline in range productivity, it is difficult to identify causation, to place it in a proper time framework, and to distinguish between natural and man-made degradation. Several important natural factors should be considered first in discussing ecological trends in Njemps. These include:

- a very high annual evapotranspiration rate (four times the amount of annual rainfall), impeding the development of perennial grasses and causing the growth of vegetation usually found in areas of lower rainfall; (Pratt 1963)
- proximity to the steep Tugen Hills with their torrential seasonal rivers, resulting in sheet erosion and gullying on the plains;
- a soil structure and chemical composition (e.g. high sodium content) which, while fertile for crop growth, impedes rainfall infiltration and facilitates runoff, and also makes the soils "powdery and easily erodible when they dry out". (Kenya 1984: 31)

These factors account for some of the gullying and other signs of degradation seen in Baringo. In addition to such natural variables, however, certain historical events should be considered, one of them being the alienation of lands by Europeans. While the southern Tugen were more seriously affected than were the Il Chamus by competition for land with white settlers, the latter were nonetheless hurt by the establishment of European-owned ranches on their Laikipia border. The grazing on the western Laikipia plateau was until the 1920s a reserve area, being used by herders during most dry seasons. Removal of the Maasai from the Laikipia plateau in the early twentieth century opened the area for Europeans, who perceived the pastoral herds as a source of disease (and, I might add, of competition). They sought to ban Africans from grazing their livestock in the area, even on a seasonal basis. Confrontations between settlers and Il Chamus herders occurred during the 1920s and 1930s, and the administration was called in to reinforce rancher claims to the land and punish trespassing herders (CPK 1933: 4). The more publicized conflicts between the southern Tugen and European farmers of Nakuru, which are documented in Anderson's account (1982), had some bearing on Il Chamus welfare as well. Constraints on Tugen movement to the south placed greater pressure on disputed Il Chamus grazing areas to the north around Ol Arabel (Ngelesha). These had received formal recognition of Il Chamus ownership by the state and were incorporated into the Njemps reserve, but were increasingly encroached on by Tugen agropastoralists (cf. Kenya Land Commission 1934). In at least one case, official encouragement was given to Tugen settlement in Ol Arabel, since it was seen as compensation for their lost grazing rights and as a way to reduce trespass on Nakuru farms (cf. Ott 1979).

The constriction of pastoral grazing rights came at a time when animal numbers were growing rapidly in Baringo. In addition to the Il Chamus, the Tugen also increased their herds, moving from the hills into lowland grazing areas previously used by the Maasai. In both the Tugen and Il Chamus cases, they were “colonizing” rangelands that they had not previously utilized. Yet by the time European settlers had arrived in Nakuru and Laikipia, Baringo herders were using most of present-day Baringo District and parts of Laikipia District. The loss of access to Laikipia was a blow to the Il Chamus economy, but the loss of water points and grazing in the south even more seriously jeopardized the Tugen economy. Water points are few in south Baringo, and the monopolization of critical water points by Europeans forced herders to overuse the pastures around the remaining sources available. The loss of grazing and water was most severely felt during drought years, when out of desperation pastoralists trespassed with their animals onto settler-owned lands (Anderson 1982; Waller 1984).

Neither the Il Chamus nor the Tugen ever became fully nomadic. They moved their animals seasonally to dry-season grazing areas, while at least part of the family remained in the home neighborhood. Both groups have become less mobile in recent years, due in large part to the growth in agricultural activities and the diversion of labor to wage employment and education. The competition for labor between livestock and agricultural activities is an important reason for the declining mobility. Agricultural pursuits by herders restrict their ability to move animals seasonally, and animals are usually grazed only in an area surrounding the farm neighborhood. Pastures surrounding agropastoral settlements thus receive heavy grazing pressure, and range damage often occurs through herd trampling. The relationship between sedentary livestock-raising and land degradation is discussed in more detail in chapter 7.

Other historical events, especially the droughts and locust invasions of the 1920s and 1930s, may have influenced the physical environment of Njemps. Droughts occurred in 1921–1922, 1924–1925, 1927–1928, and 1931–1933, while the invasion of locusts took place in 1928–1931, consuming most vegetation not devastated by drought. Official reports at the time point to dismal conditions:

The natives in the valley have been subsisting on forest foods for the first six months. Shortage of grazing has been acute and the cattle are in poor condition. (CPK 1921: 9)

The Suk [Pokot] and Njamus [Il Chamus], who live to the greater extent on meat, blood and milk, have also been affected by the locusts, their winter grazing has been eaten, and their herds of stock can be seen daily eating the leaves of trees and even the bark of certain trees. (CPK 1931: 3)

The 1920s and early 1930s were a time of hardship for the Il Chamus. Processes of erosion and vegetation change could have been initiated during these years, but long-term damage is likely to have been minimal since the livestock sector fully recovered following these disasters. Without vegetation cover, the period of intense rainfall that usually marks the end of droughts could have swept top soil to the lake and begun processes of gully erosion (although as noted below erosive

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processes were at work prior to these years). On an aggregate scale, the fifteen-year rainfall average during 1920–1935 was 20 percent below the long-term mean, indicating a period of sustained drought (Kenya 1984: 41). The pastoralists' inability to utilize grazing in Laikipia and the imposition of a market ban on cattle sales (discussed in chapter 3) worsened the effects of the drought and locust plague.

How much of a grass cover the Njemps flats (non-swamp areas) ever had, prior to the calamities of the 1920s and 1930s, is difficult to assess. Some early explorers' accounts note the paucity of grass cover in Njemps at a time when the area was mainly under cultivation. Thompson, for example, makes reference to "barren" plains where "everything was burnt up by drought till the grass crumbled into powder under our feet and the rich alluvium was cut up in all directions by yawning rents" (1885: 263). Von Hohnel (1894) writes about dust storms; one of the nineteenth-century irrigated farms was even called the "farm of dust" (*ngrummah ee nterit*), further evidence that grass cover may have been sparse then. It is noted in oral tradition, however, that certain grasses, both annual and perennial, that were found in the past are no longer seen. Elders are also quick to point out the increase in the dominance of non-grasses, such as *Heliotropium* spp. and *Tribulus terrestris*. While the latter has the disadvantage that it loses nutritional value and plant vitality shortly after the rains have ceased, *Heliotropium* is unpalatable and causes stomach disorders when consumed by cattle and sheep.

If irreversible damage to the environment has occurred during this century, it is difficult to assess how much it has hurt the pastoral economy. The reason is that the swamps are, and have always been, the key to the production system, and they do not seem to have been subjected to any permanent damage (cf. FAO 1967; Homewood and Rogers 1987). The non-swamp areas are important only in so far as they provide browse for goats and a small flush of vegetation each year, allowing cattle and sheep to exploit them for a short period. The uneven distribution of good grazing puts extreme pressure on areas that border the swamps, but it is unlikely to cause permanent damage to the swamps.

### *Other land-use changes*

The major land-use change in Baringo during 1920–1945 took place in the main crop-producing areas rather than in the pastoral zone. This was the replacement of finger millet with maize in rainfed cropping zones. Although it occurred outside the semiarid areas, the change had considerable implications for the Il Chamus area.

### **The shift to maize**

In 1921 nearly 100 percent of cultivated land in the district was allocated to finger millet and, to a lesser extent, sorghum (CPK 1924: 2). The colonial government encouraged the production of maize in the higher-rainfall areas by making maize seed easily accessible and by importing large quantities of "cheap"

maize grain to encourage its consumption (discussed in more detail in chapter 3). Tugen farmers in the highlands quickly took to maize production because it produced more per land unit, required less labor, and had a faster-growing market than finger millet. By 1929 it was reported that almost every highland farmer grew maize of “a very satisfactory type” (CPK 1929: 36), and by the 1930s maize had largely replaced finger millet as the staple grain in Baringo. Thus, in a period of less than twenty years, a virtual revolution in agriculture had taken place. Its negative side effects would emerge only in later years.

Maize production in the highlands of west and southwest Baringo intensified in the post-World War II era. By this time, the ox plough had been introduced to southwest Baringo and, as has been demonstrated for other districts of Kenya (e.g. Nandi and Kericho), its use greatly expanded the amount of land that could be cultivated (Manners 1962; Van Zwaneberg 1975). Technological changes, and associated production gains, did not go unnoticed: “There is a tendency towards ploughing and the bigger scale production of maize [in south Tugen] for export to the importing areas of the district” (CPK 1946: 4). In the late 1940s southwest Baringo was said to produce “enough maize to feed itself and sufficient surplus for consumption in the Njemps and Suk areas during the first part of the year when supplies of milk and blood are short owing to drought” (CPK 1948: 24).

The transition to maize also occurred in less-favorable ecological areas. For example, Tugen herders on the plains, who mixed livestock rearing with rainfed cropping, replaced local cereals (finger millet and sorghum) with maize. The substitution of maize also took place in the lower altitudes of the Tugen Hills where cropping was more important, but where drought-resistant varieties of sorghum and millet were more appropriate than maize. The shift to maize in these areas seriously jeopardized food security, since, unlike the highlands, they were poorly suited to producing maize.

### **Introduction of export crops**

Between 1960 and 1980 Baringo experienced a rapid increase in the production of such export crops as coffee, pyrethrum, wheat, onions, and red chilies. These changes reduced the amount of surplus grain available for trade with the pastoral areas. The commercialization of agriculture also increased land values in the highlands, pushing poorer farmers into low-rainfall areas, where they competed with herders for land.

Production of export crops in Baringo began slowly in the 1950s, but it increased rapidly in the 1960s and 1970s. The growth of pyrethrum and coffee production between 1960 and 1978 is shown in table 2.3. As the table indicates, land devoted to the production of pyrethrum and coffee during the 1960s increased spectacularly. The trend slowed slightly in the 1970s, but that decade’s overall increase (up to 1978) was nonetheless 80 percent (all in pyrethrum, coffee hectareage remaining stable).

Other commodities that transformed land use in the agriculture sector were introduced. Onion and chili pepper production on the Perkerra Irrigation Scheme



Table 2.3. *Coffee and pyrethrum production, Baringo district, 1960–1978*

	Pyrethrum (ha)	Coffee (ha)	Total (ha)	Percentage increase in total ha
1960	14	—	14	—
1963	42	25	67	379
1966	121	99	220	228
1969	150 (est.)	99	249	13
1972	189	96	285	14
1975	375	97	472	66
1978	338	133	471	0

Source: Based on Baringo District Annual Agriculture Reports (1960–1979).

are good examples. The scheme itself points to the importance that the state played in dictating land-use patterns. Although planning for irrigation began as early as the 1930s, implementation was delayed until the 1950s, when the administration used the labor of Mau Mau detainees and the land of the II Chamus to construct the scheme.<sup>13</sup> The initial aim of the project was to produce enough food (not export crops) for some 400 settled families, with surplus to be sold to neighboring famine-prone areas. During its first few years (1954–1958), the scheme failed to become the expected “granary for the whole of the northern area of Baringo” (CPK 1927: 8), but it did increase local grain availability, with up to 5,000 sacks of maize marketed annually in the 1950s (CPK 1957: 10). Only a few years later, however, the scheme abandoned its food grain policy in favor of onions and, later on, chili peppers for the export market. The strategy was believed by the administration to be a solution to the project’s financial woes (Chambers 1973), but the deficits were to continue nonetheless (see discussion in chapter 8). To accommodate this new emphasis, the scheme enforced restrictions on maize cultivation and consequently its production declined from approximately 350 hectares in 1960 to less than fifty hectares in 1978.<sup>14</sup>

In the highlands, too, the production of export crops reduced the area of maize and, to a lesser extent, finger millet cultivation. The decline in maize cultivation in these areas between 1960 to 1978 was approximately 15 percent (based on CPK 1960; Kenya 1978, 1979). Most of this decline came during 1975–1979, a time when maize producer prices fared poorly relative to prices of other crops. A crop that has especially gained at the expense of maize is wheat, a grain marketed outside the district. From 1977 to 1979 the area under wheat cultivation in Baringo grew from 54 to 450 hectares, the latter representing almost 8 percent of land allocated to maize (Kenya 1979: 6). During the same period, cultivation of maize in the medium- and high-potential agroecological zones declined from an estimated 7,300 to 6,400 hectares, a 12 percent decrease (Kenya 1977: 10; Kenya 1979: 6). This shift to higher value crops, including coffee and pyrethrum, has unfortunately pushed food crops farther out into the marginal, low-rainfall areas.

## Summary

This chapter has shown that a regional approach is necessary to understand land-use changes and the formation of the Il Chamus community. Examining the regional ecology of Baringo reveals that a concentration of grazing and water resources forced the community to interact with several regional groups. The Il Chamus community itself was formed by the incorporation of different families and clans originating over a large part of the Rift Valley. History shows that the area moved from being a surplus grain-producing zone to one dependent on imported foods. Food and land problems were aggravated by changes elsewhere in the region, changes that reduced grain availability and led to encroachment on grazing lands. The colonial state had a part in these changes but its contributions both benefited and damaged the Il Chamus. While administrative protection allowed the Il Chamus to shift to livestock production, the state removed important grazing areas, jeopardizing the long-term viability of pastoralism. Official acknowledgement of a “crisis” had been made as early as the 1920s, but serious responses to the situation were hampered by the contradictory policies of the colonial state. After independence the state pursued an export-crop policy among smallholders that did little to improve production in the semiarid areas.

# 3

## Markets and the state

Marketing patterns in Baringo evolved in response to a particular set of historical and ecological conditions. As in other parts of East Africa, the range of agroecosystems permitted a system of exchange to develop in the precolonial period, whereby herders of the semiarid zone traded livestock and its products to the agriculture sector in exchange for grain (see Hjort 1981b). Neither vertical marketing systems nor marketplaces existed at the time, but there was horizontal barter exchange between the settlements and herders who used the area: the Maasai from the south and the Pokot and Samburu from the north. It was these exchange relations that helped to define the role of the Il Chamus in larger regional systems of northern Kenya. As noted in the previous chapter, the Il Chamus settlements also exchanged grain with trade caravans en route to the African interior.

This chapter focuses on marketing in the colonial and independence eras, with particular attention to the role of the state in controlling marketplaces and distribution systems. I suggest that market centers in Baringo grew in response to the demands of the colonial state, rather than as a result of increased commercial activity. When a government post was established, the administration also encouraged the establishment of one or more retail stores for providing supplies for government employees, fostering a sense of permanency, and competing with itinerant traders, who were the bane of the state because it could not control them. This policy of encouraging market settlements around administrative posts – while discouraging mobile traders – was pursued in many parts of northern Kenya (Dalleo 1975: 145; Sobania 1988: 233). The market structure that emerged in Baringo increased local dependency on large market towns located outside of the district, as well as inhibited intraregional exchanges.<sup>1</sup> Data presented in the chapter demonstrate that the structure of Baringo’s market, which can be traced to the colonial period, facilitates the import of commodities such as grain, but does little to enhance local food security or production.

### **Granaries and the evolution of livestock markets: the early colonial period**

The perception of what area of Baringo was the grain “basket,” or what early explorers and colonialists liked to call the “granary”, had changed by the time the

British arrived in the 1890s. The capacity of the Il Chamus to produce a surplus was on the decline, and European explorers and Arab traders began to look elsewhere in the region for food. This statement from the 1890s is indicative of the location's demise:

Njemps, formerly a centre for Swahili caravans proceeding to Kavirondo and the great lake, has now sunk into comparative oblivion. Food is exceedingly scarce, and chiefly bought by the natives from Kamasia [Tugen]. (Austin 1899: 307)

By the turn of the century, grain supplies and prices were more favorable in the Tugen areas than in Njemps (Gregory 1896: 119). Even reference is made at the time to Kamasia (Tugen), and not Njemps, as “*the granary of the whole neighborhood*” (my emphasis) (Von Hohnel 1894: 434).

The Il Chamus and, to a lesser extent, the Tugen transition to pastoralism was assisted by itinerant traders, who imported grain into the area. The traders – either Nubian, Indian, Swahili, or Somali – took advantage of market demand at a time when local cereal production was on the wane. They traded in both cattle and grain, buying cattle from northern areas (Pokot) and exchanging them for small stock in deficit areas like Njemps. These traders also purchased maize from European farmers in Nakuru and Ravine Districts,<sup>2</sup> transporting it via donkeys to Njemps and other semiarid areas of Baringo. Prior to 1930 most of these traders exchanged the grains for goats or hides and skins rather than money.

The goat-for-grain trade, as described to me by an elderly Nubian trader, was fairly systematic (cf. Anderson 1981a). The maize was bought from European farmers in the Ravine and Nakuru Districts for a price in the early 1920s of about six shillings per 90-kg sack (ranging from three to eight shillings per sack depending on the harvest and month of year). It was then ground into *posho* (maize meal) at the Eldama Ravine mill (established in 1928) or at a mill in Nakuru District for two shillings a sack. *Posho* was transported via donkeys to the Il Chamus area and exchanged there at an average price of one goat per *pisi* (an approximately 25-kg load). The trader then took the goats to Mogotio on the Baringo/Nakuru border, where they were sold on average for six shillings per head and shipped to Nakuru or Nairobi. Thus for an eight shilling investment in grain, traders received an approximate twenty shilling return.<sup>3</sup> The same trader who sold grain might purchase cattle from northern Baringo, exchanging them for small stock to the Il Chamus and Tugen. The exchange rate was as high as twenty-six small stock per heifer in the 1910s and 1920s.

The two important characteristics of the informal trade were (1) the dependence on maize produced by Europeans and (2) the dominance of ethnic traders who eventually became scapegoats for the administration. The southern Tugen area, later to become a large maize surplus area (“granary”), was mainly under finger millet production until the late 1920s, and thus it provided only a minimal amount of grain for this trade. Millet prices in the early part of the century were generally lower than prices for maize (CPK 1915). Il Chamus usually bought millet directly from Tugen farmers, thus avoiding the middleman mark-up that characterized purchases of maize coming from European farms of Ravine and Nakuru Districts.

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Official restrictions on African producers and traders retarded their entry into the maize trade even after marketable surpluses were attained.

Europeans at the time controlled both the supply and the processing of maize, while Indians dominated its transport. Lack of competition in the processing industry allowed mill owners to reap exorbitant profits. The price for processing maize grain into flour (two shillings per 90-kg sack) was equivalent to 25 to 67 percent of the cost of the grain itself, and was twice the rate charged by Asian operators in Baringo in the late 1920s. Millers of Nakuru and Ravine had a virtual monopoly on milling until 1927, when Baringo's first mill opened. Their influence declined in the 1930s in response to increased competition by Asian-owned mills operating out of Kabarnet (CPK 1936: 21).

### *Constraints on livestock trade*

Livestock trade, dominated by Somali merchants, grew considerably during the 1900–1920 period. The existence of only one stock route out of the district, however, via Mogotio along the Nakuru border, forced Baringo's traders to trek animals long distances. An attempt to create another stock route through Rumuruti (Laikipia District) in the 1920s and 1930s was halted by the administration under pressure from European ranchers. The new stock route would have been considerably closer to the district's major livestock areas, reducing the costs of movement and allowing herders access to such lucrative highland markets as Nyeri and Nanyuki. White settlers of Laikipia, fearing the spread of stock diseases and the competition from African producers (Van Zwanenberg 1975), successfully petitioned the government to disallow the new route. The animal-health factor, of course, was emphasised by the European community in its dialogue with the administration. Without alternative stock routes, livestock prices in central and northern Baringo remained lower than elsewhere in Kenya (for price data in Maasailand at the time, see Mosley 1983).

Livestock marketing in Baringo was also severely affected by market quarantines, beginning in 1921. In that year cattle exports were banned for a period of two years, due to the presence of bovine contagious pleuro-pneumonia.<sup>4</sup> This was almost immediately followed by a longer quarantine for foot-and-mouth (FMD) disease, which lasted from 1923 to 1934. Livestock traders in Baringo, as well as in most of northern Kenya, were forced to concentrate on goats and sheep, although intradistrict cattle trade was permitted. Herders, in turn, were confronted with a "Catch-22" type situation: they were actively encouraged to enter the cash economy, but were effectively blocked from earning cash from sales of cattle. Given limited market alternatives and excess supplies, the price of small stock remained low, at around two to three shillings per animal, during the quarantine years. Moreover, without an outlet for surplus cattle overstocking accelerated and, in turn, created the environmental conditions that led to drastic stock losses during years of low rainfall. At least some of the stock deaths that took place in the terrible droughts of the 1920s and 1930s can be traced to the overstocking caused by market restrictions. The possibility of a linkage between drought

conditions (and animal losses) and the quarantine was recognized by the administration, although action to remedy the situation was never taken (CPK 1925: 12).

The quarantine resulted in rapid growth of the marketing of hides and skins, whose export was not restricted. Traders purchased these product(s) from local herders who, after consuming an animal, would dry the hide or skin in preparation for sale or local use. Prices of hides and skins in Baringo were relatively good until the 1930s, when the market for leather exports collapsed. Kettel, for example, notes that in 1921 a cow hide was worth, in monetary terms, as much as a month's wages for an unskilled worker (1980: 115). By contrast, in the 1940s and 1950s its value relative to wage employment declined considerably, and as of the 1970s and early 1980s it was worth only a fraction (approximately 10 percent) of a month's wages. Thus, the favorable price structure for hides and skins in the 1920s ameliorated to some extent the effects of the market quarantine, a scenario that did not hold true for later bans.

### *Famine and the expansion of grain trade*

Commercial activity in Baringo (and Njemps) was spurred by drought and locust disasters in the 1920s and 1930s. These events reduced stock holdings in some areas up to 50 percent and resulted in significantly increased commercial imports of grain. They also led to the first distribution of famine relief in the district. Government concern with what was called "the shadow of famine" (CPK 1932: 2) increased the state's presence in the Baringo grain market, and led the administration itself to import European-produced maize for local sale. Government sales were greatly subsidized and price controls were often enforced, but in spite of this action the threat of starvation, especially among the lowland Tugen, was widespread.

Famine relief was distributed in Baringo from 1926 to 1933. The main recipient area was a rugged zone of northern Baringo called the "Tugen fringe." This north-south belt runs from Sabor to Yatya, and accounted for more than 75 percent of total relief distribution in certain years (CPK 1933: 7).<sup>5</sup> Since the Pokot and Il Chamus of the district were often able to feed themselves "by exchanging hides for posho", they received less direct food aid (CPK 1933: 4). The amount of annual food relief distributed depended on the severity of the year, but it only averaged around 2,000 sacks (180 metric tons) per annum during the period – a small amount compared with actual consumption needs. Annual fluctuations were considerable, while the annual requirements of individual groups and specific locales varied as well. For example, in 1932 distribution was only 1,545 sacks (139 metric tons), while in the following year, when the drought worsened, district imports rose to 3,000 sacks.

Most grain was provided on a food-for-work or subsidized barter basis, with the latter usually involving the exchange of goats at a rate of 45 kg of grain per goat (as compared to 25 kg per goat in the early 1920s: p. 41) (CPK 1932: 8). The Il Chamus and Pokot usually exchanged animals or hides and skins for famine relief, while the Tugen, who owned fewer livestock than these groups, commonly

worked for their rations. Several access roads and conservation works were constructed under the food-for-work program, which resembled the relief programs that reemerged in the 1970s and 1980s (see discussion in chapter 6).

### **Dependence on grain imports**

Despite the import of famine relief, significant local grain trade continued outside of food aid channels. During the early 1930s it is estimated that annually 11,260 sacks (1,013 metric tons) of maize were purchased by Baringo residents through commercial channels (CPK 1931–1932), which is about six times the amount distributed under relief programs. In short, responding to the food needs of drought victims proved to be “good business” for certain merchants and commercial growers. Retail business during the drought years, for example, was especially good, and while it was dominated by Indian merchants at least some European interest in retail trade was recorded (CPK 1929: 32).<sup>6</sup> As compared to pre-drought years, grain imports to Baringo – including maize obtained through barter – rose approximately 500 percent from 1926 through 1933. At least part of this increase can be explained by a general shift from grain to livestock production, but most can be attributed to (1) the harsh conditions of the time, (2) pressures from European settlers to find markets for their grain, and (3) the increased importance of retail stores.

The heavy imports of maize and the active role of the state during the 1920s and 1930s kept retail prices artificially low, making such locally produced cereals as millet and local maize, which had been lower in price than imported maize before the 1920s, noncompetitive. European producers, whose sales were subsidized by the state, had a considerable advantage over African (Tugen) farmers, who were forbidden to sell grain to Indian shops in the area (CPK 1931–1932). During the period of heaviest imports (1926–1933), the retail price for maize meal varied from twelve to twenty-one cents per kg, which was considerably below the cost of flour prior to the drought (thirty-seven cents per kg in 1922) (CPK 1922: 11). The active intervention of the state may have improved food security in the short term but over the long run it created a system of controls and distribution that increased dependency on imports and disrupted local production and trade.

Most of the grain imported into Baringo came either from the Kenya Farmers Association (Nakuru), a settler-dominated farm cooperative, or directly from European farmers of Nakuru and Ravine Districts. The Baringo district administration arranged for the imports and, in some cases, it signed contracts with producers to supply grain at fixed prices. Large-scale farmers of Nakuru District, who were suffering from the loss of international markets at the time, benefited greatly from this trade. The administration also contracted with transport companies to move the grain from Nakuru to Marigat and/or Kabarnet. The government was active at the retail level as well, establishing its own outlets and intervening to keep prices low.<sup>7</sup> For example, in 1922 when an Indian shopkeeper at Kabarnet was selling maize at ten shillings per 25-kg load, the government, in order to reduce prices, offered grain from its own “food account” at a price of five shillings per load (CPK 1922). By the end of the year the retail store owner had

agreed to sell maize for 5/50 shillings per load. As noted earlier in this section, the grain/goat exchange, which was the usual means of obtaining grain at the time, also showed a government-induced reduction in price.

Further stimulus for trade came from the food-for-work program that, as noted earlier in the chapter, was used to construct roads. With this source of labor, the state established important transportation links between Marigat and Kabarnet, Marigat and Kapedo, and the eastern and western sides of Lake Baringo.<sup>8</sup> The construction of these roads allowed the lorries of private traders to traverse the entire north–south road of Baringo District (Mogotio to Kapedo), as well as to reach Kabarnet via the Marigat–Kabarnet road. The change was dramatic, allowing most of the larger market/administrative centers to be served by motorized transport. In the late 1920s travel time from Nakuru to the district headquarters at Kabarnet was reduced from ten to five hours (CPK 1928: 7).

### **Changes in demand and consumption patterns**

The cumulative effect of the drought and relief efforts was to alter local demand and consumption patterns toward maize and away from finger millet and, to a lesser extent, sorghum. The change was fairly dramatic since in the early 1920s only about 180 tons of maize were imported annually.<sup>9</sup> By contrast, imports were in excess of seven times this amount in the early 1930s. While information on millet marketing and consumption is minimal, statements by colonial officials suggest that prior to the 1920s it was more important in the local diet than maize (CPK 1924: 2). These perceptions are confirmed by interviews with elders and grain traders who point to the former prominence of millet in local consumption patterns. That district records no longer provided information on millet prices after the early 1920s may be proof of its declining importance.

The substitution of maize for millet in the local diet in part resulted from state action during and immediately after the drought years. As indicated earlier, maize grain was initially sold at concessionary rates or allocated on a “food-for-work” basis. Local markets were flooded with imported maize, and local grain producers found it difficult to compete, even in years of adequate rainfall. By 1932 when the area had begun to recover, herders already had shifted toward maize consumption and local cereal producers toward maize production. A complex web of institutions and support facilities were in place to insure the predominance of maize, including flour processing facilities (manual and power-driven), a system of input distribution (seeds and tools), and markets (the latter still not completely open to African producers). As it would be several years before Baringo attained self-sufficiency in maize, the region remained dependent on maize imported from Nakuru.

### *Policy controls*

The government influenced the scope of commercial activities in Baringo through different control mechanisms. Many of these were “fine-tuned” during the 1920s and 1930s, when the state assumed an active role in marketing activities. In



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addition to regulating grain imports, the state controlled the licensing of traders, the construction of transport infrastructure, and the gazetting of market centers. These all affected grain markets but in different ways. For example, the increase in government-gazetted market centers forced Baringo's itinerant grain (flour) traders, who earlier had been able to cover territories that were not served by retail stores (*duka*), out into the more remote areas of the district to find markets. With the number of "official" centers increasing from five in 1928 to twenty-four in 1933, small-scale traders assumed a less significant role in the maize-meal (*posho*) trade. Instead of buying grain directly from traders or farmers, Il Chamus herders in the 1930s increasingly purchased it from shops at Loimkumkum, Mukutan, Marigat, and Kampi ya Samaki. In addition to reducing the importance of itinerant traders, the growth in the number of retail businesses also diminished the significance of local barter trade.

The sanctioning of trade centers was a way to control commerce, to rid the area of itinerant traders ("undesirable Somali"), and to secure retail outlets for European-produced grain and manufactured goods. Thus, at approximately the same time as the administration was encouraging retail businesses, establishing trading centers, and building market roads, it was restricting the number of licenses for itinerant traders. In 1932, eighty trading licenses were being issued annually, but by 1934 the number had been reduced to seventeen. The administration favored the licensing of Nubians and Swahilis, who were often former soldiers or other government employees and were thus considered loyal subjects (CPK 1934: 24; CPK 1932–1942). By the mid 1930s hawkers were largely constrained to trade in livestock and hides and skins, while wholesale and retail grain trade was mainly in European and Asian hands, respectively.

The location of market centers often had more to do with administrative decisions – for example, placing administrative posts in areas of "suitable" climate or strategic military importance – than with market factors. When a government post was set up, the administration encouraged the establishment of retail stores to provision government employees and to enhance the stability of the settlement. The more important administrative centers, such as Kabarnet and Marigat, became wholesale centers for the grain trade. Nakuru town, the Rift Valley provincial headquarters, was a level above them in administrative and commercial importance; it controlled the supply of grain through these centers. The administrative and marketing hierarchies overlapped so closely – with a string of petty centers at the bottom, a small number of wholesale distribution markets in the middle, and a dominant town at the top – that it was difficult to distinguish between them. Strongly influenced by the state, the distribution structure resembled what Smith (1976) calls a dendritic market.

The first gazetted trading center in Il Chamus was Mukutan, an early district headquarters site with the only retail business in the area until the early 1920s. A second *duka* was then started at Marigat, a center that also served an administrative function. Merchants of these centers turned to the state to secure market advantage, although public patronage was not always forthcoming. For example, when Loimkumkum was gazetted as a trading center in the 1930s, an Indian trader

at Marigat protested vehemently to the government of “unfair competition” and the potential “loss of customers” (CPK 1938b). At the time the trader had a virtual monopoly on retail activities in the lake area and did not welcome the competition. The government ruled against the Marigat merchant, allowing not only one but two businesses to be started in Loimkumkum. In this case the administration acted properly and demonstrated some understanding of local market conditions. Loimkumkum is an area cut off from Marigat during the rains and retail outlets were (and still are) needed.

The favoring of permanent retail stores over mobile traders by the state had several deleterious effects on Il Chamus consumers. First, it restricted options for purchasing grain, forcing consumers to buy from local store owners who did not always have supplies during periods of drought. Second, it increased the area’s dependence on grain imports, which often came from European farms of Nakuru District. As discussed above, the importation of these cereals was controlled and subsidized by the state, which gave the European farmer a considerable advantage over Baringo’s producers. Finally, the predominance of retail stores diminished the option of barter exchange by the consumer, assuring greater incorporation of the Il Chamus into a cash economy. It should be noted, however, that the administration was never able to control effectively all barter exchange, and even today many store owners in remote parts of Baringo accept small stock and hides and skins in payment for grain. Nonetheless, Il Chamus dependence on the retail store (*duka*) for their subsistence needs, an important characteristic of the contemporary economy (see chapter 6), can be traced to this period of government intervention.

### **The first destocking efforts: 1935 to 1945**

Cattle exports resumed in 1935, after nearly thirteen years of continuous quarantine. In that year 668 cattle were exported, a minimal amount in comparison to potential sales, but nonetheless an important beginning (see table 3.1). The purchased cattle were mainly headed for European ranches in the Rift Valley where they would be fattened and eventually sold, or directly to urban markets for consumption. Following a year of sporadic market closings, cattle exports picked up considerably, with average annual exports of 1,444 in 1937.<sup>10</sup> With the area officially declared “clean” for exports, local prices for both cattle and small stock rose substantially. However, it was not long before the government again intervened in the Baringo livestock market.

No sooner had Baringo’s herders begun to recover from the recent droughts, than they were confronted with an equally unpredictable entity, the administration, wishing to enforce compulsory stock reduction. The drought and environmental problems of 1926 to 1933 provided ammunition to officials who wanted to destock the pastoral areas. This was true not only for Baringo but also for Kitui and other semiarid areas of Kenya. The government believed the environmental “crisis” of the period resulted as much from local mismanagement and an irrational obsession among pastoralists to possess large herds, as it did from the drought and locusts. Though some government officials earlier acknowledged that

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Table 3.1. *Cattle sales, Baringo District, 1935–1979*<sup>a</sup>

Year	Number sold (Number sold at Marigat) <sup>b</sup>	Year	Number sold (Number sold at Marigat) <sup>b</sup>
1935	668	1958	13295 <sup>d</sup>
1936	194	1959	14330 (est. 3000) <sup>d</sup>
1937	1444	1960	10357 <sup>d</sup>
1938	?	1961	8077 <sup>d</sup>
1939	8792 <sup>c</sup>	1962	3889
1940	?	1963	5524
1941	2765	1964	?
1942	2724 (761)	1965	4499
1943	1558 (404)	1966	8787
1944	1065 (442)	1967	5362
1945	2068	1968	4088
1946	?	1969	13917
1947	6916 (628)	1970	15136
1948	5434	1971	6096 (est. 1486)
1949	10078	1972	9237
1950	2169	1973	11011 (est. 2520)
1951	4200	1974	7207 (1227)
1952	6000	1975	5757 (1771) <sup>e</sup>
1953	7908 (1943)	1976	2171 (1258) <sup>e</sup>
1954	5501 (2266)	1977	5674 (3148)
1955	4704	1978	1972
1956	2797	1979	4320 (2189) <sup>e</sup>
1957	6583		

*Notes:*

<sup>a</sup> Based on District Annual Reports (1935–1961); Annual Agricultural Reports (1953–1979); and Market Data, Ministry of Agriculture, Marigat.

<sup>b</sup> In most years cattle sales are not disaggregated for specific markets such as Marigat. In years for which Marigat sales are available (actual or estimated), the figure appears in parentheses.

<sup>c</sup> A destocking program was implemented that raised the number of animals sold.

<sup>d</sup> Destocking programs were operative during parts of these years, distorting the number of animals sold. The government forced many herders to sell to the abattoir at Marigat during this period.

<sup>e</sup> The Marigat auction was closed at least four months during this year as a result of quarantine.

quarantines were to blame for much of the “overstocking” (CPK 1925: 1), destocking of pastoral herds, through forced sales, was considered necessary. Relying on questionable data from a rinderpest campaign of 1936, the state allocated destocking quotas equivalent to around 10 percent of the existing herd. The state-appointed chiefs, including those in Il Chamus, were then held responsible for enforcing these measures (CPK 1939: 3). The government supported the program with legal sanctions; the “Baringo Rules” made it a criminal offense for any herder who refused to sell the required 10 percent of cattle and goats and sheep (CPK 1939: 16). Not surprisingly, the destocking campaign provoked considerable ill-feeling among the Il Chamus: “Presumably the last disputed bull

or goat is seized by the head by the owner and by the tail by the Veterinary Officer and both pull” (CPK 1936: 19).

Two important underlying factors motivated the destocking program in Baringo. First was the fear among European farmers that unless animal numbers were reduced the trespass of cattle onto bordering European farms would increase. While the concern was mainly directed to Tugen herders of south Baringo, European landowners of Laikipia also expressed concern about Il Chamus stock movements. European settlers were strong advocates of destocking and increased grazing controls in the African areas (Anderson 1982).

A second factor was the need to insure cheap supplies of cattle to government-subsidized meat factories (located outside of Baringo District), which were operated by the transnational company, Leibig. The colonial regime had granted to Leibig, a predecessor firm to Unilever, a monopoly on the meat-processing industry in Kenya. It helped the firm to procure raw materials by initiating destocking programs, which both increased supply and reduced the operation’s costs by flooding the market with culled animals and thus reducing stock prices. Because the European ranchers feared competition from African beef producers, they also favored canneries and abattoirs, like those operated by Leibig, as a means of restricting the number of live animals on the open market (Mosley 1983: 53).

The government encouraged the Leibig Company to buy all “surplus” cattle and some “surplus” small stock in Baringo. Private traders were restricted from buying cattle and a virtual monopoly on cattle marketing was granted to the company in the late 1930s. The monopoly, which lasted from 1939 to 1944, facilitated both the destocking campaign and the provision of cheap meat to the British army during World War II. The destocking program resulted in 8,792 cattle being exported from Baringo in 1939 (see table 3.1). The renewal of government controls depressed livestock prices during the period, forcing them below pre-1939 levels. Thus, while prices for cattle were 40 to 100 shillings per head prior to 1939, during the Leibig period the average price exceeded 40 shillings per head in only one year (CPK 1944: appendix C). Further evidence of market distortions created by the Leibig monopoly comes from a comparison of price data between the war and postwar years. In the immediate postwar era (1945–1947), when cattle trade was liberalized, average prices in Marigat rose more than 50 percent within an eighteen-month period (CPK 1947: appendix B).

In addition to restrictions on cattle trade, the government imposed controls on maize marketing during World War II. The Baringo District Commissioner, under the Defense Regulations Act, was given powers to check monthly returns from all traders in Baringo (CPK 1940: 6). Strict control of trader licensing was the norm, and ethnic traders, such as Somali, were often denied permits. Districts in Kenya were given strict maize import quotas, which, as in the case of Baringo, were often far below local needs (CPK 1943: 1). Thus, while the state forced herders to participate in the market through destocking campaigns, its ability to distribute such needed commodities as grain and sugar was limited. Pastoralists quickly

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learned of the hazards of market dependence for household reproduction. The maize distribution problems during the war are well remembered locally, with the food shortages and drought of 1943 still being referred to as *Ngolong ee Chai* (“drought of tea”). The name reflects the scarcity of retail commodities (e.g. grain) other than tea, during a year when “the government encouraged us to sell animals for cash” (interview with Il Chamus elder, author’s field notes).

## **From import to export: the post-World War II era (1946–1968)**

The immediate postwar period saw fundamental changes in Baringo’s grain market. This was a result of declines in imports and the “freeing” of trade. These changes improved retail distribution and prices for consumers in the pastoral areas, but had a greater impact on producers and wholesalers in the farming areas of southwest Baringo. As I noted in chapter 2, large-scale gains in maize production occurred in the southwest during this time as a result of the introduction of the ox plough. The state’s removal of restrictions on African participation in maize trade and production was also a factor in increased production. By the 1950s annual grain imports had declined precipitously, with the district attaining food self-sufficiency in certain years (CPK 1956: 24).

The orientation of the grain trade after the war was from south-to-north, and most of the circulation tended to remain within the district. Compared to the earlier import-dominated system, this was a welcome change. This trade strengthened Baringo’s status as a regional market, which in terms of grain was only just beginning to take shape. In the postwar period grain imported into Njemps Location and other deficit areas came from southwest Baringo, the new granary of the region. The trade as it related to Njemps was three-tiered. Wholesale centers were established at Emening and Marigat, which, in turn, were supplied from Eldama Ravine and Lembus, where most of Baringo’s maize was (is) produced. The pattern remained intact until the 1970s, when the integrity of the system was greatly weakened (this is discussed later in the chapter). Retail store (*duka*) owners in Njemps purchased maize meal from one of these two wholesale centers or from private traders, who occasionally transported maize directly from the Ravine area to Njemps. Asians remained important in this trade, particularly at the wholesale level, although Tugen merchants were gaining ground and were to dominate this commerce after independence.

## *Emergence of African trading companies*

Tugen entrepreneurs began to buy retail businesses and trading companies, often shipping maize in their own lorries directly to northern Baringo. The more prosperous traders formed companies in the 1940s (CPK 1946: 4), prompting an initial government reaction of increasing controls in order to protect European producers. The locally produced maize, grown mainly on small farms (less than five hectares), was considerably cheaper than grain imported from large European farms, even when the government facilitated sales (CPK 1947: 14). Van

Zwanenberg (1975), for example, shows that in the late colonial period (European) settler-produced maize in Kenya sold for almost twice the price of African grain. It was decided by the district administration in the late 1940s to turn over most of Baringo's grain trade to Africans, particularly to the Tugen-owned Lembus Trading Company (CPK 1947). Located in Eldama Ravine, this enterprise became a dominant regional force in trade and transport. According to the colonial record, the main reasons for allowing commercialization of African-grown maize was to discourage both excessive cash cropping and illegal movement of maize by Tugen, "which they would undoubtedly have done in order to prevent the Indians handling the trade in future years" (CPK 1947: 14).

The state's presence in the grain market became minimal after the decision to allow African participation in trade, the exception being drought years (e.g. 1960–1961) when official imports were required to supplement local stocks of grain. Growth in Baringo's agricultural production was such that in 1955 there was government consideration of exporting maize from the district (CPK 1956: 24).

The grain trade had become more regional in orientation than the earlier, import-dominated system. As a result, pastoral areas of central and northern Baringo, including Njemps, became better integrated with other sectors of the district, and the general dependence on Nakuru (and Europeans) to supply grain declined. Other bulking centers, such as Emening, emerged to serve the new regional trade; these grew more in response to market factors than to administrative pressures, a distinct departure from the past. More importantly, local availability of maize became less subject to factors external to Baringo – such as the demand for maize in other parts of the colony. This reduced the area's vulnerability to sudden changes in cereal supplies and kept within the district more of the revenue generated from the grain trade.

### *Changes in livestock marketing*

Livestock marketing was also liberalized immediately after World War II and prices increased temporarily as a result. Quarantines of more than one year rarely occurred from 1946 to 1968. The ethnic composition of livestock traders had changed by this time, with most of the Somali, Swahili, and Nubian traders being replaced by Kikuyu, Tugen, and, in a few cases, Luo. Il Chamus merchants participated very little in this trade except as local brokers for larger traders, and their role has remained relatively insignificant to the present.

Despite improvements, the livestock sector did not fare as well as agriculture. A major factor for this was renewed state intervention in the market. The Baringo case clearly supports Mosley's thesis that livestock supplies from pastoral areas in the colonial period had more to do with state policies than with price incentives (Mosley 1983: 107). The African Livestock Marketing Organization (ALMO), a government parastatal established in the late 1940s to purchase cattle from pastoral areas, disrupted regional and local markets and ended a short period of relative prosperity for traders and herders. The government-managed firm

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discouraged traders from working in the area, while at the same time often refusing to buy Il Chamus cattle, claiming poor quality. These actions brought about reductions in both local prices and herder participation in trade. During 1950–1951, for example, average cattle prices dipped to around seventy shillings per head (15 percent below 1948–1949 prices) and sales were off 80 percent from the previous two years (CPK 1950). The situation smacked of the “Leibig era” but with a public-sector slant, reminding herders once again of the risks associated with the market.

Initiation of monthly auctions sponsored by the Baringo African County Council temporarily revitalized livestock marketing in the mid 1950s. Welcome alternatives to ALMO auctions, they eventually outcompeted ALMO for local supplies of cattle. Like the African trading companies mentioned earlier, the County Council auctions at Marigat were an African response to an unfavorable market environment created by colonial policies. The sales attracted traders from Nakuru and other adjoining districts, as well as from such distant districts as South Nyanza. Prices were generally good, with average cattle prices of Ksh 169 and 145, respectively, in 1955 and 1956. The auctions served as the main outlet for cattle sales until around 1958, when the government reinstated controls on private trading.

This time state intervention was motivated by the building of a state-subsidized abattoir at Marigat. It served as a “field” abattoir for another state-owned parastatal, the Kenya Meat Commission (KMC), based in Nairobi. The abattoir, built in 1957 under strong protest from herders, was on the brink of financial collapse by the late 1950s; it simply could not compete at livestock prices paid by traders and had high operating costs as well. The abattoir had to buy stock at prices below those of the local market in order to be profitable. Once again the herder was asked to subsidize a miscalculated investment. One way to procure animals was for the government to implement another destocking program; another was to meddle with the market itself by giving the factory unfair advantage. In hope of bolstering profits for the new factory, the administration restricted trader activities and implemented another destocking program (in 1958 and 1959), which was again justified by the need to reduce “overstocking”. Table 3.1 shows the degree to which the destocking program and the abattoir’s activities resulted in increased (“voluntary”) sales in Baringo. The effect of the abattoir’s presence was to depress local cattle prices, which remained very low (approximately 115 shillings per animal) from 1959 until the abattoir’s financial collapse in 1962.<sup>11</sup> The factory’s decayed structure rests on a hill outside of Marigat, serving as a current reminder of the area’s history of development disasters.

## **The demise of the regional market (1969–1984)**

Two changes of the 1960s especially affected the regional market and the supply of grain to food-deficit areas such as Njemps. One of these transformations, the increased production of export crops in Baringo, is discussed earlier in the book (chapter 2) and need not be elaborated further here. The other, affecting the grain

market more directly, was the imposition of a government-controlled purchase system. Unlike the earlier system the new one was not designed to increase imports, but rather to export maize from the region. This regulated system, which was established to serve urban not rural consumers, is the one that the Il Chamus confronted during the droughts of the 1980s.

### *New purchase arrangements*

Market agents of the state-owned Maize Control and Produce Board were placed in grain-producing areas of southwest Baringo to buy directly from farmers, wholesalers, and cooperatives. This practice became a well established policy of the post-independence African government, which was caught in the paradox of trying to support smallholders, most of whom had suffered from discrimination by the colonial regime, and of insuring cheap food supplies for urban constituents (cf. Schmidt 1979; Bates and Lofchie 1980). In trying to serve the demands of both interest groups the African state clearly favored the urban residents, whose consumption is subsidized by rural producers who receive low prices. Herders proved to be very vulnerable to the new market policies since most relied heavily on local grain purchases. The movement of grain out of rural regions in order to feed urban centers placed pastoralists in the unenviable position of relying on a national distribution system for their grain needs.

The diversion of maize from southwest Baringo to urban markets outside the district aggravated the food problems in Il Chamus. The following quotations indicate the severe consequences of the new policy for herders:

Another item which has added to the shortage of Posho and an increase in price to all Baringo is the insistence of the Maize Marketing Board that all maize at the south end of the District be taken to Nakuru. Formerly no export whatever of maize from Baringo was ever allowed except by special order of the DC [District Commissioner]. Formerly all maize from the fertile and forested south was only exportable to the hungry north. Any illicit movement out of this district was severely dealt with. The present arrangement has increased transport costs, there is the board price of maize instead of the old internal arrangement and there is difficulty in getting movement permits, and further to cart the ground maize meal.

(Kenya 1970: 17)

Formerly, til 1965, Lembus Location (1/20 size of Baringo) was considered the granary of Baringo District, and maize produced there was sold gusted to posho at 45/ [shillings] per bag within the district only . . . The prevailing and expanding scarcity of maize and the soaring price of maize are artificially induced by the Maize Control and Produce Board, which exports maize from Lembus to Nakuru, and then sells back to residents of Baringo at approximately 200 percent increased price for posho even before it enters the trader's hands. (Ministry of Agriculture 1968: 1)

Certain officials went so far as to say that districts such as Baringo with major grain-deficit zones should be exempt from national market policies. For the herder, the maize market policies of the independent state were no more beneficial than those of the colonial regime and, compared to the late colonial period, they were much worse.<sup>12</sup>



*Responses of farmers and traders*

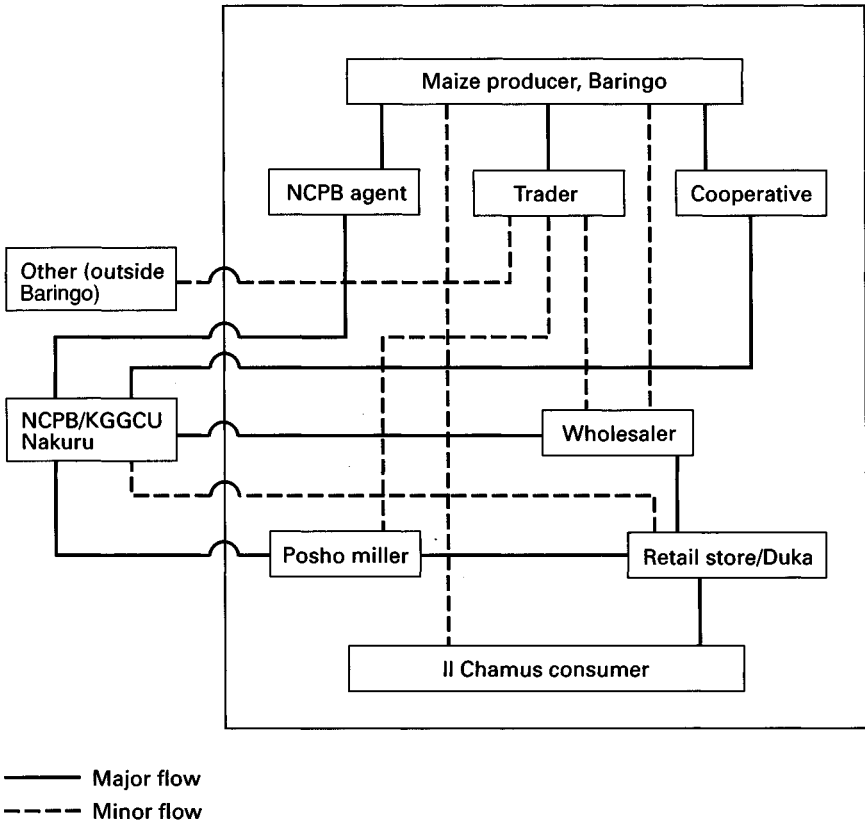
In spite of the presence of buying agents in the area, state control of surplus in most areas remained minimal until the late 1970s. Producers and traders were able to maintain previous marketing practices, including sales to the pastoral areas. Farm-level surveys conducted among Tugen cultivators in 1980–1981 indicate that most producers in south Baringo and in the Tugen Hills sold maize on the open market until 1978 or 1979. At this time the government increased its efforts to control marketing, partially in response to urban food shortages resulting from the 1979–1980 drought. This event, resulting in the “nationalization” of the maize surplus in all areas of the country, had serious political ramifications for the state (Bates 1987: 79). While farmer sales to the National Cereal and Produce Board (NCPB) (the successor to the Maize Control and Produce Board) in the Eldama Ravine area (including Lembus) made up less than 20 percent of total sales prior to 1980, after that year they accounted for more than 90 percent of maize transactions.<sup>13</sup> The Eldama Ravine area had a network of NCPB agents in the early 1980s, while in 1987 the board established its own buying depot and storage facility there.<sup>14</sup> Not surprisingly, the NCPB began to purchase and ship out of the district relatively large amounts of maize during the 1980s – in excess of 11,000 metric tons were bought by NCPB in Baringo during the 1983–1984 season (Murage 1989: 130). Eighty-six percent of Tugen farmers in the area note the major market change to be the increased presence of the government, particularly since 1978; while 50 percent of farmers claim they sold maize to traders until the late 1970s. By the 1980s less than 5 percent of producers supplied maize to central and/or northern Baringo, via networks of traders.

Interviews with Baringo grain traders support the farm-level findings presented above. Until the late 1970s approximately 50 percent of the grain supplied to Njemps came from the Eldama Ravine area (southwest Baringo). Three or four large wholesalers in Marigat and Emening would buy maize from middlemen who, in turn, purchased it directly from producers in Eldama Ravine. Emening and Marigat wholesalers were able to buy a large proportion of their maize from these traders until 1979, when the government constrained the flow of grain to these smaller traders by restricting trade licenses, increasing the number of government buyers in the area, and relying more on cooperatives and credit schemes for grain procurement (discussed below). This forced the wholesalers, who previously had relied on traders, to look outside of the district for their supplies (figure 3.1).

Agricultural cooperatives in the area, often with direct subsidies and technical support from foreign donors<sup>15</sup> and/or the government, helped the state implement its policies by buying maize from their members and reselling it to the board. Because the cooperatives supply members with credit and inputs, farmers are obliged to market produce through them, with the cooperative deducting payments from sales receipts. The use of cooperatives to procure grain reduces transaction costs for the NCPB and gives it greater control over marketing activities. Most farmers in southwest Baringo are members of cooperatives, and by 1980 more than 40 percent of cooperative participants were receiving seasonal

credit. While the state could not effectively control peasant production, the credit program helped it to regulate marketing.

Recent market changes in the Tugen Hills resemble those occurring in southwest Baringo but with less serious consequences for consumers. In most years the Tugen Hills does not account for large surpluses of grain, unlike areas of southwest Baringo. The NCPB established buying stations in 1980 at Bartolimo and two more in 1984 at other highland sites, where producers and traders are expected to sell their maize. While it is not official policy, traders are discouraged from buying maize from producers unless directly commissioned by the board. This strategy, however, has proved more difficult to enforce in the Tugen Hills than in southwest Baringo because of the large discrepancy between formal and informal prices. Moreover, fewer farmers in the hills belong to seasonal credit schemes, which further inhibits the government's control of marketing.<sup>16</sup> In part, the proximity of the highlands to an important grain-deficit area (the semiarid lowlands) reduces transport costs to major markets, allowing traders to pay farmers



3.1 Maize market channels in Baringo, 1979-1986

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better prices than in southwest Baringo. In 1981 the official producer price of 90 shillings per sack was considerably below the informal price of about 142 shillings per sack (ranging from 100 to 180 shillings) in the highlands, making it very difficult for the state to divert supplies away from private trade. The difference between formal and informal prices is considerably lower in southwest Baringo because of fewer market alternatives. Unlike farmers elsewhere in Baringo, most highland producers (65 percent of those interviewed) sold their maize to private traders in 1980–1981, rather than to the NCPB.<sup>17</sup>

### *Contemporary grain trade*

By the late 1970s maize supplies to deficit zones of Baringo came almost exclusively from NCPB or the state-regulated Kenya Farmers Association (KFA) (see figure 3.1). This latter organization, now called the Kenya Grain Growers Cooperative Union (KGGCU), remains dominated by large-scale grain growers, most of whom are now Africans rather than Europeans. The KGGCU buys and sells grain on behalf of the NCPB. Baringo traders who have their own transport can buy directly from the KGGCU, but most store owners purchase from local wholesalers. The grain market in Baringo has come full circle, returning to the import-dominated system of the 1926–1933 period, when supplies came almost exclusively from the KFA.

Baringo's grain growers either consume the product locally or sell to Nakuru (often via local cooperatives). Baringo consumers, in turn, purchase back the commodity at a price that reflects added transaction and transport costs (see earlier quotations on the subject). For example, estimated cost increases for Il Chamus consumers, due to the circuitous distribution system, are approximately thirty cents per kg (1980–1981), or about 15 percent of final retail price. From a slightly different but perhaps more informative perspective: the producer price of maize in south Baringo is as low as eighty shillings per sack, while maize is sold wholesale at Marigat for more than twice that price. Moreover, the deficit areas are importing maize while locations as close as 40 km away export the cereal to more distant markets.

As a result of recent market changes, local store owners are less willing to stock cheaper maize meal (posho) because of its low profit margin. Retail margins of only approximately 6 percent are attained from selling maize at government-controlled prices. The richer businessmen who own trucks can achieve higher profits by purchasing directly from Nakuru, avoiding the local wholesaler's markup. For most retailers, however, the margin on posho sales is very low, especially in comparison to the 10 to 15 percent return that can be gained by selling high-quality flour. This discrepancy results at times in a refusal on the part of local merchants to stock posho and, instead, to sell the fine-milled maize flour packaged in 2-kg units. The higher quality meal, usually preferred by urban Kenyans, sold for 2.50 shillings per kg in 1980, which was forty-five cents more than the coarser flour. In resurveying Marigat's businesses in 1985, I found very few shops that were selling posho; even some shops at smaller centers, like Ngambo, were

predominantly carrying packaged flour.<sup>18</sup> At this time the higher quality flour was selling for 4.75 per kg, while the coarser meal cost 3.60 shillings. The unavailability of cheaper flour increases costs to maize consumers in the area by more than 30 percent.

Market changes in Baringo are occurring at a time when herder demand for grain is increasing. While the Il Chamus have consumed grain throughout the twentieth century, dependence on cereals has accelerated since the 1960s. This is due to a variety of factors, including smaller per capita livestock holdings, decreased incomes, and drought. Imports of grain in the worst drought years of the 1920s and 1930s were well below current levels, even when adjusted for the increase in population. Il Chamus and Mukutan Locations presently import more than 8,000 sacks of maize flour per year, which is three times annual relief distribution for the whole of Baringo District during the 1920s. Since the locations account for only about 6 percent of the district's current population, the current figure is especially noteworthy.

#### *Performance of the livestock market*

The decade of the 1970s was not good for livestock marketing because of drought and the imposition of market quarantines. During the period, 1975 to 1980, market bans on cattle (due to foot-and-mouth disease) occurred at an average of six months per year. This exceeded the combined length of quarantine closures for the previous fifteen years (1960 through 1974). Small-stock sales were also affected by quarantines, especially during 1980 when there was an outbreak of caprine pleuro-pneumonia. Such bans discourage traders from working in the area. Merchants who purchase animals are at great risk when a quarantine is implemented, since they may incur considerable losses holding animals until the ban is lifted. The uncertainties plus the reduction in market competitiveness keep livestock prices low, especially relative to prices herders pay for other commodities.

It should be noted that as in the droughts of the 1920s and 1930s, market quarantines were in effect for much of the 1979–1980 drought, and during the year preceding the 1984 drought. Stocking levels were therefore abnormally high in 1979 and 1984 and consequently losses were considerable. For example, during the 1984 drought certain places in Il Chamus lost 70 percent of their cattle, while other locations experienced 50 percent losses in 1979 to 1980 (Little 1981). During both disasters large amounts of famine relief were distributed, as had been the case in the 1920s and 1930s. The familiar coincidence of state-imposed quarantines, livestock losses, and famine relief in the 1980s suggests that only minimal improvements for herders have been attained during the past fifty years.

#### **Pattern of livestock sales**

Annual market off-take rates for cattle have not changed much during the past four decades. Based on market data from Marigat, the location of Baringo's main livestock market, the rate has remained around 6 to 7 percent of total herd, except

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during severe droughts when it rises. In addition, very little change has occurred in the annual number of cattle marketed in Marigat during the period, discounting, of course, for fluctuations caused by drought or quarantine. For example, in 1953 sales at Marigat were 1,943, while in 1979 they were 2,189 (see table 3.1). During most of the period from 1953 to 1979 annual sales averaged around 2,000, but were considerably less in years when quarantines were imposed. Thus, market volume has shown little long-term change, indicating that the area's capacity to market additional "surplus" animals was reached long before the droughts of the 1980s.

As compared to other areas of Kenya, the livestock market of central and northern Baringo displays certain anomalies. For example, prices offered on the informal market are actually *lower* than those of formal auctions, organized by either the County Council or the government successor to ALMO, the Livestock Marketing Division (LMD) (see table 3.2). This pattern contrasts with that found elsewhere in Kenya, where prices offered by private traders are considerably higher than auction prices (Evangelou 1984; Ensminger 1984). Recent incidences of quarantine explain part of the discrepancy, as does the lack of market infrastructure in the area. Airey *et al.*, for instance, show that the number of traders working in the region from the Central Province was greatly reduced following market bans in 1982 and 1983 (Airey *et al.* 1984, cited in Chabari 1986: 24).

In 1981 a new auction yard was built at Marigat, replacing an old, dilapidated structure of considerable antiquity. Its construction was financed by the United Nations Food and Agriculture Organization (FAO), and it is the only major auction yard currently serving the Il Chamus and Pokot areas. Small-stock auctions are held at Kampi ya Samaki, but on an irregular basis. The completion of the Marigat yard was followed by an active radio campaign, also financed by FAO, to attract traders to the area. The initial response was excellent, and traders from lucrative markets in Central Province began to return to Baringo in order to purchase what by national standards were inexpensive animals. In the latter half of 1982 and the first part of 1983, cattle prices at Marigat were very good, reaching as high as five shillings per liveweight kilogram. This was only equivalent to the price level for Maasai animals in 1979 (White and Meadows 1981), but was almost twice the price of local animals in 1980 to 1981.<sup>19</sup> However, the situation changed in 1983 when foot-and-mouth disease broke out again and livestock sales were banned.

What looked to be a boon for local herders – the new auction yard – soon came under the same constraints (quarantines and low prices) that have plagued local livestock markets since the 1920s. Judging from recent work by Homewood and Hurst, immediate prospects for improvement do not look good:

While the first few auctions held were felt by BPSAAP [Baringo Pilot Semi-Arid Area Project] to have been highly successful, the auctionyard is perennially out of action due to quarantines imposed because of foot and mouth disease. With repeated cancellations and the growing unreliability of the system the new auctionyard seems unlikely to divert much of the livestock trade from its earlier informal channels, or to cause its expansion. (1986: 25)<sup>20</sup>

Table 3.2. Average livestock prices in Njemps, 1980–1981

Type	Informal price (Ksh) <sup>a</sup> per head		Formal price (Ksh) <sup>a</sup> per head Auction (range)	LMD <sup>b</sup>
	Private trade (range)			
Cattle	379/ (161–620)		502/ (280–1180)	c. 550/
Sheep	75/ (50–150)		94/ (30–170)	
Goat	86/ (46–145)		100/ (40–250)	

*Notes:*

<sup>a</sup> One US dollar = 7.2 Kenya shillings. The first price in each entry is price per animal in shillings; the range of prices appears in parentheses.

<sup>b</sup> Livestock Marketing Division.

*Source:* Author's field notes.

The drought of 1984 made local market conditions even worse. Cattle prices plummeted to as low as 150 shillings per bull during the worst months, a decline of more than tenfold compared to pre-drought levels. When the ban was lifted toward the end of the drought, the LMD bought cattle for prices equivalent to those of the 1970s: approximately 575 (3/20 shillings per liveweight kg) for grade "A" animals and 465 shillings (2/60 per liveweight kg) for grade "B" animals. Market conditions are always unfavorable for herders during droughts, but the depressed prices of 1984 were exceptional. Combined with losses from the drought itself, this may have permanently forced many part-time and full-time herders out of pastoralism.

### The terms of trade for herders

The inability of herders to maintain economic solvency relates, in part, to an uneven inflationary trend in Baringo that has seriously affected livestock producers. Herders are well aware of changes in commodity prices and tend to adjust marketing and production strategies accordingly. The terms of trade for livestock producers have generally worked against their interests in many regions of Kenya (DeBoer 1981; Evangelou 1984; Cassam 1987). In Baringo the structure of the current market facilitates the import of maize from Nakuru, while it aids the export of livestock and livestock products (hides and skins) from the region. The terms of trade for producers improve closer to Nakuru town, which is the major supplier of consumer goods and the point of final consumption for many of Baringo's livestock.

Analysis of the terms of trade for pastoral producers should distinguish between short- and long-term price trends. Short-term trends are often climatically induced and occur in five-to-six year cycles in Baringo. In years of drought, for example, livestock producers do poorly because in addition to selling at low prices, they often must buy scarce grain at inflated prices. For a short time in 1979, Il Chamus herders paid 4 shillings per kg for maize when it was available. This was more than twice the "official" retail price at the time. Longer-term price and supply changes, on the other hand, are likely to reflect structural changes in the market

itself: for example, the narrowing of market channels, the redirection of commodity flows, and/or the presence of monopolies.

It is equally important to examine market trends in a broader context than price/sales analysis. The market problems caused by quarantines is a good illustration of a non-price-related constraint.<sup>21</sup> While prices may be good in a particular year, they do little to benefit the producer if there are quarantine restrictions. Similarly, it does not help the consumer when the "official" price for grain is reasonable but the commodity is unavailable. Grain distribution is especially problematic during droughts, although it improved in the 1984 drought due, in part, to the massive influx of subsidized grain imports and relief programs (see Bezuneh 1985). Analysis of terms of trade, therefore, should be complemented by assessments of institutional constraints and policies.

Table 3.3 depicts price relationships for grain, livestock, and hides and skins from 1956 to 1981. Price data are most reliable for these years, although general trends can be estimated back to the early part of the century. Changes in price are assessed at four-year intervals using 1956 as the base year (1.00). They are calculated from prices herders receive for their products and prices (retail) they pay for grain. The data do not give an accurate indication of how grain producers fared during this period, since retail grain prices are only partially indicative of farm-gate prices. The discrepancy is due to the market imperfections discussed earlier in the chapter.

The data reveal that price trends are better for certain animal types. Thus, during the period as a whole, prices for small stock performed considerably better than those for cattle. This difference is partially a reflection of the increased demand for goat meat among urban Africans, whose numbers and income went up considerably during the period after independence (see Mann 1967). Prices of hides and skins, on the other hand, rose only slightly during 1956–1981, although annual sales of hides and skins often exceeded those of live animals. During this period, cattle prices rose 2.5 times as fast as hides, and sheep and goat prices more than five times as fast as sheep and goat skins.

The local price of maize increased slowly until the late 1960s, when exports from Baringo began on a regular basis, while finger millet prices began to rise sharply in the early 1960s. In the 1970s the prices herders paid for both maize and finger millet increased considerably. At this time the relatively stable terms of trade between livestock and grain began to change. Between 1972 and 1981 finger millet prices rose almost fourfold and maize prices threefold. In the same period, however, prices of goat skins actually declined and prices of sheep skins grew only slightly; prices of hides remained virtually unchanged. Although the market for live animals improved, their prices grew at a slower rate than prices of grains. From 1972 to 1981 both cattle and small-stock prices increased approximately 120 percent.

The demise of purchasing power for herders in the 1970s can be illustrated as follows. A herder selling eleven small stock (seven sheep and four goats), two cattle, ten skins (seven sheep and three goat), and two hides in 1972 could purchase 12.5 sacks of grain (90 percent maize/10 percent finger millet) or

Table 3.3. *Price relationships between grain and livestock products, 1956–1981*

Year	Prices (in Kenya shillings) <sup>a</sup>						
	Cattle	Sheep and Goats	Hides	Goat skins	Sheep skins	Millet	Maize
1956	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1960	0.80	1.19	?	?	?	1.26	1.08
1964	0.80	1.62	1.54	1.60	1.33	1.79	1.15
1968	1.04	?	1.19	1.00	1.00	3.08	1.28
1972	1.55	3.46	1.38	1.60	1.00	5.13	1.74
1976	2.44	5.77	1.31	1.80	1.33	10.25	2.95
1980	3.46	7.31	1.38	1.40	1.33	18.46	4.62
1981 (until August)	3.49	7.69	1.38	1.40	1.33	19.62	5.19
Total percentage increase	249	669	38	40	33	1,862	419

*Notes:*

<sup>a</sup> Represents producer prices for livestock and livestock products, and retail prices for grain.

*Source:* Based on Baringo District Annual Agricultural Reports, interviews with local traders, and stock marketing data from Marigat.

1126 kg. In July 1981 the same market package bought only 8.38 sacks of grain or 754 kg. This represents a net decline in purchase power of one-third during the period, although in particular years during 1972–1981 it might be considerably higher or lower. In years of market quarantine, when herders are more dependent on the sale of hides and skins, the situation is even worse.

The decline in the terms of trade for herders impacts on herd reproduction. Herders have been marketing more female animals (“productive capital”), a practice they claim is a recent phenomenon. The trend is particularly disturbing because most of the study’s data are drawn from a post-drought period, when female animals are critical for herd recovery. Information collected by the Veterinary Division at Marigat also reveals a pattern of selling cows and heifers. Of the 143 cattle sold in March 1981, 44 percent were females – either cows or heifers (Kenya 1981). Although data are limited, such a pattern is likely to have long-term implications for herd growth, especially among poor and middle-income pastoralists. Herders are very aware of the long-term implications of selling productive “capital” but they do so to purchase grain. The practice of selling productive assets (female cattle), a pattern observed in West Africa as well (White 1984), is symptomatic of the *downward cycle* in which herders currently find themselves, a cycle that can lead to food production, consumption, and income problems (see chapters 4 to 6).

## Summary

The perception of Njemps as a regional “granary,” a term previously used to describe this location, has changed greatly since the nineteenth century. In the



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1960s the term was used to describe southwest Baringo, while the fertile flats of Njemps – a favorite food source for early explorers and traders – were perceived to be a “natural starvation” area (Ministry of Agriculture 1968). The move into pastoralism by the Il Chamus reduced labor costs and increased profits as compared to irrigated grain production, but it has left them increasingly vulnerable to state policies. In contrast to the conventional wisdom, the state assumed an early role in (1) influencing livestock and grain distribution in the area and (2) making herders dependent on the market for their subsistence requirements. At times this market was as volatile and unpredictable as Baringo’s climate. Policies of both the colonial and independent governments reveal similarities, with the Baringo region having been especially affected by market quarantines and by the “nationalization” (Bates 1987) of maize surplus during the past two decades. Changes in Baringo’s grain market have come at a time when dependence on food purchases is very high, while the terms of trade for herders have not been favorable. As will be shown in the next four chapters, these changes have had considerable implications for local land use, investment, and food security.

## 4

### Labor and agropastoral production

Both the colonial and independent governments imposed a regional market structure that did very little to improve or even sustain local production. Herders learned early in this century that reliance on the market, whether for sale of animals or purchase of grain, is problematic. Because of these unfavorable conditions, herders attempt to circumvent the market by producing their own grain through irrigated, and in some cases dryland, farming.<sup>1</sup> This strategy spread dramatically in the 1970s and early 1980s. During the period from 1971 to 1981, irrigated agriculture in Njemps grew from approximately 106 to 266 hectares, the number of irrigation farmers increased from 106 to 377 (29 percent of total families in 1981), and the average size of farm rose from 0.56 to 0.71 hectares. Since then an additional 125 hectares have come under cultivation, with approximately 100 new herders beginning to irrigate during 1981 to 1985. Dryland agriculture, which involves up to 25 percent of herders in certain years, has expanded as well. The agricultural initiatives often have strained domestic labor supplies, heightened economic differentiation, and exceeded local organizational capacity. Thus, the results of increased diversification of the local economy have been mixed at best.

Farming is pursued today but under very different social, ecological, and economic conditions than had marked the precolonial period. Unlike cultivation in the earlier era, agriculture is currently an activity supplemental to livestock production; in this sense the Il Chamus are more like cultivating herders than agropastoralists. The expansion of agriculture, especially irrigated cultivation, has to be reconciled with a set of productive relations that have been oriented toward transhumant pastoralism for most of this century, and with a land base that is overcrowded and increasingly subject to outsider infringement. Thus, using the term agropastoralism for the Il Chamus should suggest neither the close integration of livestock and crop production nor the approximately equal importance given to each activity that is typical of agropastoral groups (Massey 1987; Brandström *et al.* 1979).

This chapter examines the social dimensions of production in Il Chamus during a period of rapid change. In it, as well as in the next two chapters the analysis turns

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from the regional focus of chapters 2 and 3 to a discussion of homestead and neighborhood relations. Chapter 4 analyzes those social relations and organizations that influence access to and allocation of land (and water), labor, and capital, placing these factors in their historical context. Particular attention is paid to homestead and interhomestead (neighborhood) relations that can be used to overcome labor shortages and to gain access to land. Emphasis is given to how certain social groups (e.g. rich herders) are able to pursue production strategies that increase their advantage over others.

## The homestead

The major unit of production and consumption is the homestead (*enkang*), usually consisting of the homestead head, his wives, and their children (of whom some might be married, with children). Within the homestead, each wife normally has her own living quarters, which are shared by her children and occasionally the family head. Wives have some autonomy in homestead budget and income decisions and earn small amounts of revenue from the sale of millet and small stock. The average size of homesteads is 6.72 members, with approximately 50 percent below the age of fifteen years. The scale and structure of Il Chamus domestic units have undergone considerable change in this century. In the precolonial period the *enkang* was a large collection of families (i.e. resembling a village), where each extended family appears to have been the unit of production and consumption. The extended family remained an important residential unit after the breakup of the irrigation settlements, as groups of married brothers moved out into the rangelands. The extended family allowed for economies of scale in livestock management and better defense against enemies who frequently raided the Il Chamus (see discussion in chapter 2). Once a family was established in a new area, however, married males tended to break off from the main homestead, often moving to totally new locations. Ties of marriage became important in gaining access to new areas and in acquiring cooperation for seasonal stock movements. Bonds of descent remained important but took on increasingly less significance in day-to-day affairs. The decline in cattle raiding during the colonial period and the need for seasonal mobility diminished the importance of large homesteads.

Another reason for the decline in average homestead size is the present proliferation of very poor homesteads, having no more than three members and often headed by a female (usually a widow) (Little 1987b). These homesteads usually depend on wage employment, either on the Perkerra Scheme or on indigenous schemes, to supplement earnings from their small farms and herds (this is discussed in more detail in chapter 5). In neighborhoods near the Perkerra Scheme such units are especially prevalent. Their integration into local labor markets strengthens their nuclear orientation and small size. The literature on households suggests a strong relationship between nuclear-based household forms and participation in wage labor and commodity markets (Collins 1986); and this association seems to hold true for Il Chamus.

Table 4.1. *Homestead size and livestock ownership*<sup>a</sup>

Wealth strata	Average size of		
	Household (AU) <sup>b</sup>	Herd <sup>c</sup>	Farm <sup>d</sup>
Very rich (I)	8.70	137	1.43
Rich (II)	5.14	49	0.90
Middle-high (III-H)	4.72	28	0.67
Middle-low (III-L)	6.21	20	0.68
Poor (IV)	4.26	12	0.35
Very poor (V)	3.38	4	0.23

*Notes:*

<sup>a</sup> Based on a sample of sixty homesteads.

<sup>b</sup> Average homestead size is presented in Adult Units (AU), where one AU is equivalent to an individual aged fifteen to sixty. Persons over sixty years and between seven and fourteen years are counted as 0.67 AU; children below the age of seven are counted as 0.25 AU.

<sup>c</sup> Herd sizes are presented in terms of Livestock Units (LSU). A unit is equal to one bovine or six small stock. This conversion approximates the market value of animals, as well as the commonly used Tropical Livestock Unit (TLU).

<sup>d</sup> Average farm size is in hectares and includes irrigated farms only.

*Demographic differentiation*

Homestead size varies according to wealth and age of the homestead head (i.e. developmental cycle). Among the richest livestock owners homestead size is equivalent to 8.70 Adult Units (AU), while among the poorest 30 percent of homesteads it is 3.38 AU (see table 4.1). The wealthiest livestock owners may also have one or more secondary homesteads placed in strategic grazing areas. These secondary homesteads, usually headed by a wife, are not independent production and consumption units but are an integral part of the homestead economy. With few exceptions, the average size of homesteads in other wealth strata declines relative to property status.

The ability to marry additional wives, thereby increasing the size and reproductive capacity of the homestead, distinguishes rich from poor homesteads and accounts, in part, for discrepancies in the size of domestic units. Bridewealth payments in Il Chamus – twelve cattle (of which ten must be fertile cows or heifers), 300 shillings, and a gift of local beer – make it expensive to marry additional wives.<sup>2</sup> Polygyny is a means of enhancing the economic viability of the homestead as it increases the supply of domestic labor, allowing the homestead head to send children to school without jeopardizing production activities. The Il Chamus understand that education is the key to acquiring gainful employment outside of agropastoralism.

Homesteads go through different stages of growth and decline that relate, in part, to the age of the homestead head. A young married male, for example, can expect to reside at his father's homestead or head a unit with limited labor. In order

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to organize agriculture and herding activities, young homesteads cooperate with other units and/or “borrow” children to make up for labor shortages. They may borrow a child from a relative or a neighbor, who may be glad to be relieved of the burden of “feeding another mouth.” For example, Joshua Lesar of Meisori, who is about twenty-eight years old and is a member of the *il kiapu* age set, “borrowed” a fourteen-year-old boy from his wife’s uncle and uses him to herd his animals – some thirty-five cattle and sixty goats and sheep. Joshua buys the boy’s clothes and food and expects that the boy will remain at his house for at least another three years, after which time his own children (three) should be old enough to assist with the herding. A more mature homestead headed by a senior-age set member is likely to follow a diversified production strategy with little borrowed, hired, or other extradomestic labor. On average, a homestead reaches its maximum size when the head is between the ages of forty-seven and fifty-nine. Such homesteads are usually led by members of the *il mirisho* generation.

### *Gender-based activities within the homestead*

Homestead activities are clearly differentiated by gender, although there is a growing tendency for differences to be blurred, especially regarding pastoral labor use. The ideal segmentation of labor in pastoral activities is for young males (ages fifteen–twenty-five years) to be responsible for cattle herding, particularly in the dry season; for young boys (ages seven–fourteen years) to be responsible for herding of goats and sheep; for married women to be responsible for milking animals, preparing hides and skins, and, occasionally, herding small stock; and for unmarried girls to assist their mothers in milking activities and in the care of small stock. These normative patterns of responsibility have changed in recent years (see table 4.2). Thus, while males provide most of the labor for animal herding, women (ages fifteen–sixty years) also are important to this activity. During the most critical period of the year – the dry season – women provide 22 and 11 percent of total labor for small stock and cattle herding, respectively. The contribution of females to livestock production is even greater in the wet season.

The growing feminization of pastoral labor, a phenomenon occurring elsewhere in Africa as well (see Dahl, ed. 1987; Horowitz 1981), is partly the result of increased involvement on the part of males in wage labor, agriculture, and education. In recent years the frequency of seasonal transhumances, especially to dry-season areas around Arabel, have declined because of the lack of male labor. As will be shown in chapter 7, this results in the overuse of grazing zones around settlements, while increasing the community’s susceptibility to drought. Migrations to Arabel are undertaken only in the most severe droughts and only by a limited number of families. These seasonal moves used to be the responsibility of young men but currently boys and hired herders are participating. The decline in migrations to Arabel and the removal of male labor from the homestead induce females to assume herding duties during the dry season.

Gender differences in agriculture also are marked, but as with pastoralism the distinctions are increasingly blurred. Ideally males are responsible for fencing,

Table 4.2. *Division of labor in agropastoral activities*<sup>a</sup>

Activity	Worker category <sup>b</sup> (percentage of total contribution to each activity)								
	01	02	03	04	05	06	07	08	09
<b>Pastoral<sup>c</sup></b>									
Wet season cattle herding	44	11	38	6	0.5				0.5
Dry season cattle herding	74	11	15						
Wet season goat and sheep herding	19	25	35	17	0.5	1	2		0.5
Dry season goat and sheep herding	23	22	39	9	0.5	2	4.5		
Cutting branches for fodder	91	4	5						
<b>Agricultural</b>									
Clearing/fencing	48	22	5			1	22	2	
Cultivating/planting	31	48	8	1		1	6	4	
Canal maintenance and watering	51	36	13						
Weeding	30	46	12	3			4.5	4.5	
Harvesting	26	65	2	4				3	
Bird chasing	13	49	25	13					

**Notes:**

<sup>a</sup> The data were collected from 58 homesteads of Loropili, Kailerr, and Salabani/Meisori during eighteen months in 1980–1981.

<sup>b</sup> The numerical data represent the percentage of total labor inputs that each worker category provides per activity. Thus, the numbers for each activity when reading across the table equal 100 (except for discrepancies due to rounding).

The worker categories are:

- |                         |                           |
|-------------------------|---------------------------|
| 01 – Male 15–60 years   | 06 – Female 60+ years     |
| 02 – Female 15–60 years | 07 – Hired male laborer   |
| 03 – Male 7–14 years    | 08 – Hired female laborer |
| 04 – Female 7–14 years  | 09 – Child below 7 years  |
| 05 – Male 60+ years     |                           |

<sup>c</sup> Herding activities also include labor for watering animals and moving livestock to and from water sources.

clearing, and irrigation activities (including the maintenance of canals and application of water to fields), while women provide labor for cultivation, planting, and weeding. Both groups are expected to assist in harvesting. Young children contribute by keeping birds and small animals from devouring cultivated fields.

Table 4.2 shows that while the ideal pattern generally holds, significant discrepancies occur now. For example, women provide 36 percent of the labor for watering and irrigating fields and 22 percent of labor toward clearing and fencing, which are considered to be “male activities.” Men, on the other hand, carry out a considerable amount of weeding (30 percent of total) and cultivation and planting work (31 percent). In contrast to the stated norm, men and women do not share equally in harvesting chores: women provide two and a half times as much labor to this activity as men. While it may have been the case in the past, children

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presently do not provide much labor for agriculture. Even the chasing of pests from fields is mainly carried out by women. The decreased role of children in agricultural activities results from their greater contribution to pastoral activities and their increased attendance at school.

Two important points need to be made about the division of labor in agriculture. First, the data in table 4.2 mask differences among neighborhoods in the use of hired labor. For example, in Kailerr hired workers are rarely utilized in agricultural activities, while in Salabani and Meisori they often are. Such discrepancies in the use of agricultural wage labor relate to the greater demands for pastoral labor and to the lack of reciprocal work groups in Salabani and Meisori. Both men and women hire themselves out as laborers. The variation in the use of hired labor and its implications for organizing production are discussed in more detail in this chapter.

A second important aspect of the division of labor that is not revealed in the table is that younger men (twenty–thirty-five years of age) carry out most agricultural work among males. While data in the table are not disaggregated to this level of specificity, approximately 70 percent of male labor in agriculture is provided by men of the two youngest age sets, *il kiapu* (the generation of *il murrán* in 1981) and *il medoti*. Because most young males control very little labor, they work their own fields themselves. In addition, since they usually control fewer animals than older men, they have a greater need to farm. Few men over thirty-five and virtually none over fifty carry out much agricultural work, unless they are hired for wages. This differs from labor allocation among women, where the discrepancy between young and old is not as great.

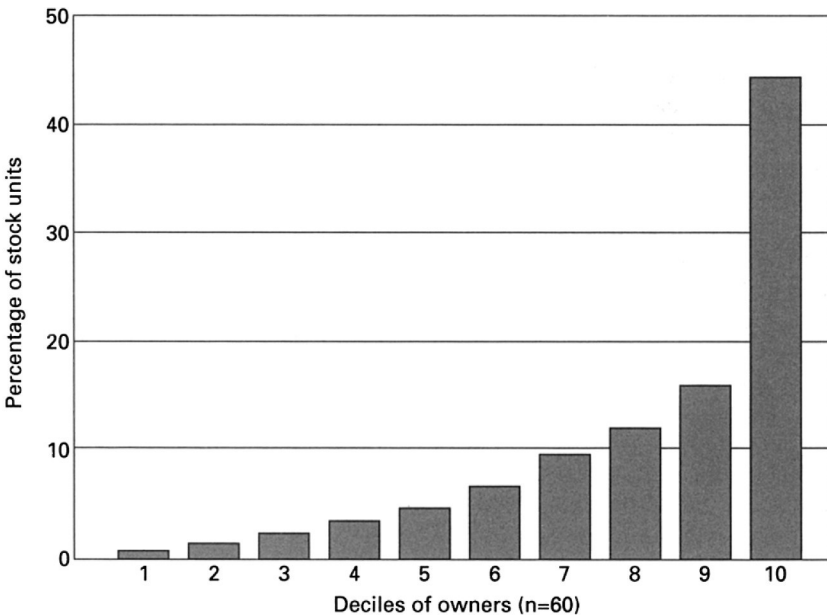
Certain agricultural and pastoral tasks remain the responsibility of particular categories of worker. For example, initial repair of main irrigation canals and fencing of agricultural fields are still done almost exclusively by males. These tasks are supposed to be carried out early in the agricultural season. The effects on production of the rigid division of labor are felt in the late dry season, when agricultural work should begin but those responsible for the initial work (males fifteen–sixty years) are busy herding animals. The association of certain categories of workers with specific tasks can complicate labor use: in this case it results in late planting. Women have taken on much of the additional labor created by diversification – such as herding cattle and clearing irrigated fields – but have generally refused to repair large irrigation canals, to fence fields, or to migrate with cattle to the highlands during the dry season. The additional demands for labor exacerbate tensions within the homestead, and at times wives also try to shield their children from husbands' requests for more work.

### *Economic differentiation*

Earlier discussions pointed to demographic and other differences among homesteads that correlate with wealth distinctions. The unequal distribution of livestock, the most valuable form of property, is an excellent indicator of the differentiation that exists among Il Chamus homesteads (see table 4.1). It should

be noted, however, that the ranking system is relative, and that even among homesteads classified as “rich” and “very rich,” incomes are relatively modest (see discussion in chapter 5 and tables 5.8 and 5.9). While herd size of the homesteads interviewed averaged nineteen cattle, twenty-nine goats, and seventy-three sheep, most animals were controlled by a small number of families. For example, 20 percent of homesteads in Il Chamus control more than 60 percent of the livestock units, while the poorest 50 percent own less than 15 percent of total livestock (see figure 4.1). The distribution of homesteads is concentrated at both the rich and poor ends. What would be considered medium-sized stock owners (III-H and III-L, table 4.1) comprise only 20 percent of homesteads, while poor and very-poor herders (strata IV and V) account for about 50 percent of homesteads. The data show that a “middle group” of livestock owners is of less importance than either rich or poor groups of herders. While reliance on statistical averages is often unavoidable to make a particular argument, they inform less about social structure and the constraints faced by different classes of producers than does a sample stratified by ownership. The importance of recognizing differentiation among homesteads, especially in analyzing local marketing and investment patterns, is referred to frequently in subsequent chapters.

The poorest homesteads own considerably more goats as a percentage of their total herd than do other homesteads, providing credence to the adage that the “goat is the poor person’s friend.” Table 4.3 compares the herd composition of homesteads who own more than forty LSU (strata I and II), with those of herders



4.1 Distribution of livestock ownership



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Table 4.3. *Herd composition of rich and poor pastoralists, Salabani and Meisor<sup>a</sup>*

Herd category	Average no. cattle (C)	Average no. sheep (S)	Average no. goats (G)	Ratio	
				S+G:C	G:S
< Eight livestock units <sup>b</sup>	1.9	4.9	10.6	8:1	2.2:1
> Forty livestock units <sup>b</sup>	43.5	269.0	58.8	7.5:1	1:4.8

### Notes:

<sup>a</sup> Based on a sample of seventeen herds in 1981.

<sup>b</sup> See footnote c, table 4.1.

owning fewer than eight LSU (strata V). While the ratio of small stock to cattle does not differ much between the two groups, the proportion of goats to sheep is considerably higher for the poor herders (2.2:1) than for the rich herders (1:4.8). It would be expected that in Salabani, a very favorable area for sheep production, even poor homesteads would keep large numbers of sheep. The preference among poorer homesteads to keep goats rather than sheep can be explained, in part, by (1) the low labor requirements for goat production and (2) the animal's ability to graze around settlements. Unlike sheep, goats can be left unherded or allocated only minimal attention, a pattern that fits in with the production strategies of labor-constrained homesteads.

### The spatial and labor demands of agropastoralism

Agropastoralism poses challenges for all homesteads, although the obstacles are more severe for poor and very-poor homesteads. The main constraints relate to space and labor: the ability to move animals to a particular place when season dictates and the capacity to mobilize labor for both livestock and grain production. The ecology of Il Chamus shapes the spatial and labor demands of agropastoralism. As was mentioned in chapter 2, livestock movements center around the swamps: it is their productivity that determines the timing and duration of herd movements during the year. The demands of grain production, in turn, must be coordinated with herd movements since the quantity of labor and locations where viable agriculture is possible are limited. Most agricultural activities take place during the wet season, when labor inputs for animal husbandry decrease and consequently the opportunity costs of labor decline. The one important exception is at the end of the dry season (February to March), when labor demand both for herding and for field preparation is high. How a homestead manages this critical labor bottleneck determines, to a large extent, the success of the agropastoral enterprise.

### Seasonality

As noted, the labor requirements of livestock and grain production experience seasonal variations. The main difference is that livestock production requires

mobility at certain seasons, while cultivation requires a large concentration of labor inputs in a relatively small amount of time. When the seasonal demand for agricultural labor conflicts with that for livestock activities, the latter are given priority.

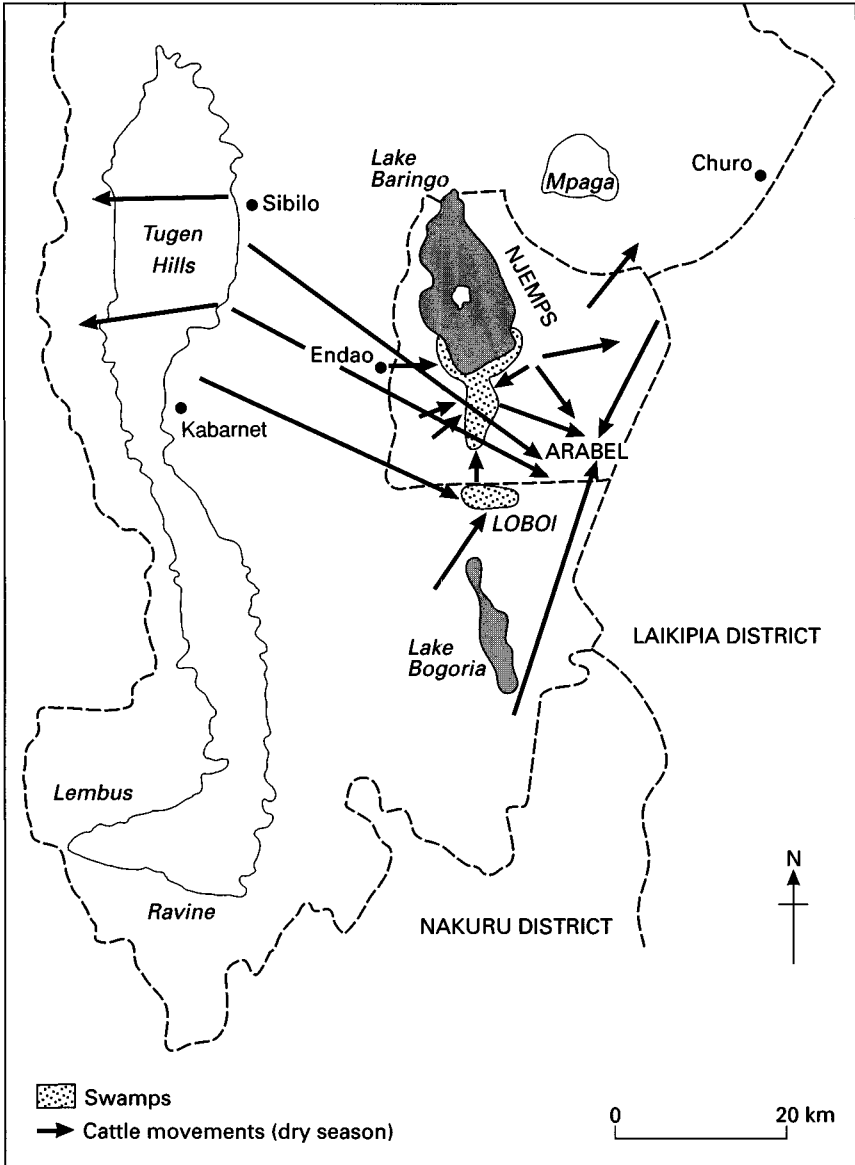
### **Herd movements**

Homesteads usually move their cattle to the swamps in the dry season, often entrusting them to another homestead that resides near the grazing areas (see figure 4.2). In most cases, homesteads move all their cattle during the dry season, except perhaps one or two cows (with calf) that will remain at the main homestead. The richer stock owners maintain a secondary homestead in the swamps during the dry seasons and, in some cases, the entire year. Cattle are normally moved to the swamps in November–December and remain there until the long rains arrive (April). Depending on the severity of the dry season, sheep also may be driven to the Molo-Perkerra swamps, though not until February. Sheep are moved to the swamps in order to use those areas vacated by cattle, as ability to graze down to ground level allows them to feed on pastures previously used by cattle. Cattle initially graze the fringes of the swamps and then as the dry season progresses move toward the center, which serves as a final grazing reserve. The sheep, often no more than 500 m behind them, follow to utilize the vacated pastures. A slight gradient of the Molo-Perkerra swamps permits flood waters to drain toward the center of the swamps near the lake, which allows those pastures to sustain better growth in the dry season (Homewood and Hurst 1986).

Goats are usually herded in the same general area throughout the year. They are rarely moved to a location where they cannot return daily to the homestead. In the early morning, they are frequently mixed with sheep, but as the sheep are taken to pasture, the goats are left along the way to browse on their own. They will feed around the homesteads during the day and also around the perimeters of the lakeshore swamps. Back from the lake and the rivers, the rich pastures give way to wooded acacia shrublands that are frequently browsed by goats during the day. Because goats are often left untended around the fringes of the pastures they frequently enter the swamps, competing for vegetation usually reserved for sheep and cattle. Herders recognize this as a problem, but often do not have sufficient labor to avoid its occurrence.

Size of herd plays an important role in decisions about animal movements. Herders who own fewer than five cattle and/or approximately twenty-five sheep often do not move their animals seasonally; when they do, the animals are combined with those of relatives or neighbors. In some cases they are able to keep their animals alive around the homesteads by gathering fodder and feeding the animals themselves. For example, branches from certain trees (*Balanites aegyptica*) are lobbed off during the dry season and fed to animals. The cuttings are usually fed to goats and sheep, but in extreme droughts the fodder will also be used for cattle. When branches are severed it is done with careful attention to the well-being of the tree. By the end of the dry season, herders venture out into the lake in small canoes to gather grasses (e.g. *Echinochloa haplocada*) for fodder.

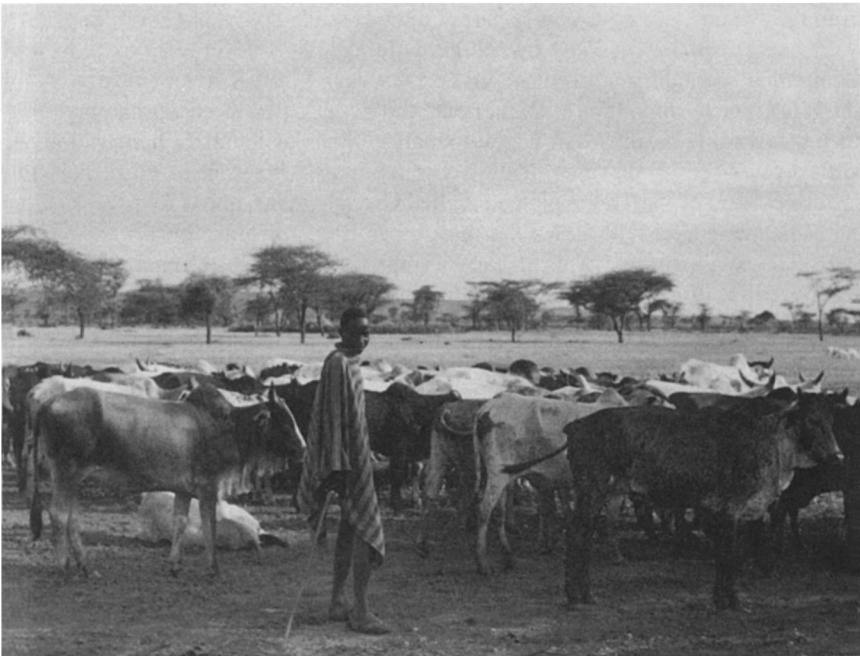
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4.2 Seasonal grazing and cattle movements

Severe drought causes grazing shortages in the Molo-Perkerra swamps at least one year in six, although the frequency has been greater in recent years. Under this circumstance the options for Il Chamus herders are few because of their restricted land base. In some cases cattle will be moved to the eastern shore of the lake near Nasoguro and Rugus, where stocking levels are relatively low. A factor discouraging this option is the area's proximity to settlements of the Pokot, who sometimes launch raids against the Il Chamus. A more common alternative, therefore, is to drive the cattle to hill areas around Arabel, an area now mainly under Tugen occupation but used by others during drought. During moves to the hills, Meisori and Salabani cattle owners combine animals with herd owners who reside closer to Arabel and therefore are knowledgeable about the area; the latter assume prime responsibility for the movement, which may be up to 40 km.

A recent innovation in herding is the use of lorries (trucks) during droughts to transport animals to grazing. This practice is common in the Middle East but is rare in sub-Saharan Africa.<sup>3</sup> The prolonged dry season (drought) of 1984 devastated local pastures to the extent that animals were trucked to Pokot areas of north Baringo. The sequence of events was as follows. First, agreement was reached with the Pokot to use a grazing area near Kapedo (approximately 100 km north of Lake Baringo). The location had not been utilized in the 1980s because of security problems and consequently had relatively good pastures. Kapedo is



2 Herd boy with cattle during the wet season

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located very close to grazing areas of the south Turkana, and has been the scene of several armed struggles during the past fifteen years. In order to provide additional security, the Kenyan army was posted to the area during the drought.

Second, a local businessman hired herd boys to scout the Kapedo area and report back on grazing and security conditions. Ironically some of these boys were themselves Turkana. They traveled to the area via public transportation, a method of "scouting" that was also a first for the area. Finally, having received a favorable report from the scouts, more than twenty herd owners moved cattle to an area east of Kapedo, with six or seven of the largest hiring lorries to transport their animals. A number of young, "progressive" herders who have nonfarm investments in the area were among those who hired trucks.<sup>4</sup> The vehicles were rented, at a cost of Ksh 3,000 (US \$187 at 1984 exchange rates) per vehicle, from local traders and the Perkerra Irrigation Scheme. The high cost of rental precluded most herd owners from taking advantage of motorized transport, so that many trekked their animals by foot. Stock owners who could afford the price of truck hire were able to avoid the high losses associated with the long trek.

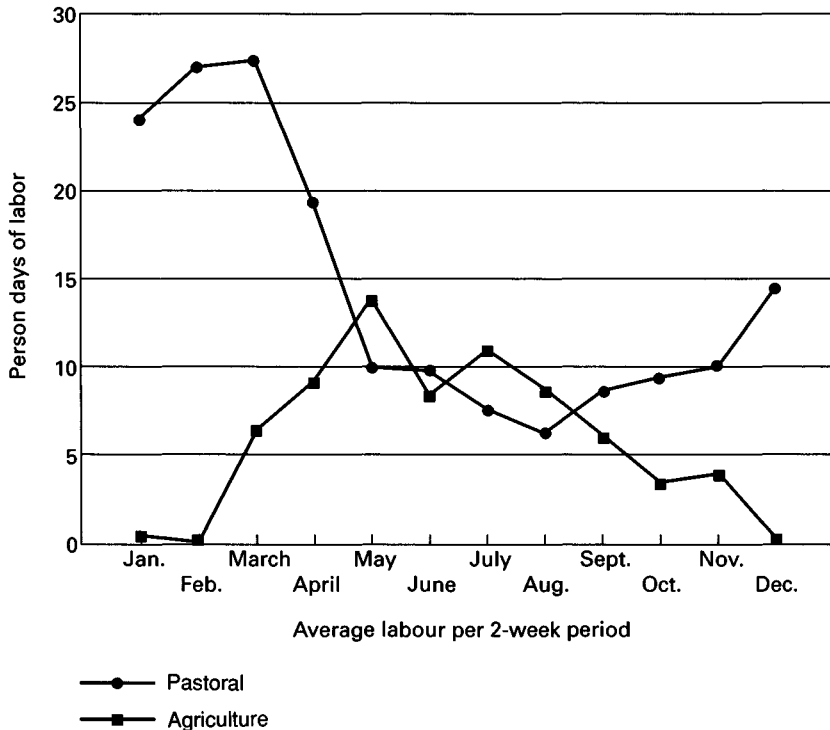
Livestock movements in the wet season gravitate away from the swamps, which often are flooded and host to a range of harmful pests (e.g. ticks and mosquitoes) during the rains. These movements, which cover short distances of less than 10 km, occur less frequently than herd movements in the dry season. Only the largest herd owners move their animals to distinct, wet-season grazing areas. In Ngambo, for example, only six herd owners moved their animals away from the swamps during the early part of the wet season of 1981 (a similar pattern was observed in 1985). They owned herds in excess of seventy stock units and maintained secondary homesteads in an area near Marigat town (locally called On'gata), where they kept bulls, heifers, and some cows to encourage breeding during favorable months. An equally small number of Salabani herders moved cattle to wet-season pastures. In this case, animals were sent to graze near the eastern portion of the Tugen plateau (called On'gata mara) about four weeks after the rains started. In both cases the moves persisted for only four to six weeks. Seasonal movements away from the swamps have been less frequent in recent years because of a shortage of domestic labor and the current lack of restrictions on swamp grazing.

### **Cultivation cycle and labor use**

Seasonality assumes even more importance in agriculture, where activities are restricted to an eight-month period (February to September), and timely cooperation is required. Labor inputs in pastoralism, while displaying seasonal variations, are allocated throughout the year (see figure 4.3). The timing of labor allocation is especially important in the preplanting stage, when canals and irrigation basins must be prepared, and during weeding, when labor inputs are concentrated into five-to-six-day periods. The pastoral production cycle has no comparable periods where a concentrated effort is needed for such a short period of time. Labor bottlenecks occur at the end of the dry season, when both livestock and agriculture require considerable attention.

For irrigated agriculture, labor requirements are determined mainly by five criteria: (1) the amount of clearing needed to prepare the irrigated plot at the beginning of the agricultural season; (2) the amount of fencing required; (3) the condition and length of the main irrigation canal; (4) the amount of rainfall in the particular year; and (5) weed growth. Economies of scale are considerable in irrigated agriculture, with the most significant labor savings occurring on larger farms where tractors are used. Table 4.4 presents labor use by farm size, showing labor intensity on a per hectare basis. As the data reveal, the smallest farms (0.1 to 0.3 hectares) use twice as much labor per unit of land as the largest farms (0.61+ hectares). The poorer homesteads cultivate these meager holdings, often borrowing plots from large herdowners in exchange for labor. Several important agricultural tasks, such as cultivating and planting, watering and maintaining canals, and weeding are affected by economies of scale.

The Il Chamus practice what might be called a “rectangular basin system” of irrigation, which they originally used during the precolonial period. Rows of rectangular basins, each approximately  $2.5 \times 4$  m, are constructed within each individual field, with walls approximately 15 cm in height. Between the rows of basins are canals through which water passes and is directed into each basin by an



4.3 Seasonal labor use by homesteads, 1980

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**Table 4.4. Labor intensity and size of irrigated farm: number of person-days per hectare, by activity and size of farm<sup>a</sup>**

Activity	Farm size (hectares)			Tractor farms <sup>b</sup>
	0.10–0.30	0.31–0.60	0.61+	
Clearing/fencing	95	62	59	31
Cultivating/planting	112	83	47	18
Watering/canal maintenance	75	63	31	28
Weeding	92	55	40	25
Harvesting	46	31	33	34
Total	420	294	210	136

*Notes:*

<sup>a</sup> The data are based on a sample of thirty-two irrigated maize farms in Kailerr and Loropili. They represent the number of person-days allocated on a per hectare basis. The data were collected in hours and fractions of hours and converted into person-days, where one person-day equals an eight-hour day of work performed by a man or woman aged fifteen to sixty years; for individuals aged seven to fourteen or over sixty years, a day's work is weighted as 0.67 person-days; for children less than seven years old, the weight is 0.25 person-days.

<sup>b</sup> These farms tended to be larger than 0.5 hectare, with an average size of 0.81 hectare.

opening made in an upper portion of the wall. The individual fields receive water from a larger canal system usually consisting of one main canal and several feeder canals. Plots are contiguous to each other, and one feeder canal may supply water to as many as eight independent fields. Secondary canals pass tangentially to an individual's farm rather than through the middle of it, serving as boundaries between plots. The main canal flows from a point in the river where a dam of wooden poles, stones, and earth has been constructed.

The length of the main canal varies considerably among different schemes, with the largest (more than 1 km) at Loiminange. With few exceptions all of the primary canals, as well as the intake structures (dams), require annual maintenance. This also seems to have been the case for precolonial irrigation systems (Anderson 1988: 247). Maintenance of the smaller canals is usually carried out at the same time that the farmer is watering his/her farm. In years of exceptionally good rainfall, when watering can be delayed, work on primary canals may not begin until six weeks after the start of the rains in order to reduce labor conflicts late in the dry season. Rainfall also affects the scheduling of labor allocated for watering irrigated fields. In years of good rainfall watering activities may be limited to once every ten to twelve days and restricted to the middle and late periods of the season. By contrast, in poor rainfall years like 1984, watering of individual farms occurs twice a week throughout the season. Watering of fields entails considerable labor, as individual basins are manually opened and closed during each application.

Clearing and fencing are the initial activities of the agricultural season, often carried out simultaneously. The abundance of livestock in the area makes fencing

critical in order to avoid crops losses and minimize conflicts – which occur nevertheless. The herding of cattle by males during the late dry season, however, restricts the amount of labor that can be allocated to this task. As noted earlier, these tasks are usually delayed, resulting in late planting and frequent crop failures.

Weeding of maize is done ideally twice during the agricultural season, at intervals of three and seven weeks after planting. In practice, though, many cultivators weed only once. Among agricultural tasks weeding requires the most concentrated effort in a short period of time. It is not unusual for farmers to abandon a portion of their planted field if they do not control enough labor to weed it adequately. As table 4.2 shows, women provide the bulk of labor for weeding.

Harvesting usually begins in early September and can take as long as a month, depending on the field's size and the date of planting. The Il Chamus stagger their planting, so that different portions of the field are harvested at different times. Maize is harvested by cutting the stalks and allowing them to dry in the field before stripping the cobs off them. Harvesting of finger millet is usually done in two or three stages and involves the tedious task of removing the small flower heads individually.

In contrast to irrigated agriculture, dryland farming attracts poorer farmers who do not have the labor or capital to establish irrigated farms. Yet even among the



**3** Watering an irrigated farm



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poor, dryland farming tends to be a supplemental activity. If the rains in a particular year look good, then a herder will clear a part of the “bush” and plant maize. Minimal planning is allocated to dryland farms, since they are unsuccessful on an average of two out of every five years. Even when a field is cleared and fenced, it will not be cultivated if the rains are delayed or stop abruptly. During 1980 to 1981 approximately 80 percent of dryland farms experienced total crop failure.

Labor requirements for dryland farming are considerably below those for irrigated agriculture mainly because basins and canals are not constructed. The exceptions are those few dryland farmers who practice a form of water harvesting, whereby basins and shallow runoff canals are dug to divert rainwater to their fields. Nonetheless labor requirements on dryland farms are about 55 percent of those required for an irrigated field of equal size. Average labor inputs per 0.5 hectare for dryland and irrigated farming, respectively, are 80 and 140 person-days. The largest discrepancy is in the field preparation stage, when in contrast to most dryland farms, basins and waterways are built on irrigated farms.

### *The organization of irrigated agriculture*

The distribution and allocation of irrigation water is supervised by a council, which in the past was dominated by elders but currently is composed mainly of young men. Certain schemes have adopted the government model for irrigation committees, although most have received no public assistance. This model, which requires eight committee members – chairman, vice-chairman, secretary, treasurer, and four non-officeholders – is a requirement for government-financed small-scale irrigation schemes. The presence of educated, “progressive” men (see description in footnote 4) on the committees, men who also may be local politicians and/or government employees, probably accounts for the use of the “official” formula. These individuals are familiar with administrative procedures and would eventually like to obtain external assistance for the schemes. The committee positions have assumed considerable importance for aspiring leaders, who use them to mobilize political support. In the Ngambo/Sintaan/Il ng’arua areas committees do not exist, in part because of the simplicity of the canal system. With just one large canal from which to draw water, irrigation schedules are devised without the use of an organization. Irrigation in this area is unique since farms are watered from the run-off channel of the Perkerra Scheme. This unintended water flow is perhaps the major benefit of the scheme for the Il Chamus.

The irrigation council is responsible for overseeing and coordinating the annual preparation and maintenance of canals. If a homestead does not contribute labor from his/her own family for this activity, then a substitute must be hired. Members who neither contribute their own labor nor hire a replacement are fined the average agricultural wage rate (ten Kenya shillings per day in 1984) for days not worked.

In theory the irrigation committee allocates land, decides when fencing and field preparations should begin, supervises the repair and maintenance of canals,

and regulates the use of water to the farm. In practice the committees do very little once the task of reopening main irrigation canals is completed. With the exception of some of the older and better-organized schemes, such as those at Kailerr, producers usually fence and cultivate according to their own schedules. The flexibility allows them to integrate more closely the demands of herding with those of farming. The committees, however, do regulate water allocation from the main into the secondary canals, and when conflicts arise they serve as intermediaries for disputing parties.

### **Mobilizing labor beyond the homestead**

Homesteads overcome labor bottlenecks by drawing on a variety of mechanisms for assistance. The two most common sources of extradomestic help are reciprocal labor and hired labor. The former, based on social relations, is considerably more complex. Forms of labor cooperation in pastoral activities differ markedly from those found in agricultural work. It will be shown that the labor demands of each activity generate particular forms of cooperation or reciprocity, which distinguish certain neighborhoods from others. The differences relate, in part, to variations in marriage patterns, labor markets, and seasonal herd movements.

#### *Cooperative labor in herding*

The importance of a single grazing resource, the swamps, fosters stable patterns of herder alliance, entrustment, and cooperation. While relationships can change, homesteads usually cooperate with the same units each year except during droughts, when temporary arrangements occur. Alliances in the dry season provide a herder with access to a grazing area other than that of his/her own neighborhood, while they also reduce labor costs. For example, the labor inputs associated with seasonal movements of animals would be significantly higher if not for cooperation among herders. Important economies of scale can be attained when owners cooperate with each other in herding and watering animals (Dahl 1981: 207).

Homesteads cooperate in three ways to reduce labor inputs to livestock production. These different strategies vary markedly according to season, composition of the herd, and the homestead's location *vis-à-vis* the swamps. The first mechanism, most common during the wet season, is what I call "simple" cooperation, where two or more homesteads share the labor costs of herding. Homesteads of young individuals, like the one headed by Joshua Lesar mentioned earlier in this chapter, frequently rely on this form of labor sharing. Under such arrangements livestock are grazed in locations near the homesteads rather than moved to distant pastures. Contributions of labor from each homestead are not necessarily equal.

A second form of cooperation in livestock production is the seasonal entrustment of livestock from one homestead to another. This practice usually takes place in the dry season and involves labor cooperation. In these arrangements, the

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“entrustee” homestead serves as the base for dry-season herding and the “entrusting” herd owner visits frequently to observe the condition of his/her animals. In many cases, the entrusting homestead either sends a herdboyc to assist with daily livestock activities in the dry season, thus reducing the burden on the receiving homestead, or reciprocates by taking the other homestead’s cattle during another season. Cattle entrustment takes place during the wet season but with less frequency than in the dry period. This form of cooperation occurs often between homesteads with longstanding social relations, such as those based on marriage or kinship.

It is important to distinguish entrustment from the loaning of cattle, which usually entails a longer time span than a single season. Loaning has a rich glossary of local meanings and linguistic terms to describe it. Homesteads lend animals for several reasons, of which saving on labor is only one. Other motivating factors are: to reduce the risk of herd loss in any one place, to take advantage of grazing in different locations, to help affines and kinsmen, to establish a credit relationship (called a *sile*),<sup>5</sup> and to create clients who can be mobilized for political support (cf. Almagor 1978; Gulliver 1955). The loaning of livestock, in contrast to seasonal entrustment, is a long-term management/social investment strategy. In a few cases Il Chamus herders even maintain livestock exchanges with Samburu pastoralists, a practice that was common in the past.

A third form of labor cooperation occurs during long-term transhumances to highland pastures which, as indicated earlier, are decreasing in significance. In moves to the hills around Arabel, the scale of cooperation is considerably greater than in the more frequent transhumances to the swamps. A sample of four encampments in the hills during 1980 averaged three separate homesteads residing in each, collaborating in herding and watering activities. No encampments were observed without cooperation between at least two families. The demands of herding and watering animals, as well as the need for security precautions in Arabel, necessitate the additional cooperation.

The type of cooperation that takes place in herding is closely related to the location of the cooperating homestead *vis-à-vis* the Molo-Perkerra swamps. Entrustment of cattle in the dry season does not take place in such neighbourhoods as Kailerr (which is close to the swamps), while it is frequent among homesteads of Loropili and Salabani/Meisori. Herders of Salabani/Meisori move their herds frequently during the year, while Loropili herders do so too, but with less regularity. The occurrence of entrustment in these neighborhoods would be more frequent were it not for those herders of Salabani/Meisori who maintain secondary homesteads near the swamps and therefore need not entrust their animals to others to gain access to dry-season grazing. While more than 60 percent of homesteads in Salabani/Meisori entrust animals to another homestead in the dry season, fewer than 5 percent do so in the wet season. Homesteads of Loropili are more likely to entrust their cattle during the wet season than are those of other neighborhoods.

Cooperative herding of small stock takes place less frequently than is the case for cattle. Except for Salabani/Meisori, seasonal entrustment of sheep and/or goats

occurs rarely, and only sheep are entrusted. Twenty-eight percent of homesteads cooperate with another homestead in herding small stock or entrust small stock to another homestead in the dry season. The percentage falls to seventeen during the wet season. As in the case of cattle herding, the very wealthy herd owners (stratum I, table 4.1) move their sheep to secondary homesteads located near the swamps.

### **Advantages of cattle entrustment**

The labor bottlenecks inherent in agropastoralism are partially overcome through seasonal entrustment of cattle. In order to allocate more labor to cultivation activities, herders can lend their cattle to other individuals. The example of Lenamali<sup>6</sup> of Loropili points to the advantages of such a strategy.

Lenamali resides in Loropili with his two wives and six children. Every dry season he sends his cattle to Loimkumkum. Part of the herd is loaned to his brother, while the remaining cattle are kept by his sister's affines (in-laws). This arrangement allows Lenamali and his wives to allocate their labor to preparing the family's irrigated plot, rather than to herding animals. When the family's animals return each year, the farm is ready to be planted. Neither his brother nor the family of his sister's husband owns a farm, but they assist Lenamali in harvesting his farm and receive a portion of the yield for their work. In 1980 the harvest of Lenamali's 1.4-hectare plot of maize was the largest in Loropili, large enough to allow him to exchange the surplus grain for 12 small stock. Like most stock owners of Loropili, Lenamali suffered substantial herd losses during the 1979–1980 drought. In contrast to most of his neighbors, however, he was immediately able to start rebuilding his herd because of successful grain production.

The case of Lenamali highlights the importance of stock entrustment in an economy that is increasingly diversified. Yet Lenamali is a relatively wealthy Il Chamus, who has been able to establish herding alliances through descent and marriage and to hire farm workers to compensate for labor shortages. His homestead is at a stage of growth where all of his children are below the age of fourteen. The seasonal entrustment of cattle allows him to compensate for insufficient domestic labor.

### **Social relations**

Cooperation in the herding of cattle frequently involves affines. For example, half of cattle entrustment arrangements in Salabani/Meisori and slightly more than one-third in Loropili are between homesteads related through marriage. The strategy of using marriage to establish grazing alliances is especially important for homesteads of Salabani/Meisori because of their isolation from dry-season pastures.

A certain amount of cooperation in herding is not based on either kinship or marriage relations, however. Approximately 20 percent of cooperative herding and entrustment in the dry season is between friends (*sotwa*) and age-mates, rather than kinsmen or affines. In some cases the relationship may be reinforced by the establishment of a *sile* (see footnote 5) between the parties. This pattern is

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especially common during the wet season, when livestock graze near the settlements, and during drought years, when opportunistic alliances (regardless of kin and affinal ties) must be sought.

A consequence of herder alliances is the proliferation of extensive marriage patterns in settlements where distance to grazing is a problem. Meisori is such a neighborhood: access to swamp pastures and highland grazing are minimal and, as a result, marriage relations are extensive (in spatial terms).<sup>7</sup> Local marriages between Meisori families (including to families of Salabani) account for only 38 percent of marriages in the study. More than 60 percent of Meisori marriages involve partners from neighborhoods outside an 8-km radius of Meisori. The majority of these marriages are to families of neighborhoods located near dry-season grazing. By contrast, approximately 80 percent of Kailerr marriages involve families within an 8-km radius of the neighborhood. Residents of Kailerr have relatively good access to dry-season grazing, and thus herding alliances are less important there.

Wealthy herd owners utilize affinal ties to establish residence in different neighborhoods, thereby gaining access to new areas of grazing. The case of Leguyam is a good example of such an individual.

Leguyam, whose mother was one of five wives married to his father, comes from a prominent Loropili family. The mother was from Loiminange and after Leguyam was ten years old, his father established a secondary homestead there for her and her children. In the dry season the father moved part of his cattle holdings to Loiminange, where Leguyam and his older brother herded them. The father provided cash to his wife for buying grain and other essentials. After his father died, Leguyam's stepbrothers from Loropili continued to move cattle seasonally to Loiminange, using his mother's homestead as a base. When she died they moved their cattle to the homestead of Leguyam, who by this time had married and established an independent homestead. Even his older brother, who had returned to Loropili after their father's death, sent his animals to Loiminange. The pattern broke down in the late 1970s when Leguyam (who was forty years old by this time) lost most of his livestock as a result of drought, and returned to Loropili to farm and work as a wage laborer.

Leguyam's father had married a woman of Loiminange and used her family's ties to that neighborhood to establish a herding base for the dry season. The pattern of seasonal movements endured for more than a generation, with the wives and sons maintaining the practice after the father's death. It should be noted that women like Leguyam's mother can gain a considerable degree of autonomy in economic activities when they live in a secondary homestead.

The need for grazing alliances increases with the size of the family herd. As the homestead head matures and his stock holdings increase, he is likely to seek alliances outside his natal homestead. Wealthy members of *il mirisho* and *il paremo* age-sets (both are older groups), for instance, often married locally the first time but then married "outward" in subsequent marriages. Moreover, herders of strata I and II reveal a higher proportion of extensive marriages than does the general population. This trend toward extensive marriage alliances among the rich

is not restricted to Meisori but is the norm for most neighborhoods. The establishment of secondary homesteads and stock alliances is an important concern of wealthy herders, and it is therefore unlikely that any rich family head (with the exception of Kailerr stock owners) would marry locally more than once or twice. For example, each of the two wealthiest herd owners of Meisori has married more than five times, but only once to a Meisori family. Because of their wealth, these men do not have problems in acquiring alliances with non-Meisori families. A very rich homestead head may have an extraordinarily extensive pattern of marriages, maintaining secondary homesteads in three or four different locations.<sup>8</sup>

In contrast male stock owners of strata IV and V are more likely to marry women of their own neighborhood. If they do marry a woman from another neighborhood, the couple is likely to reside there after the marriage. Individuals of poor families living away from Meisori sometimes marry daughters of rich Meisori stock owners and then move there as dependents. These men often provide "bride service" for their in-laws – looking after animals or working on the farms of their fathers-in-law, for instance. A very wealthy herd owner will have at least one daughter residing nearby with her husband, and the couple will be supported in part by the wife's father. In these cases, the father and brothers of the wife frequently lend and/or give her livestock, especially cows to provide milk for her children. Under such circumstances the wife is likely to own more stock than her husband and assume considerable responsibility in economic affairs.

#### *Labor cooperation in irrigation*

Labor cooperation in agriculture is lowest in settlements where cultivation is recent. These neighborhoods include Salabani and Meisori, which emphasize livestock production and practice a form of seasonal transhumance. On the basis of data from four settlements with different experiences in irrigation, it is possible to examine interactions between social relations and patterns of labor cooperation. In 1980, labor-use data were collected from thirty-two homesteads in Loropili (fourteen) and Salabani/Meisori (eighteen); in 1981 such data were gathered from twenty-six homesteads in Kailerr (twelve) and Salabani/Meisori (fourteen). There was about a 75 percent overlap for the Salabani/Meisori samples in the two years. The substitution of Kailerr for Loropili in the second season allowed a comparison of the oldest irrigated farming area (Kailerr) with the most recent (Salabani/Meisori). While Meisori and Salabani each had its own irrigation scheme, membership in the two overlapped because of their proximity to each other. Thus, members of each neighborhood were included in both the 1980 and 1981 surveys.

Analysis of the data indicates very different degrees of labor cooperation and, conversely, of hired-labor use in the different neighborhoods (table 4.5). While the Kailerr sample showed considerable use of cooperative labor and an almost complete absence of hired labor in clearing, cultivating, and weeding activities, the opposite was true for Meisori. In the latter neighborhood, up to 32 percent of the labor used for these activities was hired for cash, while very little use of reciprocal labor was observed. Overall, almost 20 percent of labor annually

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**Table 4.5. Reciprocal versus hired labor in Meisori and Kailerr in percentage of hours worked**

Activity	Meisori		Kailerr	
	Percentage hired	Percentage reciprocal	Percentage hired	Percentage reciprocal
Clearing and fencing	31	3.5	1	29
Cultivating and planting	4.7	4	2	20
Weeding	23	4.5	0	19
All	19	4	1	23

*Source:* Author's field notes

allocated to agriculture in Meisori is hired, while only 4 percent is based on cooperative work arrangements. A similar pattern exists in Salabani, while homesteads of Loropili rely slightly more on reciprocal labor but employ similarly large quantities of hired labor. Homesteads of Kailerr, on the other hand, rarely hire workers (approximately 1 percent of labor inputs) but rely heavily on cooperative work arrangements with other homesteads (23 percent of labor inputs). The most common scenario is for two or three farmers and their families to work on each other's farms during peak labor periods, moving from one field to the next until the task is completed.

### **Social basis of cooperation**

The content of social relations in Kailerr explains, in large part, the reliance on cooperative work arrangements there. As indicated earlier in the chapter, homesteads of Kailerr demonstrate a strong bias toward localized marriages, whereas those of Salabani/Meisori do not. Thus, homesteads in Kailerr are frequently related to each other through marriage and, to a lesser extent, cognatic (maternal) ties. This is not the case in Salabani/Meisori nor in Loropili. Such relations, as will be shown below, are important for mobilizing nonwage labor.

A survey of thirty-eight homesteads in Kailerr indicates that each homestead was related, either through marriage, descent, or maternal relations, to an average of three homesteads. More than 45 percent of these ties were based on marriage, representing what Rigby (1969: 236) calls "overlapping marriage circles," where affinal networks of individuals overlap; another 32 percent of interhomestead ties were based on agnatic relations, which is mainly due to the dominance of one family in the area; while 21 percent were based on cognatic ties.

In Kailerr, linkages through females – either one's wife, mother (cognates), or sister – are very important. The combined total of such linkages accounted for more than 65 percent of the social ties among homesteads. By contrast, in Meisori and Loropili relations among homesteads tend not to be based on marriage or cognatic ties. In a sample of forty-two Salabani/Meisori homesteads, only six had maternal kin in the neighborhood and only eight had affines in the neighborhood.

Table 4.6. *Social relations of agricultural labor cooperation, Kailerr*

Social relationship	Percent of cooperative work
Age-mate	26
Married sister-sister	16
Other affines	22
Cognate	18
Father-son; brother-brother	6
Other agnatic	6
Friend or neighbor	4
Clan member	2
	100

The majority of relationships between homesteads in Meisori were agnatic (58 percent of the total). The proliferation of affinal and cognatic relations in Kailerr indicates the importance of localized marriage and its relative historical depth. Not only do many of the younger Kailerr males marry locally, but the pattern is also found among the older age sets – *il paremo*, *il napunye*, and *ririmpot* – a pattern that stands in stark contrast to Salabani/Meisori and other neighborhoods.

Table 4.6 demonstrates that in Kailerr a large percentage of labor cooperation in agriculture is based on affinal and cognatic ties (56 percent of total), while very little is based on agnatic relations. Age-based ties are also important but are limited mainly to fencing and clearing activities. When age-set members assist each other it is usually no more than two individuals who cooperate, although several such partnerships may be working simultaneously. Age-mates who assist each other tend to come from the youngest initiated age group (*il kiapu* generation in 1981).

Support from affines and from maternal relations shares a commonality – the relation is through a female in each case. Because of the frequency of localized marriages, strong networks of female affines exist in Kailerr. For example, sixteen married women, representing more than 30 percent of total homesteads, reside near at least one other married sister. Since females provide the bulk of agricultural labor, their cooperation is important. In fact, it is this high proportion of related women that accounts for much of the labor cooperation among Kailerr homesteads.

Married sisters often assist each other and their married sons and daughters in agricultural work (see table 4.6). The Lesul siblings of Kailerr demonstrate the importance of this type of help for irrigated agriculture.

Each of the three Lesul sisters (two of whom are presently widows) married into a Kailerr family. The affinal and agnatic networks of the sisters are large and in some cases overlap with each other. In the case of Ngulupa, her affinal/agnatic network extends to almost one-third of Kailerr households. During 1980–1981 these three



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sisters – in groups of two or three – carried out the following agricultural tasks: (1) weeding and harvesting sister #1's youngest son's farm; (2) weeding sister #2's son-in-law's farm; (3) clearing and weeding each sister's farm; and (4) clearing and weeding sister #1's oldest son's farm. In addition to the sisters' own joint efforts, their married sons often cooperate, again indicating the importance of matri-based ties.

Such labor cooperation, among affines and maternal relations, is especially important for young males, as they do not control large amounts of domestic labor. The case of a young Kailerr man, Lekime, illustrates this point.

Lekime's social network was used during the 1981 agricultural season to mobilize significant amounts of labor. For example, his brother-in-law assisted him in fencing and clearing his irrigated farm, while his married sister helped cultivate the plot and construct the basins required for irrigation. His mother and her two sisters also provided labor at the preplanting stage. Although harvesting took place after I had left the area, Lekime expected that his mother-in-law, his mother-in-law's sister, and his married sister would help with the harvest. This pattern of cooperation in 1981 was identical to that in 1980. Aside from the assistance of Lekime's brother-in-law, all extradomestic labor was provided by females.

Many of Lekime's ties, which allow him to mobilize extradomestic labor, are through sisters of his mother. These types of maternal and affine-based networks are virtually absent from Meisori/Salabani, where men frequently marry outside of the area of their homesteads to gain access to dry-season grazing.

### **Effects of cooperation on production**

The ability to mobilize extradomestic support allows homesteads to allocate labor in a timely and efficient manner. This is particularly important in the late dry season, when labor bottlenecks occur. In Kailerr, cooperative work arrangements allow homesteads to devote more attention to agriculture during the late dry season than is the case in Salabani/Meisori, where homesteads rely on family or hired labor. Certain rich Salabani/Meisori herders hire laborers to work on their farms in the late dry season, but most families give only minimal attention to their farms prior to the rains. In contrast, Kailerr farmers devote considerable effort to agriculture in the dry season, with canal preparation and fencing beginning as early as December (see table 4.7). This allows them to avoid the major labor crunch in mid-February to mid-March, when animal herding requires a substantial amount of labor.

The effect of the different allocation patterns is that planting in Kailerr occurs on time, while in Meisori it does not. For example, most Meisori farms in 1981 were not sown until at least seventeen days after the rains commenced, even though some farmers used tractors. More than half the farmers had not completed field preparation within the first month of the rains, and virtually all of these farmers had no harvest, or very low yields of approximately one sack of grain (90 kg) per 0.5 hectare. Data from subsequent years show that late planting is a major problem in most seasons (Kenya 1984).

Most Kailerr farmers, on the other hand, plant their fields within ten days of

Table 4.7. *Labor use in the late dry season, 1980–1981<sup>a</sup>*

Two-week time period	Average labor allocated per farm in person-days <sup>b</sup>	
	Meisori	Kailerr
12/21/80 to 1/4/81	1.53	4.84
1/5 to 1/19/81	1.94	12.05
1/20 to 2/3/81	4.95	5.93
2/4 to 2/18/81	3.41	5.95
2/19 to 3/5/81	1.50	3.25
3/6 to 3/20/81 <sup>c</sup>	2.91	4.23
Average	2.71	6.04

*Notes:*

<sup>a</sup> Based on Little (1987a). The table is reproduced with permission of the American Anthropological Association from *American Ethnologist* 14: 2, May 1987.

<sup>b</sup> Refers to person-days; see footnote a, table 4.4.

<sup>c</sup> By the end of this period farms of Kailerr had already been partially planted. The rains did not begin until mid-March.

the first rain, and all farms are planted, without the use of hired labor or tractors, within two weeks after the rains start. In 1981 they harvested on average 400 kg of maize (per 0.5 hectare), and all farmers reaped some harvest. The mobilization of extra labor allows them to prepare their fields on time, and to achieve better production results than farmers in Meisori.

*Hired labor*

The hiring of agricultural workers can compensate for the absence of cooperative-labor groups: it allows wealthy herders to overcome labor bottlenecks. The use of hired labor in agriculture is widespread in most parts of Njemps (with the exception of Kailerr, see table 4.5), affecting the way production is organized and reducing the significance of nonwage (cooperative) labor. By contrast, the use of hired labor in pastoral activities is not common. Many herd owners are reluctant to hire laborers for herding; they believe it is too valuable an activity to be left to wage employees. Instead, the Il Chamus prefer to use family members or related kinsmen, and/or to rely on indigenous forms of stock entrustment and cooperative herding. Shepherds are employed by part-time pastoralists, who may own businesses or be employed in the formal sector, but they are rarely hired by other herders. If there is a choice, most herders prefer to employ wage labor for agricultural rather than pastoral work.

The use of hired labor is especially widespread during two critical periods in the irrigation cycle, fencing/field preparation and weeding. It is also more common among larger irrigated farmers than among smaller farmers. In the 1980 and 1981 seasons more than 25 percent of labor allocated for fencing and basin construction was hired, and farmers made considerable use of hired labor for weeding as well.

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Among irrigated farmers who have fields of 0.8 hectare or more, 83 percent employ labor. Among very small irrigators (0.1–0.3 hectare), only 19 percent hire labor, while among medium-scale farmers (0.31–0.60 hectare), 33 percent hire labor.

Agricultural labor is usually paid on a piecework or daily basis, with the former more common. In 1981 the cost of fencing was approximately Kenya shillings (Ksh) 350 (about US \$49) per hectare; basin construction (2.5 × 4 m) was Ksh 1 to 1.50 each, depending on extent of vegetation growth; planting was Ksh .50 per basin; and weeding was Ksh 1 to 1.50 per basin, depending on the growth of vegetation. If labor was hired on a daily basis, then it was reimbursed at a rate of Ksh 7 per five-hour workday. The daily agricultural wage rate had risen to Ksh 10 to 12 per day by 1985.

Hired herders are usually paid by the month, with the average Ksh 150 per month in 1981. Food is usually provided to the hired herder, especially if the worker is from outside the area. Wages for herding had risen to only Ksh 175 per month in 1985, which was far below the rate of increase for farm work between 1981 and 1985. Many hired herders originate from the Turkana and Pokot areas of the north, where employment opportunities are few. By the late 1980s more than 800 Turkana alone were settled around Marigat town, seeking wage employment and famine relief. The supply of potential herders from these areas has been very high because of the effects of prolonged drought and raiding there. These factors presumably depress local wage rates for hired herders.<sup>9</sup>

### Effects of wage labor on production

Skillful farm managers take advantage of the limited water available during the agricultural season. This is achieved by good planning and by avoiding labor bottlenecks at the end of the dry season when fields need to be prepared. An astute farmer also weeds his/her field in a timely fashion, usually three weeks after planting. The use of hired labor, and in some cases tractors, by the wealthy stock owner can partially compensate for poor planning and potential labor bottlenecks. A comparison of production activities by two Il Chamus, Leto and Legule, illustrate well the advantages when capital (for labor hire and other outlays) is available and applied in irrigated agriculture. Leto is a small-time livestock herder (stratum IV), while Legule is among the richest stock owners in the area (stratum I).

Leto is of the il kiapu generation, initiated in the early 1970s. He expends a considerable amount of his own labor in both agricultural and livestock activities, although his herd is relatively small: nine cattle and fifty-one small stock. In the dry season of 1980 Leto combined his cattle with those of his brother-in-law and moved them to an age-mate's homestead in Loiminange. The friend allowed the cattle to stay at his enclosure in the evenings, but Leto and his brother-in-law provided the labor for herding. They took turns traveling to Loiminange (a distance of approximately 30 km) in alternate two-week periods to look after the animals. Despite heavy demands on his time, Leto worked on his farm during the dry season when he was not herding. Since he could not give full-time attention to agriculture, he started field preparation in early February, in order to avoid the major labor "crunch" at the end

of the long dry season. This was well before the time of the year when most Il Chamus began work on their farms. Leto and his wife each spent more than 50 hours a week in February and March on combined livestock and cultivation activities. When the rains arrived on April 14, Leto's field was prepared, allowing him to finish planting it within two weeks of this date. Although the farm produced very little that year, few Il Chamus in the area relying on homestead labor only – including units with considerably more labor than Leto – planted earlier.

Legule, of Ngambo, provides a scenario very different from Leto's. He is a member of the *il medoti* age set (approximately forty years old) and is a wealthy herd owner and prominent local politician. During the 1980 dry season, Legule allocated little of his or his family's labor to production activities other than livestock. His cattle and sheep were split into two separate herds, with the majority kept in a temporary enclosure bordering the Molo-Perkerra swamp. In March, Legule had his name placed high on the waiting list for tractor hire, which was to be provided by the Perkerra Scheme. It was not until the beginning of April, when the tractor came to his farm and he arranged for hired laborers to fence the field, that he paid attention to his irrigated field. Nevertheless, when the rains arrived in mid-April, Legule was also about ready to plant his field. The construction of basins and planting were facilitated by tractor use, which loosened the soil. Considerably less labor was required for these activities because of tractor hire. Legule's area of cultivation was more than three times as large as Leto's because of the use of hired labor and tractors, and his harvest was almost five times as large.

The comparison of Leto and Legule highlights the effects of hired labor on production. Unlike poor herders, individuals who have sufficient capital can compensate for conflicting labor demands and their lack of timely initiative in field preparation. Large inputs of cash in irrigated agriculture undermine the importance of homestead- and affine-based labor groups, presenting a significant change from the past. Individuals who have sufficient capital do not have to be as concerned as are poor herders with maintaining relationships that mobilize non-wage labor.

## Summary

The unfavorable market conditions described in chapter 3 motivate homesteads to combine grain production with pastoralism, in order to diminish interactions with the market. As subsequent chapters will show, however, this strategy has done very little to reduce dependence on the market. Recent changes have affected the organization of production differently in some areas of Il Chamus than in others. Key variables accounting for the differences are the pattern of social relations in the particular neighborhood (which, as I have shown, links closely to the demands of pastoralism); the absence or presence of hired labor; and the history of irrigation in the neighborhood. The critical issue for production is how labor is mobilized for agriculture without jeopardizing pastoral activities. The process of diversification takes on different meanings for different groups of producers (e.g. rich and poor herders), as only a limited number of homesteads are able to capitalize on irrigation opportunities. Among most homesteads diversification strains domestic labor supplies, making it difficult for many of them to achieve

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success in either livestock or agricultural production. The widespread differentiation among homesteads in the area, and what such differentiation means for livestock and agricultural investments, is explored further in the next chapter.

## 5

### Income, wages, and investment

This chapter broadens the discussion of production by examining its relationship to nonagropastoral<sup>1</sup> activities and investments. The relationships among rural production, nonfarm income, and investment preclude simplistic characterization. Diversification into nonfarm activities, especially wage employment, is a response to low production among the poor and to the need to diversify among the rich. Looking “beyond the herd” shows that nonfarm activities can improve the welfare of certain producer groups while jeopardizing the viability of others. At the lower end of the wealth continuum, pastoralists take on wage employment and dryland agriculture to supplement meager livestock incomes and to meet subsistence costs, while at the upper end, nonpastoral activities are pursued as accumulation strategies that serve to differentiate further the rich from the poor. One is a question of *survival*, the other of *investment*. Clearly what Bernstein (1982) calls a “simple reproduction squeeze” exists among Il Chamus homesteads, but not all domestic units are affected equally nor are their responses similar.<sup>2</sup>

Disaggregating homestead activities according to whether they result from production or investment strategies is difficult. This is particularly true for livestock, as they are both product and investment, accruing yields of up to 10 percent per annum. Calculating returns to labor in livestock production demonstrates that on average more than 20 percent of annual value derives from investment gains (i.e. herd growth and appreciation), rather than milk and meat production. This sort of capital accumulation distinguishes livestock raising from other productive options in the area. The chapter analyzes the economics of pastoralism, irrigated agriculture, and wage employment among different socioeconomic groups of producers. In contrast to other studies of rural Kenya (Collier and Lal 1986), the analyses show that nonfarm sources of income only minimally reduce differentiation in the area. Indeed, in some cases such income greatly aggravates differences (see Haugerud 1984). The contradictory and seemingly “uneconomic” nature of certain production strategies, in turn, can be understood only as investments that may guarantee for certain groups access to land and other resources over the long term.

## **Economics of agropastoral investment**

High capital and labor requirements for irrigated grain and livestock production restrict the investment options of poor homesteads, while increasing those of the rich. In short the question is: what are the opportunity costs, for different categories of producers, of pursuing one particular activity (e.g. livestock production) *vis-à-vis* another (e.g. irrigated agriculture)? This section of the chapter examines grain and livestock production in relation to each other rather than independently. What emerges is the degree to which these activities are complementary in the case of rich herders, but competing in the case of poor herders. While the poor are caught in a downward spiral of “decapitalization,” the wealthy use agriculture to bolster their livestock holdings and to speculate on land.

### *Returns to labor in irrigated agriculture*

The cost of production in irrigated areas is determined mainly by labor costs, which account for nearly all financial commitments in any given year. On the basis of regression analyses of local production data, four variables relating to irrigated agriculture prove significant at the .05 level. These are weeding labor, harvesting labor, cash, and date of planting. A model of irrigated cultivation that includes only the variables weeding labor, harvesting labor, and cash explains a large percentage of the variation in grain yields ( $r^2 = 0.79$ ).<sup>3</sup> The importance of harvesting labor in the overall production process should not be overstated, however, even though it proves to be statistically significant. The amount of labor allocated to harvest activities is determined mainly by the size of yield, which is in turn a function of labor and cash inputs allocated earlier in the season. Those homesteads, therefore, who allocate little labor and capital early on, use few inputs for harvesting since there usually is little to harvest.

Regression analysis also indicates the importance of capital in the Il Chamus production system. A model of irrigated production, constructed with only cash as an input, explains more than 65 percent of the variation in grain yields (at a significance level of .01). Coupled with the heavy reliance on cash to hire labor, the use of tractors also contributes to the importance of capital in the production process. Although only a small number of farmers use tractors, this mechanization significantly alters production results. Tractor use reduces the labor required for clearing, cultivating, and planting: on a per hectare basis, labor allocation for these activities declines by 29 percent when tractors are used. The cultivation season of 1980 was the first time that the government made tractor-hire services available to local farmers. Although the fee (US \$55 per hectare in 1981) is beyond the means of most farmers, the current demand from the wealthy for tractor service is greater than the state’s capacity to supply it. Using tractors to reduce labor inputs in the dry season, when total labor demand (for both herding and agriculture) is high, allows the farmer to plant early in the agricultural season, when water flow is good. It is considerably easier to build irrigation basins after the soil has been turned over by a tractor.

Data on labor and other inputs can be converted into monetary equivalents, which permits calculation of cash returns to irrigated agriculture. Yet assigning a cash value to labor is difficult because its opportunity costs vary seasonally and by category of worker. For example, the opportunity cost for agricultural labor is very high during most of the dry season, when labor demands for pastoralism are very high. To withdraw labor from pastoralism at this time could result in significant livestock (particularly cattle) loss, a problem that occurs nonetheless (see chapter 7). Moreover, opportunities for wage employment, whether in the formal or informal sector, are not shared equally by different categories of workers. For boys and girls below fourteen years of age, employment outside of agriculture and caring for livestock is limited to weeding chores on the Perkerra Scheme and fishing. Opportunities for employment as laborers on the Perkerra or on smaller schemes exist for adult men and women, and some unskilled employment is available outside of the district for men and, in some cases, women. Thus, in order to reflect real opportunity costs of labor, only 88 percent of labor allocated to irrigated agriculture, as well as livestock production, is assigned a cash value (equivalent to the daily agricultural wage) in the analysis that follows. This percentage is estimated from labor allocation by different categories of workers (see table 4.2) in 1980–1981, where the labor of children (seven–fourteen years) and older workers (sixty+ years) is assumed to have an opportunity cost equivalent to 50 percent of the daily wage.

Calculation of economic returns to irrigated agriculture reveals several interesting patterns (table 5.1). First, under current cropping patterns irrigated agriculture is often unprofitable unless a considerable amount of unpaid family labor with zero opportunity cost is utilized. Average gross income from irrigated farming is Ksh 1,745 per farmer, which is below the average cost of production. For a sample with average farm size of 0.61 hectares, the production data show a negative return of Ksh 445 when the opportunity costs of land and labor are included (table 5.1). In order to reach a break-even point, the opportunity cost of labor must be reduced by approximately one-third. The actual return to labor per person-day on an irrigated farm of 0.61 hectares is approximately half of the daily agricultural wage (Ksh 11.2), and thus, in strictly monetary terms, many farmers would be better off working as wage laborers rather than farming. I will return to this issue later in the chapter.

Second, farmers who cultivate relatively large holdings show even higher deficits than table 5.1 reveals. A sample of farmers with irrigated plots of more than 0.75 hectare shows average returns of Ksh -1,045. In spite of their larger size, the cropping pattern deviated little from other farms, with more than 90 percent of the land devoted to maize, a low-value crop. Beyond the labor needed to farm one hectare of irrigated land, almost all additional labor is hired and, as noted above, paid a wage above the average return to farm labor. Wealthy herders who own three-to-four irrigated hectares usually plant no more than half of the holding in any single year.

Finally, an exception to the pattern of deficit returns to irrigated agriculture emerges when tractors are hired. Farmers who use tractors at the subsidized rate



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Table 5.1. *Returns to irrigated agriculture*<sup>a</sup>

Category of cost	Kenya shillings (Ksh)
Tools, seeds, etc.	98
Labor	1303
Cash for labor hire, tractor	201
Land <sup>b</sup>	458
Flour processing (/15 kg)	130
Subtotal	2190
<b>Outputs</b>	
Maize	1448
Millet	189
Beans	108
Subtotal	1745
Net return (= output – costs)	–445

*Notes:*

<sup>a</sup> Based on author's data from twenty-nine homesteads in 1980–1981.

<sup>b</sup> Assigns an opportunity cost of Ksh 750 per hectare (price of land in 1981), although most current farmers did not purchase their farms. Average farm size for the sample was 0.61 hectare.

of Ksh 150 per acre enjoy a favorable economic return. Farms with an average size of 0.92 hectare earn a positive net return of Ksh 254 when tractors are used, and the return to labor is above the average daily agricultural wage on these units. On a per land-unit basis, savings on labor for the tractor versus non-tractor farmers are 29 percent for field preparation and cultivation and 30 percent for weeding. This accounts for most of the differences in returns between the two groups of farmers. Even in the case of tractors, however, maize farms cultivated in excess of two hectares are unprofitable because of their reliance on hired labor.

Table 5.2 compares returns to labor with the daily wage rate for agricultural workers (in 1980–1981). It should be noted that the returns are net of labor and tractor costs only and do not include other production costs (e.g. seeds), which are minimal in any case (see table 5.1). The category “all farmers with irrigation” in table 5.2 includes Salabani and Meisori producers, many of whom had negative returns to labor. Irrigated agriculture in Salabani/Meisori had very low average yields in 1980 because of lack of water and poor planning (see discussion in chapter 4). Therefore its inclusion in the category greatly decreases the average returns of the larger sample. When the data of Loropili farmers are analyzed separately, marginal returns to labor are considerably higher: Ksh 9.23 per person-day, as opposed to Ksh 1.28 in the more inclusive sample. Nonetheless, the returns to labor in irrigated agriculture are below the local agricultural wage for all

Table 5.2. *Returns to labor in irrigated agriculture*<sup>a</sup>

Category	Returns per person-day (Ksh) <sup>b</sup>
Loropili, non-tractor	6.65
Loropili, tractor	16.22
All Loropili farmers with irrigation	9.23
All farmers with irrigation	1.28
Daily agriculture wage <sup>c</sup>	11.20

*Notes:*

<sup>a</sup> Data were collected from twenty-nine homesteads (fifteen Loropili, fourteen Salabani and Meisori) during the 1980 agricultural season.

<sup>b</sup> Based on producer prices of Ksh 2, 5, and 6 per kg, respectively, for maize, beans, and millet.

<sup>c</sup> Based on agricultural wage rate of Ksh 7 per five-hour day, or 11.2 per eight-hour person-day.

categories with the exception of “Loropili: tractor.” Returns to labor in the categories of “Loropili: non-tractor” and “All Loropili farmers with irrigation” are Ksh 6.65 and 9.23, in that order, which are both below the daily agricultural wage.

*Returns to labor in dryland agriculture*

Dryland farms in the area are unsuccessful on an average of two or three out of every five years, which is why the Il Chamus give them so little attention. From 1980 to 1988, for example, dryland farms succeeded at an 80 percent rate only in 1983, 1986, and 1988. Part of this can be explained by the tendency of farmers to plant poorly adapted varieties of maize, but most relates to the low and poorly distributed rainfall and to late planting. As discussed in chapter 2, rainfall patterns in lowland Baringo are characterized by uncertainty and prolonged breaks of little precipitation during most years. In years of favorable rainfall intensity and distribution, yields on dryland farms are usually only about 600 kg (of maize) per hectare, or less than half the average yield of an irrigated field of equal size.<sup>4</sup>

Only 20 percent of dryland farmers harvested any grain in either 1980 or 1981; their average yield was only 135 kg per hectare. In a regression analysis of dryland farming data the amount of labor allocated from March 1 (late dry season) to April 14 (beginning of rains) and the date of planting are the only significant variables (at the 0.05 level) in the production process. The labor variable measures the ability of the farmer to prepare and plant his/her field on time. The date of planting is very important in dryland farming, as it is in irrigated agriculture (see discussion in the preceding section). Successful dryland farmers usually plant within eight days after the rains commence. Because tractors are not available to dryland farmers and hired labor is used sparingly in the non-irrigated area, cash does not show up as a significant input.

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Table 5.3. *Returns to labor in livestock production*<sup>a</sup>

Herder category <sup>b</sup>	Returns per person-day (Ksh)
I (very rich)	20.32
II	12.38
III-H	10.65
III-L	7.53
IV	5.86
V (very poor)	6.39
Average	11.69

*Notes:*

<sup>a</sup> Based on a sample of twenty-nine herd owners.

<sup>b</sup> Categories, in terms of livestock ownership, are defined in table 4.1.

Returns to labor in dryland agriculture are especially low because of the high incidence of drought-induced failure. Although labor inputs are relatively low in dryland farming, returns per labor unit in 1980 and 1981 were only about one-third those of irrigated agriculture. In Loropili returns were Ksh 2.07 per person-day, while in the combined sample of Loropili and Salabani/Meisori returns were negative, at Ksh -0.56. During the 1983 season rainfall was better, and average dryland yields for maize were 450 kg per hectare (BPSAAP 1983a; Bezuneh 1985), raising marginal returns to labor to about Ksh 6.00 per person day.<sup>5</sup> In excellent years, returns to labor in dryland agriculture exceed those in irrigated agriculture, but, as noted earlier, these occur infrequently. Even during periods of high rainfall it is unlikely that returns to labor in dryland agriculture will ever exceed the local agricultural wage without changes in the current cropping pattern. The latter would entail a shift away from maize to higher-value crops such as millet, legumes, or vegetables. Reliance on maize as a staple, as was shown in chapter 3, relates in part to colonial policies that changed marketing and consumption patterns in the area. The government's preference for maize over African cereals – though the latter are better suited to dry regions – has continued in the post-independence period.

### *Returns to labor in livestock production*

The previous chapter indicated that economies of scale are important in livestock production. This allows returns to labor to be considerably higher among wealthy herd owners than among poor stock owners. Table 5.3 stratifies the Loropili and Salabani/Meisori sample by ownership category, showing returns to labor among different groups of herders. The calculations are based on annual values of milk and meat production, as well as returns from herd reproduction and growth.

Table 5.4. *Composition of livestock income by herder category<sup>a</sup>*

(in Kenya shillings)						
Annual income from:						
Herder category <sup>b</sup>	Herd growth <sup>c</sup>	Milk	Meat <sup>d</sup>	Hide and skin sales	Animal sales	Total
I	4997	4108	1055	618	9150	19,928
II	1260	1017	180	122	1136	3,715 <sup>e</sup>
III-H	874	1117	307	101	1562	3,961
III-L	468	823	116	57	1205	2,669
IV	263	398	23	33	885	1,602
V	70	302	60	4	433	869
Average	894	981	200	106	1811	3,992

*Notes:*

<sup>a</sup> This includes the value of both cash and subsistence income during the period March 1, 1980 to February 28, 1981. Milk production (valued at Ksh 3 per liter), for example, contributes only to subsistence not cash income (i.e. there were no sales of milk during the period). The exchange rate during the period was Ksh 7.2 = US \$1.

<sup>b</sup> For description of categories, see table 4.1.

<sup>c</sup> This represents the increased value of the herd from growth and reproduction during the period. It is the estimated value of herd appreciation.

<sup>d</sup> During the period only goats and sheep were slaughtered for consumption. An estimated price of 90 shillings per small stock is used to calculate value of meat production or consumption.

<sup>e</sup> Most of these herders sold few animals in 1980–1981, which is why their livestock incomes were lower than those of category III-H. Annual incomes from livestock are relatively high for herders of III-H because they sold comparatively large proportions of their herds to buy food, while group II herders tend to have maize from irrigated agriculture and therefore rarely need to sell animals to buy it. As the text points out, livestock sales like those of group III-H diminish the long-term welfare of the herd.

Because the data reflect a bad season for livestock production (March 1980 to February 1981), low rates of herd growth are used in the analysis. It is estimated from a sample of twenty-nine herds that annual growth rates were 4 percent for cattle, 8 percent for sheep, and 10 percent for goats. Most drought-induced animal deaths from the 1979–1980 disaster occurred prior to March 1980, so livestock loss had little effect on the analysis in table 5.3.

The value of milk production in 1980–1981 was especially low, reducing overall returns to livestock production. While revenue from milk sales accrue to female members of the homestead, commercial transactions of the product did not occur during these years. Table 5.4 shows the value of milk and meat production and of sales of live animals and hides and skins during the period. In most years the value of milk production exceeds the value of any other component of the livestock economy, but this is not the case in table 5.4. During 1980 to 1981 daily milk for human consumption was on average only 0.49 l (liter) per lactating cow, 0.10 l per she-goat, and 0.05 l per ewe. The average annual value of milk

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production was only Ksh 981 per homestead, which was equivalent to 327 l of milk or less than 1 l per day.<sup>6</sup>

Wide differences are evident in the milk income of rich and poor livestock owners. Even among "very rich herders" (stratum I), however, the value of milk production is low given the size of their herds. As table 5.4 shows, the value of milk production for this category is Ksh 4,108 per annum. This is equivalent to annual and daily production of 1,369 and 3.75 l per homestead, respectively. With average livestock holdings of 137 livestock units, the amount of milk available for homesteads in this group is quite low. Data on milk yields in a non-drought year (1983) show that the average productivity of Il Chamus cows should be at least twice as high as the figure reported above (Homewood and Hurst 1986). Thus, in most years one can expect the returns to labor in pastoral production to be higher than indicated in table 5.3.

In spite of low milk production, the average returns to livestock production (1980 to 1981) exceed those of irrigated and dryland agriculture, except where tractors were used on irrigated farms. The average return to labor in livestock production (Ksh 11.69) is also slightly above the local agricultural wage of Ksh 11.2 per person-day (table 5.3). Returns to livestock production vary considerably, however, with only producers of ownership categories I and II attaining returns that exceed the daily wage rate. Very rich herders achieve returns to labor of Ksh 20.32 per person-day, which exceed those of tractor farmers or any other category of farmer. The upper-middle category of livestock owners reach levels of labor productivity that approach the daily agricultural wage, while herders of the lower middle (III-L), poor (IV), and very poor (V) categories earn returns well below the daily agricultural wage. Overall much has been written about pastoralists' and agropastoralists' reluctance to abandon livestock production; these data demonstrate the sound economic reasons for their resistance.

### *Effects of grain production on livestock investment*

Why do homesteads pursue agriculture if returns to labor are low – even lower than in livestock production? One reason, discussed earlier, is the unreliability of grain markets, which compels herders to attempt to reduce their market dependency by producing their own cereals. Another important reason is that grain production can have a positive effect on livestock investments, which achieve better returns than agriculture. Herders can channel their own surplus grain toward livestock purchases, and also preserve herd capital by selling fewer animals than would otherwise be necessary. This strategy is pursued by both male and female-headed homesteads, although the latter usually do not have access to the larger irrigated parcels.

Farmers with irrigation in particular are able to reduce cash expenditures by meeting at least part of their cereal needs. This allows them to maintain their herds by not having to sell off animals to purchase cereals. Average cash expenditures for food are up to 40 percent lower among homesteads that have access to irrigation than they are among homesteads that do not. Expenditures on grain

Table 5.5. *Social differentiation and annual market off-take rates<sup>a</sup>*

	Herder category <sup>b</sup>		
	I/II	III-H/III-L	IV/V
<b>Cattle</b>			
Herd size	54.1	15.9	4.5
Off-take rate	6.8	8.8	20.8
<b>Sheep</b>			
Herd size	353.4	40.1	9.9
Off-take rate	6.3	10.2	22.2
<b>Goats</b>			
Herd size	92.7	24.5	9.5
Off-take rate	6.4	13.7	10.0
<b>Stock units<sup>c</sup></b>			
Herd size	128.5	26.7	7.7
Off-take rate	6.6	9.4	18.0

*Notes:*

<sup>a</sup> Based on a sample of fifty-eight homesteads in Salabani/Meisori, Kailerr, and Loropili.

<sup>b</sup> For description of categories, see table 4.1.

<sup>c</sup> See note c, table 4.1.

comprise about 50 percent of homestead expenses among the very rich (I) and up to 70 percent among poor (IV) to very poor (V) households. (Consumption and expenditure patterns are discussed in more detail in chapter 6.) Poorer herders who do not produce adequate supplies of grain are forced to market a greater proportion of their herds to buy food than are wealthier ones (also see Kjaerby 1979; Sutter 1987).

Market off-take rates for herds in Salabani/Meisori, Kailerr, and Loropili are presented in table 5.5. They show wide differences in marketing patterns among different socioeconomic strata of herders. The discrepancies in off-take rates affect herd reproduction and demonstrate that poor pastoralists are more reliant on food purchases to meet homestead subsistence needs than are wealthy. Although the volume of marketed stock is much greater among the wealthier homesteads, as reflected in their higher incomes from marketing (see table 5.4), commercial off-take rates for homesteads classified as poor/very poor (strata IV and V) are approximately three times as high as rates for rich/very rich homesteads (strata I and II). Among these poorer families the percentage of cattle marketed annually is well above the rate of herd reproduction under optimum mortality and calving conditions. At an annual off-take rate of 20 percent a herd of fifteen cattle would be virtually depleted within five years or even sooner if drought occurred. On the other hand, wealthier herd owners are able to minimize their market transactions, and thus preserve much of their herd capital. Their herd off-take rates are relatively low for both cattle (6.8 percent) and small stock (6.3 percent for sheep, 6.4 for goats). As Sutter has shown for Niger, "investment takes place by keeping the

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sale of productive animals to a minimum” (1978: 42), thus allowing the herd to grow. The strategy by herders of pursuing agriculture to reduce livestock sales has been reported in other areas of Africa as well (for the Sudan, see Mustafa 1980: 124; for eastern Kenya, see O’Leary 1980: 222).

In addition to diminishing the need to sell livestock, grain production also allows some pastoralists to make investments in livestock during immediate post-drought months, since cereals can be used in exchange for animals. When supplies of grain are scarce and livestock prices low because of drought, farmers with irrigation profit from selling grain as well as from keeping their stock off a devalued market. During the droughts of 1979–1980 and 1984, bulls were exchanged in parts of Baringo at a rate of only one sack of maize (90 kg) per animal or were sold for as little as Ksh 150. After droughts, herders who have access to irrigated farms are able to convert grain into animals and begin to rebuild their herds. The pattern is to concentrate initially on exchanging grain (or cash from grain sales) for goats and sheep. The case of Lenamali, who was mentioned in chapter 4, demonstrates the significance of irrigated grain production for livestock accumulation strategies following a drought.

Lenamali, who is an *il medoti* of Loropili, owns twenty-three cattle, thirty-five goats, and eighty-one sheep, which places his homestead in wealth category (II) within the community. This herd has about 50 percent fewer cattle and 30 percent fewer goats than the homestead owned prior to the 1979–1980 drought. Lenamali also controls an irrigated farm of 1.4 hectares, where in 1980 he produced 2,650 kg of maize and 138 kg of beans. At five shillings per kg the bean harvest alone was worth Ksh 690, or the equivalent of seven goats or sheep; but his family consumed rather than sold the beans. The savings in grain expenditures during September 1980 to August 1981 because of domestic production of maize was approximately Ksh 4,150 (US \$533), or the equivalent of three cattle, fourteen sheep, and twelve goats. This is the number of animals he would have had to sell in order to finance the homestead’s grain requirements, unless he found alternative ways to earn cash (e.g. wage employment). While most of the homestead’s production was for its own consumption (2,077 kg), he and his wife sold 71 kg for Ksh 142; exchanged grain directly for twelve small stock at a rate of 36 kg per animal; and gave 70 kg to relatives. Lenamali later traded six of the small stock to a herder, in exchange for a heifer. If the six small stock sold to finance the hire of agricultural labor and machinery are taken into account, then a net gain (in addition to grain self-sufficiency, gifts, and cash sales) of six goats and sheep remains at the end of twelve months. By producing their own grain, the homestead was able to keep its own livestock off a market devalued by the drought, and to begin rebuilding its herd after the drought.

Livestock purchases in the immediate post-drought period occur twice as frequently among homesteads in irrigated areas as among those in nonirrigated locations. The case of Lenamali highlights the importance of irrigated grain production in the months following a drought. Most purchases in these months involve animals from Salabani/Meisori and Loimkumkum, where there is little irrigation and thus a high demand for grain. Goats and sheep are also bartered for grain between nonirrigated and irrigated neighborhoods. Eighty-three percent of

farmers with irrigation who, like Lenamali, had yields greater than 700 kg in 1980 exchanged portions of their grain directly for livestock.

As irrigation and livestock activities are mutually supportive among certain groups of herders, a strong correlation exists between size of herd and size of irrigated farm. Among herders of socioeconomic category I, for example, average farm size (1.43 hectares) is more than six times the average (0.23 hectare) of the poorest households (V) (see table 4.1). At the lower end of the scale, poor herders often borrow parcels of irrigable land from wealthy farmers in exchange for their labor. More than 15 percent of farmers with irrigation in Loropili and Ngambo borrow their irrigated plots. Rich livestock owners control the necessary capital (animals) and labor to meet the high costs of irrigation; this enables them to build up livestock herds and flocks by keeping market sales to a manageable level. They participate in an upward cycle of increased grain production and increased livestock holdings, while the poorer herd owners are caught in a downward cycle of "decapitalization," compelled to liquidate animals in order to meet subsistence costs. Thus, the development of agropastoralism, where both livestock and irrigated land are increasingly monopolized by rich homesteads, exaggerates wealth differences, enhancing the position of the rich herder *vis-à-vis* the poor.

Lokomol of Salabani provides an informative contrast to the case study of Lenamali described earlier. Unlike Lenamali, Lokomol has been unable to meet his homestead's needs without selling large numbers of livestock. He is clearly in the "decapitalization" stage referred to above.

Lokomol, who is about forty-eight years old (an elder), owns neither an irrigated farm nor a large herd. His livestock holdings after the 1979–1980 drought were seven cattle and thirteen sheep, and he cultivated at that time a rainfed farm of 0.8 hectare. He lost about 70 percent of his cattle during the latter part of 1979, although he had migrated with them to swamps near Loimkumkum. In 1980 he planted his entire rainfed farm, but harvested only 64 kg of maize. From June to October 1980 Lokomol sold one of his heifers and six of his sheep, equivalent to about 14 percent of his cattle and 46 percent of his sheep holdings. Because of such a meager harvest and the increasing depletion of his herd through sales, Lokomol went to work in November for the Catholic Mission at Marigat. The church paid him a small wage, as well as grain, powdered milk, and cooking oil, in exchange for his working on the Mission's small projects. In effect, he was being provided famine relief, a topic discussed in detail in the next chapter. Needless to say, Lokomol did not have enough grain and cash to rebuild his herds after the drought, as Lenamali was able to do.

Lokomol represents the growing number of Il Chamus herders, who have neither access to irrigated farms nor large herds, and therefore are increasingly dependent on wage employment and relief. As another elder who lives near Lokomol explained to me, "Even to practice agriculture successfully you need livestock to help earn the cash to hire labor and tractors."

Recent studies from elsewhere in Il Chamus as well as in nearby Sandai, a Tugen settlement, also document a strong relationship between herd size and size of irrigated farm. Using my data for comparative purposes, Molenaar argues that



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on the new irrigation scheme (Nolororo) in Eldume the wealthier herders control the largest farms “. . . which was already predicted by Little” (Molenaar 1986: 38). A study of Sandai’s irrigation scheme, in turn, provides more quantitative data on the nature of the relationship. The authors (Brunt and Groen 1985) demonstrate that average cattle holdings are almost twice as large among farmers with three or more acres of irrigated land as they are among farmers with less than one acre. They present a situation in neighboring Sandai that resembles the relationship between herd size and farm size in Njemps:

People with big shambas [farms] tend to have more cattle. This can be easily explained. Farmers with a good maize harvest do not need to sell livestock to buy food. A vicious circle starts; for digging a big shamba, you need money; but farmers with a small herd cannot take the risk to invest in the shamba; so their shambas will be small and they need to sell livestock to buy food, et cetera.

(Brunt and Groen 1985: 36)

The main element left out of these studies is that uncertainties of tenure also pressure local herders to cultivate. The issue, again, involves mainly rich herders of strata I and II. It greatly complicates the analysis of agricultural sedentarization among herders, but, as will be shown below, is relevant to the Il Chamus and Baringo contexts.

### *Cultivation for purposes of securing land*

Another reason for investing in agriculture even when returns are low is to secure access to land and water. Intermittent pastoral use of land and water is not a viable means of acquiring secure tenure in Kenya.<sup>7</sup> Nor has it been elsewhere in the world where, as in Baringo, cultivators have frequently encroached on the land and water rights of herders (see discussion in chapter 1; Bishop 1988; Sandford 1983). Several cases from Baringo demonstrate that agriculturalists have been able to gain government backing to support their claims to land over those of herders. In Arabel, for example, Il Chamus pastoralists almost completely lost access to seasonal pastures after farmers settled there and began to cultivate the area. The government has been reluctant to enforce herders’ rights to these lands because (1) their use of them is seasonal and (2) farmers can mobilize considerable political clout.

Cultivators of Baringo have also been able to secure access to land along the southern (near Kailerr) and western borders of Njemps. In the latter example, Tugen agropastoralists have gained permanent access to a large area of riverine land near Ndaou, which in the past had been used seasonally by herders. Encroachment by farmers in this area is an important reason why interest in agriculture at nearby Salabani and Meisori has grown markedly in recent years. In Salabani, for example, the Lamelok irrigation works border on Tugen settlements where the Il Chamus have been wary of further land encroachment. This scheme, like the Tugen farms located a few kilometers upstream, depends on the Ndaou River for water. The locally initiated scheme at Lamelok made little progress until the early

1980s, when Tugen farmers acquired government assistance and expanded their irrigation scheme upstream. This action prompted Lamelok herders to complete their scheme in the early 1980s and to seek government funds for improving the water delivery system. The fear of encroachment was clearly a factor that spurred these actions.

Uncertainties surrounding tenure also motivate herders to cultivate irrigated, and in some cases dryland, farms that are larger than can be profitably worked. In a sample of ninety-four farmers from Ngambo, Sintaan, and Loropili, 20 percent have irrigated holdings in excess of 2.0 hectares, with the largest being 8.0 hectares. Some have demarcated their farms with expensive metal fencing that highlights the permanency of their land claim, while adding to the general unprofitability of the farm. These webs of steel wire are graphic symbols of the widespread land competition and tenure insecurity in the area (see later discussion in chapter 7). The "modern" fencing is particularly evident around the western borders of Salabani, where there is intensive competition between the Tugen and Il Chamus for land and water. The analysis of production costs in this chapter indicates that most irrigated maize farms of over two hectares are uneconomical, but by claiming large plots of irrigated land, the wealthy herder can fend off competing claims to the land (either from within or outside of the community) and gain official recognition of "ownership" by the state.

Expansion of irrigation greatly strains available supplies of water and irrigable land, especially in such areas as Ngambo, Sintaan, and Il ng'arua. Here wealthy individuals have cleared, fenced, and claimed large areas of irrigable land. Until the middle to late 1970s irrigable land was available to those with the resources to clear and cultivate it, but since then shortages have made the usufructary principle impracticable. An incipient land market is currently forming whereby prospective farmers either purchase, lease, or borrow plots.<sup>8</sup> In spite of the expansion of irrigation activities only 30 percent of Il Chamus families have access to irrigable land.

The "official" status of land tenure in Njemps serves further to complicate agricultural landholdings in the area. While the area is formally designated to be adjudicated on a "group-ownership" (group ranch) basis, a model adopted from Maasailand (cf. Grandin 1986; Galaty 1980), land registration has not begun. Land adjudication was to begin in the 1970s but has been delayed because the state is reluctant to enforce Il Chamus land rights over those of neighboring groups, who reside in "officially" acknowledged Il Chamus lands. Additional delays stem from reluctance among certain prominent Il Chamus, who would prefer to see the land divided up and registered on an individual basis. Individual registration of Tugen lands in south and central Baringo has already occurred and has added to the uncertainties surrounding land ownership in the region. It is likely that private registration of land in Il Chamus would increase further tenure ambiguities, as well as favor the wealthy and politically connected like it has elsewhere in Kenya (cf. Brokensha and Njeru 1977; Haugerud 1984).

The Il Chamus area will probably be subdivided into individual holdings even if the government initially registers the land on a group basis. Recent experiences

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from Maasailand show that group adjudication does not insure against the fragmentation of the group's holding into private parcels (*The Standard* 1985: 10). Certain group-registered ranches in Maasailand are now undergoing private titling (see Grandin 1986). Nor has it been demonstrated that group registration of land is really effective in warding off land grabbing and encroachment by outsiders (cf. Doherty 1979). By staking claims to land by farming, Il Chamus herders invoke private rights that can be "negotiated" when official land registration begins, whether it be on a group or an individual basis. Among wealthy homesteads, agricultural investment, therefore, can be seen more as a method of securing access to land (land speculation) than as a strategy for increasing short-term profits. It is symptomatic of the insecurity over land rights in the area. As will be discussed in chapter 7, this finding has profound implications for land use and for the sustainability of pastoralism in the area.

### **Wage employment option**

Incomes from livestock and agricultural investments are supplemented by revenue earned from wage employment. Approximately 40 percent of homesteads have one or more family members employed for wages. Wage employment allows herders who earn less than a subsistence-level income from livestock and agriculture to maintain their homesteads (though at marginal levels) in Il Chamus. Work for wages, however, is not restricted to the poor; family members of a number of wealthy herd owners also are employed. Sperling, who has recently worked among the closely related Samburu of northern Kenya (see earlier discussion in chapter 2), finds a similar phenomenon:

While few herders sought outside jobs during the early colonial period, since the mid 1950s, herders have been seeking wage work in large numbers. Wages have given poor herders another alternative for regaining pastoral economic viability. Even wealthy herders now use wages to augment their livestock holdings more rapidly. (1987: 167)

The depletion of herd capital, from drought or stress sales, clearly "pushes" certain herders into wage employment, but this is not the case for the rich. Wealthy herders are attracted ("pulled") to wage employment for family members as a means of diversifying their homestead economy. They tend to acquire relatively high-paying positions for their children, whom they have educated, reinforcing already existing patterns of differentiation in the area. The poor, on the other hand, usually have access to none but unskilled, low-paying positions. As will be shown later in this chapter, wage employment reduces only slightly income differences between rich (strata I and II) and poor (IV and V) herders, while it improves the status of young, "progressive" herders *vis-à-vis* older, livestock-rich pastoralists.

### *Historical trends*

Wage employment is not a recent phenomenon in Il Chamus, but the magnitude of the current market clearly distinguishes it from earlier periods. Its expansion

among the poor is explained on the supply side by their accelerated impoverishment and by the growth of irrigated agriculture, which creates an increased demand for unskilled labor. The irrigation sector's demand for unskilled labor was minimal until the last ten to fifteen years, when considerable investment in small-scale irrigation began. Data from the Perkerra Scheme suggest that the number of herders looking for unskilled positions grew after the mid 1970s. Before then, scheme management had difficulties finding enough labor to work on the project, despite strong efforts to recruit Il Chamus (National Irrigation Board 1974). Since the mid 1970s, however, the supply of unskilled labor has exceeded the scheme's requirements in most years.<sup>9</sup>

Local and regional labor markets are currently more complex than in prior years. There are at least four reasons for this. First, the number of Il Chamus engaged in wage employment is much larger than in earlier days. The droughts of the 1970s and 1980s are at least partly responsible for the differences, but other factors, such as declining terms of trade, are equally important. Il Chamus rarely engaged in wage employment on a large scale until the 1960s, and even then they limited themselves mainly to seasonal employment. When they did work in the past it was on a short-term basis, usually in response to drought or other periods of hardship.<sup>10</sup> In contrast to the Tugen, few Il Chamus families depended on wage employment as an integral component of their homestead economy prior to the 1970s.

A second factor that distinguishes the current labor market from that of earlier periods is the variety of employment opportunities available. For example, several types of jobs (boatman, cook, and hotel worker) that pay twice the local agricultural wage have emerged recently because of the expansion of the local tourist industry. Tourists increasingly flock to the area to view Lake Baringo's plentiful bird population, which represents more than 500 different species; and the transnational company, Lonrho, currently owns a lodge along Lake Baringo's shores to cater to visitors' needs. In the tourist industry unskilled laborers can earn about Ksh 350 per month, while a skilled employee can earn up to Ksh 2,000 per month (in 1983–1984). The employment effects of the tourist industry, however, are limited mainly to neighborhoods (e.g. Meisori) on the western shore of Lake Baringo around Kampi ya Samaki. In Meisori, for instance, approximately 20 percent of homesteads benefit from employment in the industry, while in Loropili very few individuals are employed in tourist-related jobs. Thus, alternatives to out-migration or local agricultural employment are present, even though regional wage-earning opportunities continue to be largely for unskilled laborers.

A third difference from the past is the existence of expanded employment opportunities resulting from state- and donor-funded projects in Baringo, especially for people who have some formal education. Several infrastructure and rural development projects that impact on Il Chamus employment have been initiated since the late 1970s. For example, more than Ksh 600,000 in 1985–1986 alone were allocated to small-scale irrigation programs that employed more than 100 workers altogether. In examining the effects of local irrigation activities, Molenaar finds that up to one-third of the families in an area may benefit from

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employment on local schemes (1986: 38). The World Bank-funded Baringo Pilot Semi-Arid Area Project (BPSAAP), which has been the main development project in the area since 1980, also employed a large number of Il Chamus, including several in skilled positions (e.g. Technical/Research Assistants). As early as 1981, 10 percent of homesteads in Loropili and Salabani/Meisori had a member employed on a project. While this type of employment is usually not permanent, it does provide an alternative to working as an agricultural laborer on the Perkerra Scheme or on an enterprise outside of Baringo.

Finally, the number of educated Il Chamus has increased considerably in the 1980s, and this has opened up a wide range of employment opportunities that were unavailable in the past. From 1978 to 1986 the number of secondary-school graduates in Il Chamus more than tripled, allowing them access to relatively high-paying positions. This was not the case as recently as the late 1970s. In 1980 there were only about six graduates from secondary school, while by 1986 more than twenty had received secondary-school diplomas. In 1986 more than thirty-six Il Chamus, including seven females, were enrolled in secondary schools and would be eligible to earn diplomas between 1986 to 1989. The figure for girls is significant, as no women in the area had earned secondary school diplomas until 1983. Virtually all secondary school graduates in Il Chamus are able to find employment either in government or on a government project, or they are able to find opportunities for further education. While secondary school education is still limited mainly to the privileged few, it has grown significantly and has reached a few of the poorer families (categories III-L and IV).

### *Frequency and types of wage employment*

A survey of 217 Il Chamus homesteads shows 41 percent of homesteads with at least one member employed for wages. Included in this figure are self-employed traders (fish, retail, or livestock merchants), who may not receive an explicit wage. Employment data by category of work, percentage of workers in each category, and origin of employee are presented in table 5.6. The table aggregates the information according to three geographic/employment areas: Ngambo-Eldume-Salabani, Loiminange, and Mukutan. The areas of Ngambo, Eldume, and Salabani are combined because they are similar in one important respect: each is near a major source of employment – Marigat, the Perkerra Scheme, or Kampi ya Samaki. The few nonagricultural positions available locally are in these areas, as well as much opportunity for trade because of their relatively high population densities and, thus, above-average demand for food purchases and local consumer goods. Mukutan is treated separately because it is more closely linked to the Laikipia labor market where agricultural employment is relatively abundant, than it is to the Baringo market. Loiminange, on the other hand, has few nearby opportunities for employment and therefore would-be wage earners frequently move to the Marigat area or outside the district.

The employment figures in the table represent the percentage of homesteads with a family member employed rather than the percentage of working-age

Table 5.6. *Wage employment patterns*

Category <sup>b</sup>	Percent of homesteads with resident(s) employed <sup>a</sup>			
	Ngambo, Eldume, Salabani	Loiminange	Mukutan	All
1. Unskilled (outside area)	2	3	8	4
2. Temp. unskilled (outside area)	3	6	19	9
3. Unskilled (local)	15	6	11	12
4. Skilled (local)	11	3	2	5
5. Skilled (outside area)	9	9	—	5
6. Trade	11	—	—	6
Total	51	27	40	41

*Notes:*

<sup>a</sup> Sample size is 217 homesteads.

<sup>b</sup> The area referred to is Njemps; category 2 includes unskilled workers employed on farms or ranches outside the district for less than two years (see text).

population (ages fifteen–sixty years) that is employed. An estimate of the latter is that less than 10 percent of the working-age population is employed for wages, with the majority being male. Female wage earners make up less than 10 percent of the wage labor market, and only on the Perkerra Scheme do women comprise a significant percentage of the wage labor force (approximately 30 percent of total). In the Perkerra case, approximately 100 Il Chamus laborers are employed on a permanent or semipermanent basis, representing about 9 percent of total families in the area.

The categories listed in table 5.6 require some explanation. Skilled employees both inside and outside of Njemps (categories 4 and 5) include civil servants, soldiers, policemen, drivers, clerks, hotel cooks, teachers, skilled artisans, and similar types of workers. Ten percent of Il Chamus families benefit, in one form or another, from employment in categories 4 and 5. Workers in these categories are mainly under the age of thirty-five years, and use their money to support their parents, their own wives and children, and/or to purchase livestock. Remittances to Njemps from workers in category 5 usually range from Ksh 150 to 200 per month. Among skilled employees working outside of the area, 90 percent are employed by the army or police.

Category 1 represents unskilled workers on farms or ranches outside the district who have been employed for at least two years. The only difference between this and category 2 is that the latter comprise workers who have been employed for less than two years. Most of these migrated out of the area as a result of recent droughts. The unskilled laborers outside of the district who have been employed for two or more years are considered permanent. This does not mean, of course, that they will not eventually return to Il Chamus to raise livestock and/or farm. Approximately 30 percent of the employees in category 2 left their families behind in Njemps. The majority of workers in this category (60 percent of total)

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are from Mukutan. They are usually young unmarried men, or married males with one wife and a few small children. These individuals remit much of their monthly salary to their families but salaries tend to be low (at Ksh 150 to 200 per month in 1984).

The largest category for employment is category 3, which includes laborers on local farms, Ministry of Agriculture farms and research stations, or the Perkerra Scheme. They are referred to locally as “contract” workers because they frequently have informal labor contracts with their employers. Seventy percent of the workers in this category are employed at the Perkerra Scheme and the majority come from Ngambo and Eldume neighborhoods. The unskilled employees at the scheme represent the poorest homesteads in the area, including those headed by widows and divorced women (see discussion in chapter 4). Nolmanie, who, like so many other female household heads in Ngambo, survives on income from the scheme and from informal beer (*busaa*) brewing is representative of this class of laborers.

Nolmanie lives in Ngambo about one kilometer from the Perkerra Scheme. Her husband died in the mid 1960s and left her with few livestock and a young son. Her brothers-in-law presently live in Nasoguro, and she has received no support from them, not even in the immediate period after her husband’s death. It is not clear whether any of her natal family are still alive, but in any case no support comes from them. Since her husband died Nolmanie has had three additional children. One was fathered by a herd owner with holdings of over 300 stock units. Other than occasional gifts from this man, Nolmanie receives no help from the other father(s). Nolmanie does not own an irrigated farm; she borrows a small portion of a neighbor’s plot and she and her children work it. In the dry season, one of her sons (ages twelve and fourteen) looks after her two cattle and five goats. When labor is in demand at the scheme, she will work there an average of five days per week. When she is not doing “contract” she will brew *busaa* for sale. Nolmanie occasionally receives famine relief from the government.

Since the mid 1970s contract laborers like Nolmanie have become increasingly a permanent group of agricultural wage earners rather than temporaries who work only during periods of drought and hardship. Instead, they work on the scheme whenever openings are available. The number of Il Chamus laborers at the scheme did not fluctuate much from 1975 to 1982, even in nondrought years. This contrasts with earlier employment patterns, when herders moved away from the scheme in favorable years (cf. Hogg 1986). The trend since the 1970s points to the permanency of contract labor.

### *Demographic effects of the labor market*

As might be expected, population growth has been highest in locations where the demand for agricultural laborers is greatest. For example, during the period 1962 to 1979 the population of Ngambo sublocation grew at an annual rate of 3.12 percent, from 1,847 to 3,116 (a 69 percent increase).<sup>11</sup> This is almost twice the average increase for Njemps Location during these years. With the exception of

Mukutan sublocation, where population more than doubled during the period 1962 to 1979 mainly because of agricultural encroachment in Arabel (discussed in chapter 7), Ngambo has the highest growth rate in Il Chamus.<sup>12</sup> Located near the main irrigated areas, it accounts for approximately 80 percent of the agricultural labor market of Njemps. Herders seeking a stake in irrigated agriculture account for a small part of the growth in Ngambo; but most is a result of immigration by impoverished herders seeking employment and/or labor tenancies on irrigated farms. For example, during the 1979–1980 and 1984 droughts large numbers of Loiminange families (up to 15 percent of the total) migrated to the Ngambo area, some of them permanently settling there. Areas such as Loiminange and Salabani, where demand for unskilled agricultural labor is minimal, have the lowest rates of population growth. In Salabani sublocation, for instance, the population grew only 31 percent or 1.6 percent per annum from 1962 to 1979.<sup>13</sup>

#### *Nonfarm investment and associated employment*

Category 6 in table 5.6 contains retail-business persons (including tea-shop owners), livestock merchants, and fish traders, or any of their employees. Jobs related to retail trade clearly account for most of the employment in this category. The owners of retail shops and tea shops are from wealthy homesteads, while many of their employees are family or clan members. The owners are generally not from the very wealthiest livestock owners, however, but tend to be younger, “progressive” herders, thirty to forty years old (see chapter 4, footnote 4). Most of them own between fifty and 100 stock units, and they usually have access to non-farm sources of employment (e.g. teaching, government, and other skilled positions). In a survey of twenty-four shop owners in Salabani and Ngambo sublocations nineteen are from the two youngest age sets, *il medoti* and *il kiapu* (approximately ages eighteen to forty-six years), while only five are from the *il mirisho* and *il paremo* generations (approximately ages forty-seven to seventy-three years). Their greater access to education and to administrative and political positions gives younger individuals an advantage over older wealthy herders. As noted in chapter 4, most of the important government-appointed positions are held by younger members of the community because of requirements for formal education.

The average investment required to establish a retail store or tea shop is Ksh 6,000 (US \$833 at 1981 exchange rates) – double the average annual cash income in the area. Less than 2 percent of families in all of Il Chamus are either owners or employees of retail businesses. While there has been an increasing tendency among wealthy, younger individuals to invest in retail businesses, most local businesses are owned by Tugen, Nubian, or Indian traders. In Marigat, for example, only three of the town’s estimated eighty retail businesses are owned by Il Chamus. Despite rapid growth in Marigat’s retail establishments between 1981 and 1986 (from thirty-three to eighty), the Il Chamus participate very little in the town’s commerce.<sup>14</sup> Marigat accounts for at least 40 percent of all retail activity in the Il Chamus area, with Kampi ya Samaki accounting for the second largest



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proportion. Regarding the latter, the number of Il Chamus owning retail businesses is higher (ten), and the proportion of locally owned businesses is also greater (approximately 25 percent of the total) than in Marigat. Nonetheless in both towns local herders engaged in retail trade usually work for others.

The majority of livestock traders in the area are Kikuyu or Tugen, while most fish traders – as well as large-scale fishermen – are Luo originally from the Lake Victoria region. Only three full- or nearly full-time livestock traders and five or six fish traders in the area are Il Chamus. Two of the stock traders, who also own retail stores, buy animals for larger traders based in south Baringo or Nakuru. These larger traders are responsible for exporting the animals to final markets. With the exception of one large merchant, the fish traders also are involved in activities at the lower end of the market chain. They procure local fish, smoke them, and then transport them to larger traders in Nakuru, who sell them in urban markets. The largest Il Chamus fish trader employs up to ten individuals, but most other trading enterprises hire very few. As with retail activities, much of the local trade in livestock and fish is controlled by outsiders.

### *Homestead differentiation and wage employment*

Table 5.7 shows the distribution of employment among different categories of livestock owners. The table relies on a subsample of twenty-nine homesteads in Loropili and Salabani/Meisori where weekly – and in some cases twice-weekly – data on production, consumption, and marketing were collected. As the data reveal, most of the unskilled employment is found among poor to very poor herders (IV and V); most of these work as contract laborers on the Perkerra Scheme. Ninety percent of homesteads with members in unskilled positions have cash incomes of less than Ksh 2,000 per annum (US \$278), and the laborers earn on average Ksh 7 per day when they are working. Workers in unskilled positions account for 59 percent of total employees in the sample. None of them are employed outside the area.

Homesteads that have members employed in skilled positions (either locally or outside) are from the wealthiest categories. Two are from the “very rich” category (I), while one each are from the “rich” (II) and “upper-middle” strata (III-H). The average herd size among the families with members in skilled positions is 103 livestock units, well above the average herd size of thirty-six livestock units. Those in skilled positions often have attained some formal education. In this sample, members of the “very rich” ownership category do not invest in retail activities; of the two shop owners, one was “rich” (II), the other “lower middle” (III-L). Two homesteads – one “poor,” the other “lower middle” – are involved in trade activities. They are engaged in small-scale fish trading, earning on average only Ksh 150 per month from this activity.

Involvement in unskilled, contract labor affects about a third of Il Chamus homesteads in the sample (table 5.7). It is drawing workers from homesteads that, unlike Nolmanie’s, had not previously been involved in wage labor, including those of the “middle” group of herders (III-L). The cases of two Salabani herders,

Table 5.7. *Employment by wealth category of homestead<sup>a</sup>*

Homestead category <sup>b</sup>	Number of homesteads with resident(s) employed in:					
	Unskilled outside	Unskilled local	Skilled outside	Skilled local	Shop owner	Trade
I	0	0	1	1	0	0
II	0	0	0	1	1	0
III-H	0	0	1	0	0	0
III-L	0	2	0	0	1	1
IV	0	4	0	0	0	1
V	0	4	0	0	0	0
Total	0	10	2	2	2	2

*Notes:*

<sup>a</sup> Based on sample of twenty-nine homesteads in Loropili and Salabani/Meisori.

<sup>b</sup> See table 4.1.

Lekikaan and Letom, show that involvement in contract labor is an option of last resort, reflecting a critical need to earn cash to meet consumption needs. Both cases follow a similar sequence, whereby drought affects livestock and agricultural production (including production with irrigation), forcing the homestead to market an increased number of animals to finance food purchases.

The farms of Lekikaan and Letom had failed by June 1980 and their livestock holdings had been reduced by approximately 40 percent since the onset of the 1979 drought. Their average livestock holdings in August 1980 were ten cattle, sixteen sheep, and eighteen goats, or the equivalent of fifteen stock units. Lekikaan is from the "poor" category (IV) of herd owners, while Letom is classified in the "lower-middle" group (III-L). Because of the desperate situation they were liquidating their herd at off-take rates of 26 percent for cattle, 48 percent for sheep, and 22 percent for goats. If this level of sales persisted, it would have almost entirely depleted their herds within an eighteen-month period. Yet the cash from animal sales was needed to finance food purchases, since both homesteads were almost completely dependent on purchased food by June 1980. Within six weeks after their farms had failed, Lekikaan and Letom had begun to fish on a part-time basis. From June to August 1980, Lekikaan and Letom allocated, respectively, three and five person-days per week of their own labor toward fishing. On good days the returns per person-day were approximately Ksh 7, of which Ksh 3.5 was cash earned from sales, while the remainder was subsistence (in-kind) income. This was not enough to meet homestead cash needs, so both individuals sought contract work. Letom began working part-time in July 1980 as a casual laborer on Ministry of Agriculture farms, but by early September he was working on a full-time basis and had by this time stopped fishing. Lekikaan, on the other hand, did not begin contract work for the Ministry of Agriculture until October 1980, which was his earliest opportunity for employment. Working as laborers on conservation schemes and government demonstration farms, they earned Ksh 8 per five-hour day (excluding one hour of travel time) or Ksh 12.8 per person-day (slightly above the average labor scale in the area; see table 5.2). While the work was not steady, they were still working intermittently as laborers

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Table 5.8. *Distribution of total income, 1980–1981<sup>a</sup>*

Homestead category <sup>b</sup>	Kenya shillings					
	Livestock	Agriculture	Perkerra	Fish	Nonfarm	Total
I	14931	-455	0	0	1200	15676
II	2455	798	0	0	2700	5953
III-H	3087	3154	0	84	600	6925
III-L	2200	844	312	404	982	4742
IV	1339	218	0	54	627	2238
V	798	486	0	217	282	1783
Weighted average	3099	699	75	165	840	4878
(Percentage of total)	(64)	(14)	(2)	(3)	(17)	(100)

Notes:

<sup>a</sup> Based on sample of twenty-nine homesteads in Loropili and Salabani/Meisori. Total income includes value of cash and subsistence incomes.

<sup>b</sup> See table 4.1

when I departed in August 1981. When I returned in 1985, Letom had migrated to Nakuru District and was working as a farm laborer on an estate there; while Lekikaan continued to work occasionally as a casual laborer, as well as to fish and herd his animals.

Letom had been employed previously as a laborer in south Baringo, but this was Lekikaan's first involvement in wage employment. Neither of them has acquired formal education beyond a very rudimentary level, thus unskilled labor employment is likely to remain their only wage-earning option. Other individuals in Salabani from the sample of twenty-nine also engaged in contract labor for the first time during 1980 to 1981. For example, Lomochil went to work as a contract laborer on the Perkerra Scheme in August 1980 after his farm failed. His livestock holdings of ten cattle, thirty-one sheep, and twenty-six goats, place him in the "lower middle" (III-L) category of owners, among the richer half of all livestock owners. While not as poor as other herders, Lomochil had few options of earning cash other than selling his labor or animals.

In Loropili, the successful harvest of 1980 kept many herders from having to seek employment. An estimated 20 percent of Loropili homesteads are engaged on a full- or part-time basis in work on the Perkerra Scheme or on local irrigation schemes, but few went to work as a result of the 1980 season. Although they are poor and often borrow their irrigated land, their small grain harvests do reduce their dependence on food purchases. In contrast to some of the Salabani herders, unskilled laborers in Loropili are all from the poor to very poor category of livestock owners. There are no individuals like Letom and Lomochil engaged in contract labor from the "middle" group of livestock owners.

Table 5.9. *Distribution of cash income, 1980–1981<sup>a</sup>*

Homestead category <sup>b</sup>	Kenya shillings					
	Livestock	Agriculture	Perkerra	Fish	Nonfarm	Total
I	9768	–455	0	0	1200	10513
II	1258	115	0	0	2700	4073
III-H	1663	279	0	48	600	2590
III-L	1262	95	312	202	982	2853
IV	918	–30	0	27	627	1542
V	437	97	0	108	282	924
Weighted average	1917	24	75	82	840	2938
(Percentage of total)	(65)	(1)	(2)	(3)	(29)	(100)

*Notes:*<sup>a</sup> Based on sample of twenty-nine homesteads in Loropili and Salabani/Meisori.<sup>b</sup> See table 4.1.**Homestead income**

The previous discussion on production and investments provides the background for assessing income patterns among homesteads. Although the Il Chamus consider their main activity to be herding, they earn income from a number of activities. The income can be in the form of cash or subsistence, the latter having a market value but being consumed directly by the homestead. The analysis in this section addresses both cash and subsistence incomes, since the latter are very important for farmers with access to irrigation, who consume much of their harvest.

*Cash versus subsistence incomes*

Table 5.8 presents the value of total income (subsistence and cash) by source of income, to different categories of producers, while table 5.9 assesses the contribution of cash income only. Analysis of the income data shows that while discrepancies exist, average incomes do correlate closely with the number of animals owned. The main reason for this is that livestock production on average accounts for 64 percent of total income and 65 percent of cash income. Homesteads of group I earn total incomes more than eight times as high as the very poor (group V), seven times those of poor (IV), and three times those of lower-middle (III-L) homesteads. Further, very rich homesteads earn annually more than twice the income of either the rich or upper-middle categories of homesteads. Thus, although inequities based on livestock ownership are greater, income also is concentrated among a very small percentage of homesteads.

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A second significant finding from the tables is the variable contribution of income sources *vis-à-vis* different groups of homesteads. For example, in category I more than 90 percent of total and cash incomes derive from livestock, while it accounts for less than two thirds in the other groups. Still, livestock provides a greater percentage of cash income among poor and very poor homesteads than among either rich or lower-middle homesteads. As noted earlier, homesteads of categories IV and V market a large proportion of their animals to purchase food, accounting for the disproportionate contribution of livestock to their incomes. In terms of total income, livestock accounts for greater than 50 percent of income only among homesteads of groups I and IV.

Annual income from fishing also reveals clear differences among homesteads. It does not show up at all among group I and II homesteads but provides on average 12 percent of total income among very poor homesteads. If analysis is restricted only to homesteads of Salabani, which are close to Lake Baringo, then the contribution of fishing to total incomes is considerably higher than reported in table 5.8. In Salabani, fishing accounts for 33 and 34 percent of total income for lower-middle and poor/very poor homesteads, respectively. Among the very poor homesteads of Salabani it alone accounts for more than half of annual cash income. These homesteads have less opportunity to engage in contract labor than homesteads of Loropili and Ngambo because of their distance from the Perkerra Scheme. As was the case in the past, fishing greatly aids poor homesteads during periods of drought and hardship.

The contribution of nonfarm (including nonpastoral) income also differs substantially among categories of homesteads. In group I it accounts for the lowest proportion of homestead income (both cash and total) but nonetheless provides more revenue than for other groups except for category II homesteads. Nonfarm income contributes Ksh 1,200 to annual income among homesteads of category I, but accounts for only 8 percent of their total income and 11 percent of cash income. By contrast, nonfarm incomes are only Ksh 627 for poor and Ksh 282 for very poor homesteads but account for 41 and 31 percent of homestead cash income, respectively. As noted earlier in the chapter, most of this revenue comes from agricultural labor. The significant contribution of nonfarm activities to incomes of the rich, on the other hand, stems from their involvement in retail businesses and employment in skilled positions.<sup>15</sup>

Third, the tables point to the important contribution that agriculture makes to subsistence incomes and the meager contribution that it makes to cash income. On average agriculture contributes 14 percent to total income, while providing only 1 percent toward cash income. As noted earlier, maize, the main agricultural product, is used chiefly for subsistence; it allows homesteads to reduce their cash expenditures on food. When grain is traded at the market, it is frequently exchanged directly for livestock rather than for cash. These two factors explain why agriculture's contribution to cash income among homesteads is minimal. Nevertheless, when one examines the incomes of homesteads with successful irrigated farms in 1980, the contribution of agriculture is especially important. For example, among homesteads of category III-H, many of whom own irrigated

farms in Loropili, agriculture contributes almost half of total income. It should be noted that the sample on which tables 5.8 and 5.9 is based does not include a Loropili homestead from category I. The very rich homesteads all had large irrigated farms in Salabani/Meisori where, as noted earlier, irrigation failed in 1980. This accounts for the negative contribution that agriculture makes to the incomes of category I homesteads. If income data were available in the same year for a sample that included very rich homesteads of either Ngambo or Loropili, a more accurate assessment of the importance of agriculture to the incomes of category I homesteads would have been possible.

#### *Levels and distribution of cash income*

A final point can be made about the levels of cash income reported for Il Chamus. In general, annual cash incomes are very low for all categories of homesteads except groups I and II, which earn Ksh 10,513 and Ksh 4,073, respectively. This is equivalent to US \$1,460 and \$565 – considerably above the area's average of US \$408 (Ksh 2,938) – but by no means excessive. Analysis of the actual distribution of cash income among homesteads reveals that more than 72 percent of homesteads earn less than the average, an indication of skewness. Even at the average level, per capita income is less than \$60 per family member. This is well below average per capita incomes reported elsewhere in rural Kenya for approximately the same time period (Grandin *et al.* 1985; Haugerud 1988; Livingstone 1986). In short, for a community that is heavily dependent on food purchases, cash incomes are very low, and poverty is widespread.

Among homesteads earning less than the average income, those that earn under Ksh 1,000 annually are in desperate poverty. This is a level far below the costs of reproducing the homestead. While the average cash income of Ksh 2,938 per homestead may be adequate for meeting living costs, 72 percent of homesteads earn less than this amount, and 27 percent of homesteads are in absolute poverty, receiving less than about \$140 a year.

In light of current debates about economic inequality among African herders (Starr 1987; Sutter 1987; Hogg 1986), an important point should be made regarding Baringo. The sloughing off of poor herders from Africa's pastoral sector predates colonialism (see Johnson and Anderson 1988). It often occurs as a result of drought or other catastrophes, and in the Il Chamus case the process stimulated the formation of an entire community (see chapter 2). In such situations impoverished herders usually go elsewhere to seek wage employment or other sources of livelihood. The removal of destitute herders is a harsh form of systemic feedback that helps the pastoral sector maintain both a favorable population-to-land balance and a degree of egalitarianism (Barth 1973; Haaland 1977; Schneider 1979).

The case described here is a slight exception to this model since wage-earning opportunities are available locally. The out-migration of poor herders experienced elsewhere in Kenya (Sperling 1987) and in other African countries (Swift 1984) is typical only of a few locations (e.g. Mukutan) of Il Chamus. In contrast to

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the Samburu or Turkana of Kenya, one does not witness large numbers of Il Chamus involved in wage-labor markets outside of Baringo. While the increased risks associated with pastoralism affect the poorest herders, they currently have the option of remaining in the pastoral sector (or at least in the area) by performing contract services on the Perkerra Scheme or on private irrigated farms, or by fishing. By diversifying into wage employment they maintain a stake in the pastoral sector, but their presence skews the livestock and income distributions considerably more than would be the case if they had been flushed out of the system.

## Summary

Studies of peasant farming show that it is not unusual for families to overexploit their own labor beyond a point of economic profitability (Chayanov 1966; Bernstein 1982). The use of nonwage labor allows them to do so without attaining a deficit cash flow. This situation typifies the Il Chamus case. In instances where there are cash opportunity costs to labor (i.e. alternative uses of labor that can earn cash), as in Il Chamus, explaining unprofitable activities, such as agriculture, is particularly complex. Three factors help illuminate the “uneconomic” behavior: (1) the unreliability of markets; (2) irrigated agriculture’s positive effect on livestock holdings; and (3) ambiguity surrounding pastoral land rights. Each of these is important, but it is the impact and consequences of the last factor – tenure uncertainty – that is the most complex to understand (see discussion in chapter 7).

The chapter has shown that wage employment is integral to the income-earning strategies of both rich and poor homesteads, with the former having access to high-paying positions. Diversification into nonfarm activities has only slightly reduced local differentiation. It has, however, resulted in the emergence of young, “progressive” herders who are challenging the dominance of older, livestock-rich homesteads. This new elite utilizes earnings from employment to finance business activities, livestock purchases, and investments in irrigated agriculture. Nevertheless, incomes, including those from wage employment, are low for a significant proportion of homesteads. As will be shown in the next two chapters, this poverty (and the related problem of distribution) create crisis-like conditions for local consumption (chapter 6) and land use (chapter 7).

## 6

### Expenditures, consumption, and the food crisis

The *sources* of income discussed in the previous chapter make up one side of an equation, the other side of which is expenditures, representing the *uses* of these homestead revenues. This chapter addresses expenditures and consumption, paying particular attention to the effects of poverty and differentiation. It draws attention to: (1) the increased importance of nonpastoral products in the local diet; (2) the seasonality of consumption and expenditure patterns; (3) the consumption and budget crises among poor and very-poor homesteads; and (4) relationships among income, consumption, and expenditures. At a more general level, the chapter examines grain deficits in Il Chamus and the importation of food aid into the local economy, pointing out the great increases in such aid in the 1980s. The chapter argues that when expenditure and consumption patterns are assessed, Hyden's (1980) "exit option" becomes increasingly unrealistic. While local production is poorly integrated into the market, homesteads nevertheless are highly dependent on the market for purchases of food.

#### Increased dependence on maize

Chapter 3 demonstrated the extent to which grain imports have increased in Il Chamus during the past fifty years. An important reason for this is a reduced livestock-to-people ratio that forces homesteads to depend more on consumption of agricultural as opposed to animal products, a problem aggravated by local inequities in livestock ownership. The long-term trend, which has been accelerated by recent droughts, has been toward a general reduction in herd size per family and per capita. Population has outpaced gains in local herds, accounting for some of the decline. Il Chamus population grew very little from the beginning of the century until the late 1940s (about 1,900 to approximately 2,500 people), but it more than doubled between the late 1940s and 1979. A comparison of animal numbers during this period shows that herd growth has not kept pace. In 1957, for example, average stock holdings per family were on the order of thirty-six cattle and 102 small stock, while aggregate animal numbers were little different from those in the 1970s (Ministry of Agriculture 1957; Little 1981).<sup>1</sup> In the pre-drought year of 1967 the averages were down to thirty-four cattle and thirty-four small



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stock (Ministry of Agriculture 1964–1967). At the onset of the 1979 drought, when the area was heavily stocked, average herd size was approximately twenty-eight cattle and seventy-nine small stock (Little 1981). By 1985 the prolonged drought of the 1980s had reduced the number of cattle by approximately 70 per cent (see also Homewood and Lewis 1987).

On a per capita basis the decline in livestock holdings is equally telling. From the late 1940s to the late 1970s, per capita cattle holdings declined from approximately nine to four. With the disasters of 1979–1980 and 1984, the per capita figure was closer to one in 1985. Flocks of goats and sheep increased during these years but they are likely to have grown only slightly faster than the human population, resulting in little change in per capita holdings (Kenya 1984: 74). Long-term data on small stock numbers are especially problematic and, therefore, are difficult to use for estimating trends.

The consumption of grain has compensated in part for the drop-off in the ratios of people to livestock and the corresponding decline in milk and meat consumption. Grain consumption is limited mainly to maize, a pattern that the colonial state encouraged through large-scale, subsidized imports (see the discussion in chapter 3). The other local grain, finger millet, is consumed by homestead members on average less than once a week. Its use is limited mainly to making *uji* (porridge) for young children and beer for elders. Maize, on the other hand, is widely consumed by all members of the homestead. Average annual consumption of this cereal is more than 800 kg per homestead, with approximately four-fifths eaten during the dry season. The consumption of maize per adult unit is considerably higher for poor and very-poor homesteads than for very-rich units which have better access to milk, meat, and other foods.

### *Seasonal patterns of consumption*

Grain consumption per homestead varies from 3.4 kg per day in the dry season (defined as eight months) to 1.1 kg in the wet season (defined as four months). Seasonal fluctuations relate in part to changes in milk production and consumption. Regression analysis of homestead grain consumption indicates the importance of milk availability as a variable. A linear model with only milk consumption as an independent variable accounts for much of the yearly change in grain consumption (the dependent variable). The correlation coefficient between the two variables is  $-0.74$ , which is significant at the .0005 level. The analysis estimates grain consumption declining by 0.64 kg for every liter of milk consumed by the homestead (within the relevant range). Because poor and very-poor homesteads have small herds, they are less able to substitute milk for grain in consumption than are rich and very-rich units.

Retail data support these seasonal changes in maize consumption. Sales of grain by four important retail outlets in Il ng'arua and Salabani demonstrate the strong seasonality of grain purchases/consumption (see table 6.1). The data reveal declines in sales from dry to wet-season months of up to two-thirds. Overall weekly sales of maize flour are more than twice as great in the dry season as in the

Table 6.1. *Seasonal sales and consumption of maize flour, 1980–1981*

Store no.	Sales in sacks per week <sup>a</sup>	
	Dry season	Wet season
1 (Salabani)	10.00	3.33
2 (Salabani)	10.00	7.00
3 (Salabani)	6.00	2.00
4 (Il ng'arua)	35.00	15.00
Total	61.00	27.33

Note:

<sup>a</sup> One sack equals 90 kg of flour.

wet season. In a period of prolonged drought, however, very little variation in the volume of monthly sales will occur.

#### *Elasticity of demand*

The dependence on maize for consumption is also revealed by the inelasticity of demand for it. Maize consumption shows little responsiveness to price changes, although neoclassical theory might suggest otherwise. Local retail prices for maize almost doubled from 1978 to 1981 but consumption changed very little. In fact, the homestead data indicate an inverted relationship between price and maize consumption: maize consumption was highest during the dry season of 1980–1981 when retail prices were also at their maximum, and lower in the wet season despite lower prices. In other words grain consumption rose (at least in the short term) as price increased.

The contradictory relationship between price and consumption invokes the possibility that Giffen's Paradox may be operative. Named after the nineteenth-century economist, Sir Robert Giffen, who discovered that Irish peasants were so dependent on potatoes that they were not able to adjust consumption patterns according to changes in price, the paradox as defined by Quirk states that "when an increase in the price of a commodity leads to an increase in the quantity demanded of the commodity, it is called a *Giffen good*" (Quirk 1976: 86). The definition implies an upward-sloping demand curve rather than the normal downward-sloping curve. In Il Chamus, demand and consumption of maize is highest during dry seasons and/or drought, when price also is at a maximum.<sup>2</sup> Although there have been fairly substantial increases in maize prices in the past few years, dependence is increasing. Just as the Irish peasant of the nineteenth century had few alternatives to the potato, alternatives to maize consumption among the Il Chamus are minimal. Other foodstuffs available in the dry season are limited quantities of finger millet, meat, milk, and wild foods, none of them viable alternatives to maize. Local dependence on maize is not likely to be affected by

price until a cheaper food staple becomes available. Dependence on only one grain in the dry season and the vulnerability to adverse price changes is a pattern noted in other pastoral areas of Africa (Arhem 1985; Franke and Chasin 1980; Swift 1984).

### **Differential consumption patterns**

Previous discussion in this chapter alludes to differences in consumption patterns among homesteads, but stresses that all are highly dependent on maize consumption. While dependence on grain is nearly universal, variations in consumption do exist, and these correspond to differences in herd ownership and income. For example, homesteads of category I consume daily 0.55 kg of maize per adult unit during the dry season, while the poor and very poor, respectively, dispose of 0.83 and 0.67 kg per adult unit. In the wet season, when milk production is favorable, differences in grain consumption between the very rich, on the one hand, and the poor and very poor, on the other, are even more extreme. During the year, poor and very-poor homesteads attain up to 90 percent of their kilocalorie needs<sup>3</sup> from the consumption of maize alone, while among the very rich maize accounts for approximately 60 percent of consumption needs. In between, among homesteads of categories II and III-H maize consumption accounts for an estimated 70 and 85 percent of kilocalorie needs, respectively.

### *Consumption of pastoral products*

Consumption of milk and meat also varies according to levels of wealth. Annual consumption of milk per adult unit (1980 to 1981) is 117.5 l for homesteads of category I; 68.0 l for category II; 67.4 l for category III-H; 47.8 l for category III-L; 31.8 l for category IV; and 17.4 l for category V homesteads. For meat, annual consumption per adult unit is 29.27 kg for homesteads of category I; 13.54 kg for category II; 16.58 kg for category III-H; 12.05 kg for category III-L; 6.39 kg for category IV; and 8.24 kg for category V. Certain of the very-poor homesteads (category V) herd animals belonging to wealthier homesteads who occasionally allow the herders to slaughter a goat or sheep for consumption. In the sample, meat consumption therefore is slightly higher among very-poor than among poor homesteads. Nonetheless, differences in meat consumption among different categories are considerably greater than is the case for maize consumption. Average meat consumption among homesteads of categories II, III-H, and III-L is relatively close, but approximately 100 percent above levels of consumption of the poor and very-poor homesteads. These three central groups, however, consume on average less than half the meat per adult unit that very-rich homesteads do. Unlike homesteads of categories IV and V, wealthier homesteads can slaughter animals for consumption in the dry season when milk production is low.

Daily consumption of pastoral products among poor and very-poor homesteads is only, respectively, 0.09 l of milk and 0.02 kg of meat, and 0.05 l of milk and 0.02 kg of meat per adult unit. This is approximately 6 percent of the daily caloric

requirements of an adult. In the dry season, when pastoral production of milk is very low, the contribution of livestock products to energy needs is even smaller. Thus, earlier claims that most Il Chamus live largely on the products of their herds (CPK 1931: 3) is clearly untrue today.

### *Consumption of wild foods*

Consumption of wild vegetables and fish is especially important for homesteads of categories IV and V. The Il Chamus are unusual among Maa-speakers for their consumption of fish – especially when compared to the Samburu and Maasai who strongly dislike it – but many families do not eat the product and, for a large number of Il Chamus it is a relatively low-status food. Considerable variability in local consumption of fish exists, some of it explained by geography. Rich and very-rich homesteads rarely consume fish and, in fact, many of their members have never eaten it, while it is only moderately important for homesteads of categories III-H and III-L. In these middle-level categories, fish consumption is restricted mainly to homesteads of Salabani, who have fish approximately twice a week – more frequently in dry months. By contrast, poor and very-poor homesteads of Salabani depend heavily on fish consumption. Among such homesteads fish is eaten five times a week; for the majority it is the second most important food (after maize) and often the most important source of protein.

Other wild foods consumed by homesteads are vegetables, including *Solanum* spp., *Amaranthus* spp., and *nymphaea* spp. The last is a water lily found along the lake shore, and used in such remote areas as Rugus and Nasoguro to make flour during periods of acute food shortage. Poor and very-poor homesteads of Rugus and Nasoguro made flour from water lilies during the droughts of 1979–1980 and 1984; maize availability is problematic in these areas and incomes are low. Neither of the two areas is served by retail stores, so consumers trek up to 15 km to buy grain. While homesteads of other neighborhoods rarely rely on wild foods as a flour staple, they frequently use wild vegetables. More than 90 percent of homesteads consume wild vegetables at some point during the year, especially immediately after the rains, when availability is good.

How do homestead categories vary in their consumption of wild vegetables? The major variation is in the degree of dependence on undomesticated plants: the poorest homesteads consume wild vegetables more frequently than the rich and very rich. Homesteads of categories IV and V have wild vegetables on average seventy-five and sixty-seven days a year. Rich and very-rich homesteads, on the other hand, consume them on eighteen and twenty-seven days a year, in that order. Homesteads in category III-H eat wild vegetables on thirty-eight days a year; those in III-L, fifty-one days. With the exception of category IV and V homesteads, wild vegetables tend to be used only during wet months, when they can be gathered with minimal effort. In dry months, when wild foods are scarcer, collecting takes more time. Poorer homesteads, however, often have few food alternatives to wild vegetables and therefore maintain gathering efforts (intermittently) throughout the year.

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Wild foods are scarcest at the end of the dry season (February and March), when food deficits are large. Among poor and very-poor homesteads consumption is restricted mainly to maize meal during this period. In the last month of the dry season, 86 percent of poor and very-poor homesteads rely solely on maize, supplemented with small quantities of goat and sheep milk. When the rains arrive, members of such homesteads immediately augment their diet with wild vegetables, and in some cases fish caught in the flooded swamps. The consumption activities of Nolmanie's family during the later part of the 1980 dry season show the dependence on maize flour and wild foods that can exist among low-income homesteads. Her homestead, as the previous chapter showed, is very poor and depends on earnings from contract labor. During mid-February to mid-April 1980, her family's main meal consisted of maize flour (*posho*), supplemented occasionally with small amounts of goat milk (i.e. enough to "whiten" the tea) and wild vegetables that she gathered while working at the scheme. More than 95 percent of her homestead's kilocalorie needs during this period came from consuming *posho*. In terms of nutrition, average daily consumption of maize (1.2 kg per adult unit) for homesteads like Nolmanie's, is adequate to meet energy needs, but members of these units suffer from protein and vitamin deficiencies (Kwofie 1983).

### Expenditure patterns

As would be expected, food purchases comprise the largest items in homestead budgets, regardless of wealth category. Table 6.2 presents homestead expenditures in Loropili and Salabani/Meisori, with an emphasis on purchases of the most important items. Although the data do not encompass all cash purchases, they do represent an estimated 85 to 90 percent of expenditures.

#### *Dependence on food purchases*

Table 6.2 reveals several findings consistent with earlier observations of income and consumption patterns. First is the significance of maize, the most important item in the homestead budget. With the exception of very-rich homesteads, it accounts for more than 50 percent of annual expenditures in all categories of homesteads. Most men and women lament their dependence on grain, but the food allows them to survive their harsh environment, as well as to maintain, ironically, their involvement in pastoralism. To a lesser extent, this reality also seems increasingly true for other pastoralists of Kenya (Grandin *et al.* 1985; M. Little *et al.* 1988; Sperling 1989). Among the poor and very poor II Chamus, maize purchases comprise 72 and 68 percent of total expenditures, respectively, while they make up an average of 52 percent of purchases for middle-strata homesteads (III-H and III-L). Overall, maize accounts for 60 percent of homesteads' average expenditures (Ksh 2,367).

Second, expenditures on meat differ considerably among homestead categories, but the differences are less than would be expected from the pattern of meat

Table 6.2. Average annual expenditures of homesteads<sup>a</sup>

Item	(Kenya shillings)						
	Category of homestead <sup>b</sup>						
	Amount of expenditures and percentage of total						
	I	II	III-H	III-L	IV	V	All
Maize	5263 (49)	2180 (62)	1545 (51)	2306 (60)	2215 (72)	1667 (68)	2367 (60)
Meat	1197 (11)	448 (13)	575 (19)	538 (14)	235 (8)	320 (13)	475 (12)
Tea, sugar	530 (5)	212 (6)	147 (5)	199 (5)	91 (3)	41 (2)	166 (4)
Cooking oil	58 (1)	139 (4)	96 (3)	93 (2)	74 (2)	49 (2)	79 (2)
Clothes	794 (7)	330 (9)	387 (13)	311 (8)	200 (7)	177 (7)	312 (8)
Education	567 (5)	20 (1)	27 (1)	46 (1)	10 (0)	27 (1)	82 (2)
Animal purchases <sup>c</sup>	2000 (19)	0 (0)	0 (0)	103 (3)	0 (0)	0 (0)	232 (6)
Vegetables, other foods	301 (3)	198 (6)	256 (8)	219 (6)	242 (8)	159 (7)	224 (6)
Total	10710 (100)	3527 (100)	3033 (100)	3815 (100) <sup>d</sup>	3067 (100)	2440 (100)	3937 (100)

*Notes:*

<sup>a</sup> Based on sample of twenty-nine homesteads in Loropili and Salabani/Meisori.

<sup>b</sup> See table 4.1.

<sup>c</sup> Includes only cash purchases, not grain-for-animal transactions.

<sup>d</sup> Total does not add to 100 because of rounding.

consumption because wealthier homesteads often consume their own animals instead of buying meat. Other consumers buy meat directly from a family that has slaughtered a goat or sheep in the bush; rarely do homestead members travel to town to purchase meat. Poorer homesteads rely on such purchases for virtually all of their meat and seldom slaughter animals for their own consumption. The advantage of buying meat over slaughtering animals is that as little as ½ kg of meat can be procured. Among homesteads of categories IV and V, annual meat purchases are Ksh 235 and Ksh 320, respectively, or 8 and 13 percent of the homestead's total expenditures. Among rich and very-rich homesteads, they account for 13 and 11 percent of annual expenditures. Middle-level homesteads rely somewhat more heavily on meat purchases, allocating on average 17 percent of total expenditures for meat.

A third finding based on the expenditure data relates to purchases of other

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foods, such as cooking oil and fat, and sugar and tea. The II Chamus consider these commodities basic foods, for which even the lowest-income homesteads allocate cash. Studies often treat these foods as nonessential and assume that Africans will withdraw from their consumption when conditions are unfavorable (Hyden 1980). This is not the case in II Chamus, nor is it in many other communities of rural Africa where such purchases are important (Ensminger 1984; Evans *et al.* 1988; Kasfir 1986).

As with meat purchases, wealthier homesteads do not depend as much on purchased cooking oil as do the poor and very poor. Since they frequently slaughter small stock, they can use animal fat instead of buying oil for cooking purposes. Thus, very-rich homesteads spend only Ksh 58 per annum – 0.5 percent of total expenditures – on cooking oil, while the poor and very poor spend Ksh 74 and 49, or 2 percent of their expenditures.

Purchases of tea and sugar show significant differences among homesteads, while purchases of vegetables and other foods (including fish) display only slight variability. Annual expenditures for tea and sugar are more than ten times as high among very-rich homesteads as they are among very-poor ones. Homesteads of category II allocate the second largest amount of cash (Ksh 212) on tea and sugar purchases, making their purchases 30 percent higher than similar expenditures of upper-middle homesteads (III-H), 6 percent higher than lower-middle (III-L), and more than five times as high as those of category V homesteads.

With respect to purchases of vegetables and “other” foods, discrepancies among homesteads are considerably less, ranging from Ksh 159 to 301 per year (see table 6.2). Wealthy homesteads do not consume many purchased vegetables and fish, relying instead on products from their herds (milk and meat) or from their irrigated farms. Poor and very-poor homesteads depend on purchases (or gathering) for these foods. Vegetables and fish are not always available but, as noted earlier, poor homesteads catch fish and use wild vegetables when they can.

### *Expenditures versus savings*

Expenditures are clearly differentiated at the homestead level, but not to the extent that one would expect, given the skewness of income and livestock ownership in the area. For example, homesteads of category I have annual incomes that are nearly nine times as high as those of category V units (see table 5.8) and own more than thirty times as many livestock (table 4.1). Annual cash expenditures among very-rich homesteads, however, are only four times as great as those of the very poor (table 6.2). The range of expenditures is even smaller when livestock purchases, which are conducted mainly by homesteads of category I, are excluded.

This lack of extreme differentiation in expenditure patterns means that surplus income among category I homesteads is not directed toward increased consumption. Instead, it is invested in livestock, education, nonfarm activities, and the marrying of additional wives. Other studies of herding populations have similarly found that expenditure and consumption patterns are not as differentiated as the

Table 6.3. *Homestead budget surpluses and deficits*

Homestead category <sup>a</sup>	(in Kenya shillings)		Surplus (deficit)
	Cash income <sup>b</sup>	Expenditures <sup>c</sup>	
I	10,513	8,710	1,803
II	4,073	3,527	546
III-H	2,590	3,033	(443)
III-L	2,853	3,712	(859)
IV	1,542	3,067	(1,525)
V	924	2,440	(1,524)

*Notes:*<sup>a</sup> See table 4.1.<sup>b</sup> From table 5.9.<sup>c</sup> From table 6.2, excluding animal purchases.

wide differences in property ownership and incomes might imply (Grandin *et al.* 1985; Jahnke and Ruthenberg 1974; Little 1989). Table 6.2 shows that only among category I homesteads do livestock purchases and education costs comprise a significant amount of annual expenditures – Ksh 2,567 or 24 percent of the total. Among poor and very-poor homesteads these items account for Ksh 10 and 27 or about 1 percent of annual expenditures. In short, differentiation in II Chamus is better characterized by investment and production strategies rather than by consumption behavior.

*Budget deficits*

A comparison of income and expenditure data reveals that the average homestead does not earn enough income to meet cash needs (table 6.3). Homesteads of strata I and II have annual surpluses beyond expenditure needs (excluding animal purchases), while the other categories have negative balances on average. Annual deficits of homesteads in categories III-H and III-L are relatively small, but this is not the case among poor and very-poor homesteads. Annual budget deficits of these two bottom strata average Ksh 1,525 and 1,524, equivalent to 50 percent (category IV) and 62 percent (category V) of annual expenditures, suggesting that they earn only half or less of their required cash.

These large discrepancies between income and cash expenditures – which no low-wealth household could sustain for an extended period – can be clarified by noting three other sources of funds. First, expenditures in the period of observation (March 1980 to February 1981) were partially financed by cash earned from sales of animals and hides and skins in prior months. Because of the drought-induced devastation that occurred in 1979, herders sold large numbers of animals and hides and skins prior to March 1980 to help pay for expenditures. Second, poor and very-poor homesteads frequently engage in “informal” (sometimes



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illegal) income-earning activities, such as brewing beer and fishing (recall Nolmanie's case presented in chapter 5). In the case of fishing, using a net in Lake Baringo requires a license; income (in kind or in cash from fish sales) from unlicensed fishing is likely to be concealed. Local beer brewing is usually tolerated by the state, but local officials have been known to enforce regulations against it. Consequently, it is hard to collect accurate information on these activities, even where the researcher has excellent rapport with the local community. Unquestionably the income data are subject to some underreporting.

The transfer of income between rich and poor homesteads is a final factor that may help to explain discrepancies between reported income and expenditures. Several category V homesteads have client relationships with wealthier homesteads, whereby they provide labor for herding or agriculture or even "lend" a child to help with tasks. In exchange for such services the client homesteads receive food, and in some cases cash, from their patrons. Transactions of this sort could have been underreported in the surveys. Moreover, wealthy homesteads frequently subsidize the expenditures of family or clan members in less-fortunate homesteads through food sharing and direct-income transfers. While some individuals are willing to indicate when wealthy family members are providing support, others are reluctant to divulge this information. Unrecorded income transfers are an important reason why household income and expenditure data in rural Africa commonly reveal discrepancies.

Analysis of consumption and expenditure activities reveal that welfare levels – even taking into account unrecorded transfers – are low for many homesteads. That several homesteads of categories IV and V regularly engage in low-paying contract labor, an undesirable form of employment, is evidence of poor living standards. To meet income and consumption crises, they also market their animals at unsustainable levels, jeopardizing future production. As figure 1.1 illustrates (see chapter 1), these homesteads are caught in an economic bind evidenced by their inability to earn income sufficient to meet subsistence costs.

### **Food aid transfers**

Food aid has the potential of subsidizing consumption and incomes by reducing the level of food expenditures; therefore, one might think it appropriate for low-income areas of Baringo. In other regions, however, food aid has been strongly criticized because it can increase local dependence on imports, transform local consumption, and outcompete local food producers (Chazam and Shaw 1988; Valdes 1981; Watts 1983). In Baringo, food aid was important in alleviating short-term hunger problems during the disasters of 1928 to 1933, but its importation had a profound effect on the production and consumption of local grains. As pointed out in chapter 3, substantial subsidies for European-produced maize (an indirect form of food aid) and the complex of support services surrounding that commodity forced out local production of millet and sorghum. While the immediate situation was improved, the long-term effects on food security of the massive importation of maize were not favorable.

Table 6.4. *Food aid distribution, Njemps<sup>a</sup>*

Year	Metric tons of maize
1971	15.00
1972	0.54
1973	0.45
1974	0.00
1975	No records
1976	3.15
1977	0.99
1978	0.54
1979	No records
1980	4.1
1981	8.10 <sup>b</sup>
Average (1971–1979)	2.95 <sup>c</sup>
Average (1980–1981)	6.10
Average (all years)	3.65 <sup>c</sup>

*Notes:*

<sup>a</sup> Based on food-aid files, Baringo Pilot Semi-Arid Area Project, Marigat. It includes only government famine-relief program.

<sup>b</sup> Records included allocations only through June 30, 1981. An annual figure was estimated by doubling the amount distributed in the first half of the year.

<sup>c</sup> Average does not include years during 1971–1979 where records are unavailable.

Current relief programs in Il Chamus should not have so dramatic an effect on local production and consumption. The main relief food, maize, is already a focus of the local diet. Because the Il Chamus are not major producers of grain, food aid is not likely to compete directly with much of their production. Indirectly, through food-for-work schemes, it can increase the cost of agricultural labor, but this will principally hurt wealthy homesteads who hire labor. A greater potential for competition with food aid programs exists for farmers of southwestern Baringo, who grow substantial amounts of maize.

*Distribution of food aid*

Food relief was provided to Njemps Location in every year except one during the 1970s, but annual amounts were small (see table 6.4). Annual distribution averaged only 2.95 metric tons of grain during the period, an amount sufficient for only five or six families in a bad year. By 1980 and 1981 annual relief had increased to approximately 6.10 metric tons a year, but this remained well below the area's food needs. The available data from 1971 to 1981 show that government relief exceeded 10 tons in only one year. This was in 1971, when 15 tons of grain were distributed. The effectiveness of food aid was and continues to be further

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diminished by the manner in which it is distributed. Relief is provided in order to support the largest number of families rather than only the poorest. The lack of storage facilities means that total shipments are distributed almost immediately after their receipt rather than being allocated sequentially to the neediest families.<sup>4</sup> From 1980 to 1981 food distribution took place in most neighborhoods once every two to three months, with 16 kg of maize and 1 kg of powdered milk allocated to a family, with up to 100 families each time. The intermittent nature and limited amounts distributed meant that in 1980 to 1981 only ten homesteads received food aid from the government on a monthly basis. Seven of these units were headed by widows like Nolmanie. Such circumstances limit the potential for developing a strong dependence on food aid.

Additional famine relief was distributed through nongovernment channels, such as missionary groups, in the period 1970–1981. While amounts of this aid are difficult to estimate as official records do not exist, the total was probably quite small until the early 1980s. Mission-based activities (including food programs) in Il Chamus were generally modest until 1980. Beginning in 1980, however, church groups embarked on ambitious education and health programs, building schools and clinics in several locations. The Catholic Mission of Marigat, for example, was responsible for the construction of several facilities and also began to provide food assistance to a limited number of families. From December 1980 to April 1981 the mission provided biweekly packages of maize, cooking oil, and powdered milk to thirty-five families, including Lokomol's. As indicated in chapter 5, Lokomol's herd was especially hard hit by the drought, and he was forced to market many of his remaining animals in order to meet his family's consumption needs prior to joining the mission's relief scheme. Approximately six tons of maize and an unspecified amount of dried milk and cooking oil were distributed under this program. In return, recipients sometimes worked around the mission, carrying out garden or small-construction work. Nevertheless, even when this source of relief is included, only a few of the poorest families were regularly supported by food aid between 1970 and 1981.

Homestead data further support the position that very few domestic units relied heavily on food-aid programs, even during the 1979–1980 drought. Among the twenty-nine homesteads monitored for consumption during March 1980–February 1981, only seven benefited from small amounts of government relief, four of these receiving an estimated 32 kg of maize and three acquiring 16 kg of maize during the period. In addition, one homestead (Lokomol's) received food aid from the Catholic Mission between December 1980 and March 1981. Overall, 28 percent of the sample received some food aid; recipients were all from either the very-poor or poor homestead categories. With the exception of Lokomol's homestead, which received support from a nongovernment source, no homestead in the sample received food aid more than twice between March 1980 and February 1981.

A larger sample of over 200 homesteads of Salabani and Ngambo yields similar findings, with one exception: in addition to category IV and V homesteads, middle-category homesteads in this sample (III-L and III-H) were allocated food

aid. The lists of families qualifying for food aid, drawn up by local chiefs and subchiefs, include most of the neediest families but also some that are not so desperate. In certain cases older members of wealthy families are included in the programs, although in the past they would have been supported by other family members.<sup>5</sup> As with the smaller sample of twenty-nine homesteads, however, the impact of food aid on reducing grain deficits is small. For example, famine relief accounted for less than 3 percent of the grain requirements of poor and very-poor homesteads. In addition, the programs had little effect on their net incomes, saving these homesteads only about Ksh 75 per annum through reduced cash expenditures.<sup>6</sup> In sum, the contribution of food aid to improving either food security or real incomes was meager among the neediest homesteads in 1970–1981, in large part because the administration of relief programs emphasizes disbursements to large numbers of homesteads rather than regular allocations to the poorest.

### *Food-for-work programs*

Levels of food aid in the area changed dramatically in 1982 when the World Food Program (WFP) initiated a Food-for-Work (FFW) program.<sup>7</sup> The FFW program that covers the Baringo District's semiarid areas actually began in 1981, but food payments did not start in Il Chamus until early 1982. The program is implemented through the Government of Kenya/World Bank-funded Baringo Pilot Semi-Arid Area Project (BPSAAP), which has the responsibility of coordinating food-for-work payments on other projects in the area as well as on its own project. In addition to BPSAAP, large distributors of food in the area are the East Pokot Agricultural Project (EPAP), which is funded by the Catholic Diocese of Nakuru, and the Government of Kenya (GOK)/FAO Afforestation Project based in Marigat (Kenya 1984: 199). Only the BPSAAP and the GOK/FAO projects implement food-for-work activities in Il Chamus. These deal almost exclusively with natural resource-based activities, including tree planting, soil conservation, and small-scale water management, and they emphasize a participatory ("community") approach to these projects. The latter dimension clearly distinguishes these food-for-work programs from the earlier schemes, described in chapter 3, that were implemented in the 1920s and 1930s with little concern as to whether or not local people participated in planning and implementation decisions. The earlier food-for-work efforts were no more participatory than the destocking programs and grazing schemes of the same era.

### **Food allocations**

Under the FFW program food payments for Baringo were 1,609 tons of maize, 112 tons of beans, and 47,250 l of cooking oil (up to late 1984). Assuming that areas received aid in proportion to their populations, then Il Chamus received an estimated 257 tons of maize, 18 tons of beans, and 7,560 l of cooking oil during the three-year period.<sup>8</sup> Thus, approximately 86 metric tons of maize a year are

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allocated to the area under FFW programs. This annual figure exceeds the amount of food aid during the entire period from 1970 to 1981.

On average, 800 workers per month are employed on FFW programs, with approximately 128 coming from Il Chamus. Considerable variation in levels of employment exists: the number of employees is as high as 1,274 in some months and as low as 500 in others. Monthly payments changed in the course of implementing the program. During 1981 to late 1984 monthly rations were 45 kg of maize, 37 kg of beans, and 1.5 l of cooking oil, but in the latter part of 1984 they were increased to 68 kg of maize, 56 kg of beans, and 2 l of cooking oil. The cash value of the first package was below local wage-rates in 1981 to 1984, but the second allocation was above 1985 wages (Kenya 1984: 201).

It is likely that workers did not always receive the full monthly allocation of beans, the highest-value commodity, thus payments may have been considerably less than reported. Based on aggregate figures for the FFW program, the ratio of maize to beans distributed is almost twelve times as high as the ratio of 45 kg maize to 37 kg beans (= 1.22) indicated in the monthly food package (1981 to 1984). Instead of receiving 37 kg of beans, recipients may have been allocated less than 10 kg of beans per month, with the shortfall made up by increased payments of grain. While the change in the proportion of maize-to-beans is unlikely to jeopardize the nutrition of the homestead, it does reduce the cash value of the package by as much as 30 percent. This is especially relevant because workers often sell at least a portion of their allocation of beans, using the revenue to purchase the cheaper food, maize. The price per kg of beans is 150 percent higher than that of maize.

The majority of FFW workers come from category IV and V homesteads that – as indicated in chapter 5 – provide most of the unskilled farm labor in the area. Workers from other homesteads are not likely to be attracted to the program because they can earn higher wages elsewhere. As a recent report indicates: “The benefits to labourers under FFW schemes are less than those from employment as cash-paid labourers. Even allowing for adjustments to the number of hours worked each day, and generally less vigorous supervision, FFW is less attractive than other employment” (Kenya 1984: 201). Estimates are that 70 percent of FFW participants come from homesteads classified as either poor or very poor, with most of the remainder deriving from homesteads of the lower-middle wealth category. Not surprisingly, many of the participants in the FFW schemes are women, particularly widows.

### **The need to find “small-scale” projects**

In certain cases food-for-work payments are distributed in bulk to large numbers of workers, involving homesteads with relatively high as well as low incomes. Disbursements of this sort are implemented in order to complete FFW projects quickly, and because storage facilities are inadequate. To quote the BPSAAP interim report: “Storage and transport have both been constraints to the full utilization of rations (food)” (Kenya 1984: 201). When the emphasis is on

maximum coverage of homesteads under FFW projects, the distribution resembles the earlier relief programs (1970 to 1981) described above, with food payments made to homesteads other than those of the poor and very-poor categories. The small-scale irrigation projects in the area are instances where food is provided to all workers regardless of income level. For example, small-scale irrigation schemes in Eldume (Nolororo) and Loiminange required the recruitment of large amounts of community labor; food payments were made to families of middle and even rich homesteads in order to complete these projects in a timely manner. Anyone who worked on the scheme's construction received a food payment regardless of whether or not his/her homestead was at nutritional risk. In the past, this form of community labor was recruited without payment if the worker owned a plot in the particular irrigation scheme. Indeed, unpaid, voluntary labor had already been allocated to preparation of the Nolororo scheme when "food-for-work" payments were introduced in 1984.

Large-scale FFW programs in the area compel administrators to find appropriate schemes for using food payments. The sheer volume of food aid has meant that projects of marginal usefulness have been implemented hastily, and that food payments have been made where they probably should not have been. The development of small-scale irrigation at Loiminange in 1984 is a case of unnecessary food payments. In order to qualify for food aid, many individuals of



4 Digging an irrigation canal under a Food-for-Work Program, 1984

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Loiminange had to work on preparing and maintaining an indigenous irrigation scheme that they previously had serviced without food payments. While many families in the area were badly in need of grain during the 1984 drought – see earlier discussion in chapter 5 about the drought-induced migration of Loiminange families to Ngambo – it might have been better to provide food on a short-term relief basis without requiring work on an agricultural scheme. This was not done, however. Work on the irrigation scheme quickly became associated with food payments, and when annual repairs were required in 1985 after the rains had arrived, labor could not be recruited until food payments were arranged. The use of food payments to compensate labor that had formerly been recruited on a community basis, with each farm owner providing assistance, jeopardizes the sustainability of local initiatives after food aid is withdrawn. As of 1989, the irrigation scheme at Loiminange had not been operational for the past three years.

### **Impact on the poorest**

The increased level of food aid during 1982–1984 had its greatest impact on the area's poor and very-poor homesteads. Approximately 17 percent of all poor and very-poor homesteads have worked at least intermittently on FFW programs. Even when participants receive the full package of food, however, it is insufficient to meet average consumption needs; most recipients must buy an additional 10 to 15 kg of grain per month. In the aggregate, the impact of the FFW program is even less. Food payments among homesteads of wealth groups IV and V contribute little toward reducing overall grain deficits. The period of 1982 to 1984 was not very different from that of 1980 to 1981 in terms of agricultural and livestock production. Hence, grain consumption patterns are likely to have been similar in the two periods. If anything, grain consumption probably was higher in the former period because of the severity of the 1984 drought. During the whole period 1981 to 1984, annual FFW payments to poor and very-poor homesteads averaged approximately fifty-seven tons of maize, which in the aggregate is equivalent to 11 percent of annual grain deficits of these homesteads. The financing of maize purchases from selling beans provided under the program reduces the shortfall by an additional 2 percent, but the remaining deficit exceeds 85 percent of grain needs.

In summary, the FFW program provided a wage roughly equivalent to or slightly below that of agricultural wages, but could reach only a limited number of poor and very-poor homesteads. In the aggregate it made only a slight contribution toward reducing grain deficits, although for participant homesteads it could provide up to 80 percent of their grain needs. When the FFW program was introduced, many homesteads, such as those headed by widows, with only minimal means to finance food purchases were attracted to it and immediately benefited from food payments. The low returns to dryland agriculture in the 1980s, the main production option for livestock-poor families, made the FFW program appealing for those with an opportunity to join.

### **Grain deficits and food security**

As noted, increased levels of food aid from 1982 to 1984 only modestly reduced grain deficits in the area. From 1981 to 1984 local consumption of maize was approximately 1,400 tons per annum, with local production from irrigation meeting 259 tons or 19 percent of the amount. More than 1,100 tons of grain were imported annually – from both commercial and aid channels – to meet local needs. When the contribution of the FFW and other food-aid programs is considered, the annual level of grain imports is reduced by only 8 percent to approximately 1,045 tons. At 1981 prices, the amount of grain per year being imported commercially had a retail value in excess of Ksh 2 million, or approximately Ksh 2,000 per family – more than the annual cash incomes of poor and very-poor homesteads in the area (see table 5.9).

#### *Food security in the mid 1980s*

How much had food security improved by 1985 when the local economy began its current recovery period? The year 1985 marked the completion of three years of large-scale food aid and expanded development of small-scale irrigated agriculture, as well as the beginning of a series of relatively successful agropastoral seasons (1985 to 1987). To answer the question it is necessary to estimate consumption needs in 1985 and to calculate local production based on recorded expansions of irrigation schemes. Neither of which can be done without making certain assumptions.

Using consumption figures based on a year of four wet and eight dry months (which approximates the climatic pattern in 1985) and assuming a modest population growth rate of 2 percent per annum (1981 to 1985), aggregate grain consumption is estimated to have been 1,500 metric tons in 1985. The figure is likely to have been less in 1986 and 1987, when the livestock sector had at least partially recovered from the drought of 1984. For production, given above-normal rainfall in 1985 and an increase in irrigated land of 29 percent between 1981 and 1985, the estimated contribution of the Il Chamus agricultural sector was 373 metric tons of grain in 1985.<sup>9</sup> This represents 25 percent of total grain needs in 1985. In addition, food-aid programs provided an estimated 85 tons of food in the year, reducing the grain deficit by an additional 8 percent. Still, grain deficits in a relatively good year (1985) exceeded 65 percent of local needs, in spite of expanded production and continued food aid. During future droughts, shortages are likely to be only slightly reduced over earlier disasters, since expansion of irrigation has been mainly along seasonal rivers, which, as noted in chapter 4, are usually without adequate water for irrigation during periods of drought.<sup>10</sup>

#### *Low incomes and food problems*

The consumption (food) crisis in Il Chamus is increasingly a result of low incomes rather than food availability. While distribution problems still exist, the



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“entitlement” (Sen 1981) of the homestead is increasingly the best indicator of its vulnerability to famine. Food shortages on the market clearly occurred during 1980 and 1984, especially in the more remote areas, but wealthy homesteads generally avoided shortfalls by purchasing grains in bulk and at higher prices. The lack of capital inhibits poor and very-poor homesteads from buying cereals in bulk when opportunity exists. The quantity of subsidized food imports from Western countries, usually sold through normal market channels (excluding FFW allocations), grew considerably in the 1980s (see Cohen and Lewis 1987). This makes food purchases easier than was the case in the past, as long as the purchaser has cash. In addition, improvements in Baringo’s road system make distribution systems currently more reliable than they were in the 1970s and early 1980s. Despite these changes, however, food-security problems are seen among a growing number of homesteads. Almost 50 percent of homesteads have incomes that are below food-expenditure needs, forcing them to market animals from their scanty herds, rely on wild foods, and join food-for-work schemes. These homesteads suffer from an income crisis that increasingly influences their access to adequate food. Dependence on purchased foods and the lack of viable income-earning options result in budget problems that directly affect local food security. Remuneration from unskilled wage employment or food-for-work programs does not provide enough surplus for investing in activities that could raise incomes.<sup>11</sup> As long as cash incomes remain low, food-security problems will be widespread, even in years when grain availability is adequate.

## Summary

This chapter has shown that the area’s inequities and its poverty are revealed in the local pattern of expenditure and consumption. While individuals prefer a diet of milk and meat, the harsh reality is that cereals and other foods comprise the bulk of the local diet. Differences in wealth largely determine the extent to which families can pursue a pastoral rather than a cereal-based diet. The chapter has demonstrated that almost all pastoral homesteads consume wild foods during the year, with the poorest relying heavily on wild vegetables and fish during most months. For the majority of poor and very-poor homesteads the costs of subsistence exceed annual income, creating a cash crisis that increasingly influences local food security. Subsidized food-aid programs were widespread in the 1980s and helped a proportion of poor and very-poor homesteads to overcome partially this problem. The number of families who were able to benefit under food-for-work and other aid programs was limited, however. Thus, despite massive increases in subsidized food programs, local food security in Il Chamus improved only slightly during the 1980s.

# 7

## Land conflicts and sustainability

The food crisis, and more generally poverty, in Njemps directly affect the area's land use and ecology. Labor and capital constraints compel poor and very-poor homesteads to pursue a combination of dryland agriculture, small stock production with an emphasis on goat rearing, and wage employment. Rich and very-rich herders, on the other hand, focus predominantly on cattle and sheep production, irrigated agriculture, and nonfarm activities and investments that yield relatively high incomes. These different strategies create a plethora of land-use conflicts that at times require state intervention. Moreover, economic diversification strains the labor and capital resources of most herders, making it difficult for them to pursue any of these activities effectively, and generating unsustainable land-use patterns that damage the environment and complicate land rights in the area.

Land issues in Baringo are also complex because of (1) regional competition for land among ethnic groups, and (2) land-tenure policies. The threat of land appropriation by other groups is strong enough at times to mobilize the Il Chamus community against "outsiders" in spite of internal differences. Many of these conflicts can be traced to the beginning of the century when the region's three main groups – Tugen, Pokot, and Il Chamus – began periods of territorial expansion and migration. Many of the current disputes, therefore, are over land that none of the groups could actually claim as their "traditional" home areas until the last ninety years. As for land-tenure policies in the area, these are broadly defined by national institutions that regulate the use of local resources through the appointment of local chiefs who compete with indigenous authorities. Chapter 5 shows how uncertainties over land policies result in land speculation through investment in agriculture: although economic returns are often minimal, wealthy individuals cultivate to maintain a claim to the land. The national framework also influences the context under which regional groups compete for land, with certain groups having the advantage of strong national support. The President of Kenya, Daniel Arap Moi, is himself a Tugen who comes from Baringo. Since the mid 1980s, he has been especially active in the district's development.<sup>1</sup>

Any discussion of land rights and conflict in Il Chamus, therefore, requires analysis at three levels: the community, the region, and the state. This chapter

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shows how internal differentiation (community), regional competition (region), and national policies (state) adversely influence land use. It examines regional losses of Il Chamus land; contradictory uses of land by competing groups; and the connections between poverty, labor shortages, and resource mismanagement. Finally, it incorporates the local and regional analyses of preceding chapters to demonstrate that the so-called ecological crisis cannot be divorced from the income, consumption, and expenditure crises that also are taking place.

### **Regional loss of land**

The Il Chamus have lost large chunks of their territory during this century, increasing pressures on their remaining land. The most alarming decline has been the loss of dry-season grazing at Arabel in southeastern Njemps, which is second to the swamps in importance as a pastoral resource. The area has been disputed by the Tugen and Il Chamus since the early part of the century but was legally turned over to the Il Chamus in the 1930s. At this time the Kenya Land (Carter) Commission (1934), established to investigate African land rights and claims, ruled that Arabel belonged to the Il Chamus. The formal ruling, however, did not halt agricultural encroachment in the area, and the state proved to be inconsistent in support of its findings. As noted in chapter 2, the administration during the 1940s and 1950s made informal concessions to farmers of south Baringo, permitting them to settle in Arabel though land was still to remain under Il Chamus "ownership."

What was thought to be a temporary arrangement has proved to be the opposite. Agricultural encroachment in Arabel has persisted to the present, with farmers taking over even more land since independence. For example, an FAO range survey conducted in the mid 1960s reports the loss of approximately 75 percent of Arabel – a reduction in dry season grazing from 13,750 to 3,333 hectares (FAO 1967: 1). At approximately the same time, a government official noted that for all practical purposes the area should no longer be considered part of Il Chamus, since it is fully occupied by the Tugen (Ministry of Agriculture 1964–1967). The loss of Arabel forces herders to keep their animals in the lowlands (including the swamps), which were already suffering from "terrific overcrowding" by the 1960s (FAO 1967: 1).

The loss of approximately 3,000 hectares to the Perkerra Irrigation Scheme in the mid 1950s further exacerbates the crowding problem. The land expropriated by the state for the scheme was inferior to the land at Arabel but was nonetheless an area used regularly by sheep and goats, and by cattle during the period when the swamps flood. Currently herders move their animals to wet-season pastures adjoining the scheme that are less productive than the scheme's land. Not surprisingly, the "trespass" of animals onto the scheme, a strategy that the Il Chamus have been forced to pursue, is frequently noted in the Perkerra's reports (Kenya 1978). Local herders also claim that construction of the project's headworks (including a small dam) on the Perkerra River reduces the level of annual floods, thereby diminishing the amount of pasture annually regenerated in the

basin. Because the scheme was carved from Il Chamus territory, it was meant to benefit predominantly the Il Chamus, but this has not been the case.<sup>2</sup> Indeed, not even a quarter of the irrigation plots are allocated to them, and very few Il Chamus have access to the largest fields.

### *Spontaneous settlement*

Less-dramatic encroachments than those described above have taken place along other Il Chamus borders. To the northeast, the Pokot have moved well into lands near Rugus and Mukutan and occasionally as far as Loiminange. If their herds do not fully recover from the 1984 drought, the Il Chamus are likely to lose additional grazing lands to the Pokot. In 1985 the Pokot had settled up to 20 km inside Il Chamus territory, grazing their animals on pastures normally used by Il Chamus herds. The roughly 70 percent drop-off in cattle during the drought of 1984 left many grazing areas unused and consequently open to encroachment by Pokot herders. The western Njemps boundary, on the other hand, has experienced Tugen settlement at both Salabani and Meisori. This intrusion is more than 1 km inside Il Chamus territory, and, in contrast to the Pokot, Tugen have started farms and established permanent settlements. The 1987 completion of a state-financed irrigation scheme near Salabani is likely to increase the intrusion. Like the Perkerra Scheme, the new scheme (Chemeron) is carved from Il Chamus territories, focuses on an export crop (in this case, cotton), and reserves a large number of tenancies for non-Il Chamus.

To the south, agropastoralists of Lobo Location (including Sandai) have moved on to lands near Kailerr and Eldume. Here the advance restricts Il Chamus access to important seasonal grazing, and further crowds local animals onto depleted rangelands. The settlements also compete with existing residents for water that is needed for irrigation at Kailerr. A recent report on the area notes that "with respect to the Il Chamus, a neighbouring tribe, the people from Sandai sometimes refuse to allow them to use the water from the Waseses River . . . Important resources, water and land, are becoming more and more scarce" (Brunt and Groen 1985: 23). With the recent growth in small-scale irrigation, the frequency of disputes over land and water between the Tugen and Il Chamus has increased. Because the Il Chamus had little interest in irrigation twenty to twenty-five years ago, they allowed the Tugen to irrigate on their western and southern boundaries. Both groups now vigorously compete for and dispute over these areas.<sup>3</sup>

The Tugen emphasize agriculture more than the Il Chamus, but nonetheless they also keep large numbers of animals. Agricultural encroachment by Tugen cultivators, therefore, has also increased pressures on local range. Around their settlements are numerous cattle, sheep, and goats, which they frequently move onto Il Chamus pastures and waterpoints during daylight hours. In the wetlands of Kailerr, for example, almost 10 percent of cattle in the dry season come from Sandai and Lobo. The incursion of Tugen livestock onto Salabani and Meisori pastures is also evident, with an estimated 11 percent of total cattle

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coming from nearby Tugen areas. Local elders and government officials have held several meetings in these neighborhoods to discuss the problem (see case study later in this chapter), but only in Meisori has significant action been taken. There the community decided that Tugen goats and sheep could be allowed onto rangelands near the lake but that cattle are prohibited, an acknowledgement that additional cattle would further deplete the area's limited supplies of perennial and annual grasses.

### *Effects of private land titling*

The subdivision and commercialization of land in the Tugen Hills, as described in chapter 2, force low-income cultivators into the lowlands, where they compete with the Il Chamus for land and water. The settlements along the western borders of Il Chamus, for example, are inhabited by cultivators who, in some cases, moved down from the highlands after land registration. Landowners in the hills began to grow high-value export crops, such as coffee and pyrethrum, pushing up the price of land and forcing poorer farmers into more marginal lands after registration, lands not under private ownership. Private titling of land in the Tugen Hills began in the 1960s, and by the early 1980s most cultivable land in the area was under individual ownership. A survey of Tugen farmers in the Kabartonjo area shows that nearly 100 percent of farmers hold private titles to their farms (Little 1983). As has been witnessed elsewhere in Kenya, land adjudication creates significant inequities in distribution since the poor, who either have too little political clout to enforce their rights, or – if they do gain title – must often sell their land in order to meet immediate cash needs, suffer disproportionately (cf. O'Keefe *et al.* 1977).

Changes in land ownership in the highlands reduce that area's availability as a reserve-grazing zone as well, intensifying existing range problems by forcing herders to seek pastures elsewhere in the dry season. Wealthy farmers of the highlands who maintain large herds usually hire herders to graze the animals on lowland pastures, thus adding to the charge on lowland pastures. By contrast, few highland farmers report allowing lowland herders to graze cattle on their lands, except where the highland farmers themselves own the animals. In short, "reciprocity" of grazing rights has become a one-sided affair. With land consolidation in the highlands, seasonal movements of cattle from the lowlands to the hills, except to state-gazetted forests, have practically ceased. The movement of animals to forested zones is illegal but, as with the "unlawful" grazing of animals on the Perkerra, it takes place nonetheless, during periods of pasture shortage. This type of behavior, a subtle form of pastoral protest, has its antecedents in the colonial period, when herders secretly shepherded animals onto European-owned lands during the evening hours (see discussion in chapter 2; Anderson 1982).

In order to compensate for the loss of grazing rights in the highlands, most lowland Tugen move their cattle to the Kerio Valley, to grazing areas near Lake Baringo, or to Arabel. Regarding the latter, it is estimated that as many as 4,000 Tugen cattle of Saimo and Ngaratuko Locations are migrated there during the dry season. Smaller numbers of cattle are moved either to the Kerio Valley or to the

Lake Baringo-Bogorio basin (see figure 4.2, chapter 4). In sum, privatization of lands in the Tugen Hills changed traditional patterns of livestock movement, increased the number of highlanders who keep cattle in the communal/lowland grazing areas, and accelerated the encroachment of outside cattle onto Il Chamus lands.

### *Absentee herd ownership*

Ownership of livestock, which is increasingly in the hands of nonpastoralists, is what allows producers to reap benefits from rangelands. The increased impoverishment of the 1970s and 1980s left many herders without sufficient livestock to attain benefits from these areas. To compensate for the lack of animals, pastoralists began to herd the animals of civil servants, businessmen, and ranchers, allowing these groups to earn most of the benefits from available pastures. The absentee herd owner gains access to local pastures and water by contracting with a herder who resides in the area. The case of highland farmers mentioned above, who hire lowlanders to herd animals, is an example of this process. This type of absentee herd ownership makes local systems of resource management vulnerable to mismanagement. When ownership of the animals is divorced from their management and care, the hired herder has little incentive to practice effective management strategies (Bassett 1988: 467). When absentee herd ownership is prevalent, in the words of Cynthia White, “mobility is reduced, herds are more concentrated (around boreholes, villages and markets) and the full range of pasture resources is not used, increasing the chances of degradation” (1987: 19). Unlike indigenous patterns of stock loaning, this practice resembles an employer/employee relationship, where payment of a wage is the binding mechanism.

The main categories of absentee-herd owners in Baringo are private ranchers and traders. Encroachment from ranchers stems from two large, company ranches located south of Il Chamus. As is the case with tenure patterns in the Tugen Hills, land on the ranches is privately registered. Such assets as water points, however, are owned collectively by the company. While each of the enterprises is more than 15,000 hectares, individual members maintain parcels of 25 to 300 hectares within the ranches. On these holdings they keep a portion of their herds and cultivate small farms. Are the members able to maintain their cattle on the ranches throughout the year?

In the dry season, members of the ranch frequently send their cattle north to Lobo and Il Chamus to utilize communal grazing. They note that without access to these pastures their “private” enterprises would not be viable. Ironically here is a case, not unique to eastern Africa (Grandin *et al.* 1985; Behnke 1984), where the so-called “tragedy of the commons” (Hardin 1968) results from policies to privatize land. The impact of these actions on local grazing patterns is significant, and it is actually the “private” property, not the indigenous tenure system, that results in the excessive pressure on grazing. For example, during the dry season of 1980 and 1981, 700 cattle and an undetermined number of small stock from Lobo

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(many of them originating on ranches) grazed for more than one month in Kailerr's communal wetlands. At the time these cattle comprised 30 percent of the total there, provoking considerable resentment among wealthy herders but support from poor herders who had few animals of their own and looked forward to earning a wage for herding the animals of others.

The grazing disputes that occurred in Kailerr during 1980 and 1981 highlight the social complexities of absentee herd ownership, as well as the contradictions that it creates. As these cases demonstrate, it can pit young against old and rich against poor in ways that few other issues can. Discussions at a meeting (*baraza*) held in Kailerr on December 20, 1980 depict the tensions that can occur over grazing rights. Although the meeting was attended by more than twenty Il Chamus males, three individuals dominated the dialogue: Sipal, a very wealthy livestock owner (wealth category I); Lenanon, a spokesman for the il murrans age set (i.e. the il kiapu), who has a moderate number of animals (wealth category III-L); and Lemar, an elder who is very poor (wealth category V). The following is an abbreviated version of what took place at the meeting.

Lenanon began the meeting by chastising his fellow il murrans for not adequately protecting Kailerr's pastures from outsider encroachment. Yet he tries to shift the burden of blame for this infraction from his age set to another, il mirisho, because a few of that age-set's members are herding the animals of "strangers," as well as providing permission to groups of outsiders to graze Kailerr's wetlands. Lenanon embarks on a long speech:

"Il murrans of Loropili and other neighborhoods do not permit visitors to graze their animals in important pasture reserves. However, Lobo cattle have come into all of Kailerr's grazing zones but very few Kailerr il murrans send them back like happens in Loropili and elsewhere. . . . But nowadays elders are granting permission to visitors to graze their cattle in Kailerr and this makes the tasks of il murrans very difficult."

He goes on to say that certain il mirisho members, like Lemar, have given permission to the Lobo Tugen to graze their cattle in Kailerr, in exchange for payments of beer and money. Many of the cattle, in turn, come from ranches south of Maji Moto. At this point Lemar stands up to defend himself and begins a lengthy monologue that invokes strong metaphors and symbols to support his case:

"We are in conflict because of grazing, which is important to the Il Chamus way of life and should not be given out to any one person. I have not given permission to any Tugen to graze his cattle in Kailerr, since Il Chamus is a communal society and one person cannot give out permission on behalf of the community. [On at least four different occasions in his discourse he denies having given permission to Tugen to graze animals locally] . . . to allow just anybody to graze in Kailerr is like letting just anybody impregnate your daughter. If people don't like their daughters to be impregnated by strangers, then why would I let visitors to come here and graze their cattle?" (This powerful metaphor draws some nods from the attentive audience.) However, Lemar goes on to say that the Tugen really are not like strangers because the Kailerr people have strong relationships with them (including some based on marriage and clan ties) that were evident during the last drought when Lobo people allowed Kailerr herders to use their swamps. Lemar notes that he currently is keeping some cattle from Lobo at his homestead, but he implies that the animals are owned by a fellow clansman ("relative").

Sipal, who is also an *il mirisho* elder, responds to both Lemar and Lenanon by indicating that he does not want Tugen cattle to graze in Kailerr. He begins his statement by playing down the importance of his own wealth status:

“Even if I only owned five cows [an amount that exceeds Lemar’s herd] I cannot agree to allow Tugen to come here and use Kailerr’s pastures. I disagree with the point [of Lemar’s] that we should reciprocate with them, in order to maintain good relationships. These people are getting milk and selling fat oxen because of Kailerr grass. Whether I am rich or not, the *il murrans* should chase them out or Njemps pastures will be finished and we will have problems.” The meeting ends with no clear agreement on what should be done, although most agree with Sipal’s assessment that Tugen cattle should not be allowed to graze in Kailerr.

Several other meetings were held in early 1981, including two that were attended by government chiefs and Tugen herd owners. As in the meeting described above, however, few people in subsequent *baraza* directly attacked individuals, such as Lemar, for herding the animals of outsiders, even when they knew this was taking place. Instead, they focused on the less complex issue of granting permission to outsiders to graze cattle in Kailerr. The latter problem was resolved within a few months by agreement that individuals could not grant permission, in exchange for material payments, to outsiders to use Kailerr pastures. As has always been the principle, permission to graze could be made only by a collective of neighborhood elders, with some input from the local *il murrans*. This action only slightly reduced the excessive charge on Kailerr’s grasslands, however, because many animals belonging to outsiders were being combined with local herds and managed by a hired *Il Chamus* herder.

One of the problems with controlling the use of communal pastures by absentee owners is that poor families, like Lemar’s, often willingly accept cattle from ranchers, in return for a wage and use of the herd (e.g. for milk). The wealthier *Il Chamus* herders, like Sipal, are unlikely to protest too vehemently against these arrangements because (1) they do not want to bring too much attention to their own large herds, and (2) stock borrowing (of which this is a peculiar form) is a recognized means by which poor families build up herds and gain access to milk as well. The hired herder often disguises the employer/employee relationship, as Lemar did, by invoking kin or clan ties to justify the keeping of an outsider’s animals. And because *Il Chamus* clans have historical ties to many different groups, including the Tugen (see table 2.1, chapter 2), it is easy to manipulate clan ties to mask the wage relationship.

A second form of absentee herd ownership is found among livestock traders and other businessmen. As noted in chapter 5, the few local livestock traders usually serve as suppliers for larger merchants from outside of Njemps. In contrast to local herders, they keep mainly male animals (oxen and bulls) in their herds. These cattle have higher fodder requirements than female animals (with the exception of lactating females) and thus are more likely to overexploit the range than a pastoral herd that is predominantly cows and heifers. The trader’s herd also does not provide milk to the hired herder. In some areas the concentration of livestock owned by absentee traders and other outsiders is so great that seasonal



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movements are affected. For example, in the dry season of 1981 herders of Mukutan avoided areas grazed by livestock of absentee owners, moving to places like Loimkumkum where they do not normally graze their animals. Because traders often have local elite and political support, it is difficult for small herd owners to restrict their access to grazing.

### *Erosion of local controls*

An important reason why outsiders have been able to trespass on Il Chamus grazing lands is that local tenure systems are in a state of transition. In the past, a system called *olokeri* regulated the use of dry-season grazing, including among the Il Chamus themselves (see Little 1985a). It is now practiced in only a few remote areas. Under the *olokeri* system the swamp and certain highland grazing areas were restricted during the wet season. A council of elders (*lamaal*) decided when it was appropriate to close them off and *il murr*an (young men) saw to it that decisions were followed. Yet, as the Kailerr case shows so well, the *il murr*an and elders do not always assume these roles, and when they do conflicts among themselves can emerge. In the past, grazing controls were predominantly on a neighborhood basis, with each neighborhood, or a coalition of two to three neighborhoods, having its own *lamaal*. If an Il Chamus herder from one neighborhood wanted to graze his/her animals in another's area, then the individual first sought permission from that neighborhood's *lamaal*. Decisions to restrict access to an area were made according to the condition of both the livestock and the range.

Restriction of grazing has not taken place at all during the present generation (*il kireyo*), nor in the previous generation (*il kiapu*), which was initiated in 1969; during the *il medoti* generation, initiated in 1958, controls were enforced only two or three times. Decisions of where and when to graze are increasingly up to individual units, and the *olokeri* system is no longer a factor in range regulation. In its absence, however, less-formal mechanisms have emerged that only partially control outsider use of local pastures. For example, neighborhoods are known to charge nonresidents exorbitant fees for using community-based veterinary dips, which are numerous in the area because of the prevalence of tick-borne diseases. This has been done as a way to indirectly tax, as well as discourage large herd owners (both Il Chamus and non-Il Chamus) from grazing in particular areas. In some cases Pokot herders have been charged more than five times the normal fee for a cattle dip, in order to discourage them from utilizing certain grazing zones. In other cases, communities apply social pressure among their own members to insure acceptable grazing practices. For example, herders usually do not move their cattle to swamp pastures in the wet season until late morning, to avoid the displeasure of neighbors. When grazing is not particularly scarce, overuse of the swamps is considered socially unacceptable behavior that can alienate a member from the rest of the neighborhood. These informal procedures provide a measure of conservation in the absence of formal institutions and regulations.

The appointment of chiefs by government competes with the authority of local elders and *il murr*an who had roles in the *olokeri* system. The power of local chiefs

and subchiefs has increased in recent years, and they presently influence many spheres of society, including resource use. Decisions about range controls are said to be “within the jurisdiction of the government chiefs, not the elders”; and it was chiefs who were called on to help resolve the Kailerr conflict discussed earlier. Yet most local officials, who are of the younger age sets, do not want to reinstitute grazing regulations, since they benefit from grazing their own herds without restrictions. They are involved in several income-earning activities in addition to livestock-raising, and often operate outside of local patterns of livestock movement and regulation. Most local officials rely on hired herders to manage their herds, which in some cases are very large. As will be elaborated later in this chapter, most local officials want a land-reform program that supports private subdivision. Obviously these officials would do well under a program of subdividing common lands because they have excellent access to administrative and legal institutions, which would insure that they benefited.

### **Contradictions in local land use**

At a subregional level, differentiation among homesteads results in land-use strategies that can be conflictive rather than complementary. As noted in the discussion of absentee herd owners, poor and very-poor homesteads willingly accept outsiders' cattle, while wealthy ones oppose the practice. Absentee herd ownership competes directly with the management strategies of wealthy herders like Sipal, who want to preserve fodder for their own animals. Contradictions can be found elsewhere. For example, certain rich herders favor private adjudication of land, while the majority favor little change in the current tenure system except perhaps increased controls on grazing. Conflicts emerge when members of the former group pursue their own forms of spontaneous privatization. The land-use activity in which conflict and contradiction are most apparent, however, is the pursuit of agriculture by herders.

### *Cultivating herder syndrome*

The problems of land use engendered by outsiders' encroachment in Njemps are compounded by difficulties arising from cultivation among Il Chamus herders themselves. These focus attention on the community and the homestead rather than on the region. As noted in chapter 5, two paths have led to cultivation: rich herders farm to support their livestock holdings and to bolster claims to land, while poor herders cultivate from the need to eke out a subsistence. The distinction is further reflected in the differences between irrigated and dryland farming, particularly with respect to costs. Rich families pursue irrigated agriculture, while poor, dryland farmers engage in rainfed agriculture. As the number of impoverished herders increases, there is a corresponding increase in dryland agriculture and in low-cost forms of irrigated agriculture.<sup>4</sup> In addition, uncertainties over land tenure increase the number of herders pursuing all forms of agriculture as a means of insuring rights to land. The surge of agriculture among

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the pastoralists themselves may actually jeopardize local pastoralism and agro-pastoralism in the long term.

Irrigation has expanded mainly around the fringes of the Molo-Perkerra swamps and near such seasonal rivers as the Mukutan, Arabel, and Endao. The growth has resulted in some land-use conflicts and disputes, as will be illustrated later in the chapter. Dryland agriculture, on the other hand, has been concentrated in nonswamp areas – where animals graze in the wet season – and along the rivers and streams in the swamps. The potential for conflict is even greater here because the activities can be distinguished along class lines (rich herders versus poor, dryland farmers) and because seasonal competition is involved. The contradiction between the rich herder and the poor, dryland farmer is demonstrated in the following case.

Lekilinye is a wealthy herder from Ngambo who maintains homesteads in both Ngambo and On'gota (near Marigat). During the wet season he moves his non-milch cattle and sheep to his On'gota homestead. He owns a large irrigated farm in Ngambo (i.e. more than two hectares) and his wife in On'gota also cultivates a rain-fed farm along a seasonal stream there. The number of farms cultivated in the On'gota area during 1981 had more than tripled over the previous year, many of them cultivated by poorer Il Chamus who had no access to irrigated land. One of the farmers complained that Lekilinye's animals had consumed a portion of standing crops on her farm, and pursued compensation for her loss. Rather than have the case brought in front of a group of elders (in this case individuals who had nearby farms), Lekilinye settled privately with the farmer and gave her an undetermined number of goats. Lekilinye did not keep his animals in On'gota following this dispute. Instead, he returned his sheep and cattle to his Ngambo homestead only three weeks after they had moved to On'gota.

Lekilinye and other wealthy herders of Ngambo indicate that the expansion of dryland agriculture in On'gota interferes with herd movements, but they are reluctant to propose a ban on farming when they themselves practice it. Thus, large herders are adversely affected by a strategy that in many instances they themselves pursue. The contradiction between individual strategies of increased agricultural production and the aggregate effect of such activities on herding is apparent. On an individual basis Lekilinye's strategy of cultivation is sound; at an aggregate level the cumulative effect of expanded agriculture by individuals is likely to undermine livestock activities.

Cultivation also results in conflicts over land and water among rich herders themselves. These disputes frequently involve prominent individuals and can thus take on local importance as well. In certain cases, such as the one described below, "tradition" is invoked in defense of one party against another. The example of Loloro, a wealthy "progressive" herder of Il ng'arua, highlights the rich cultural context within which agricultural disputes can be enacted.

Loloro is an il medoti who is a very wealthy, "progressive" herder. In addition to sixty cattle and an irrigated farm of about two hectares, he owns four retail stores, a land rover vehicle, and two cattle dips. He was not always as rich as this. Loloro's family came from Turkana District to Il Chamus following a severe drought in the

1950s. The father had come to seek wage employment at the Perkerra Scheme, and since local herders then were little interested in the scheme he was able to acquire a plot on it. At the time Loloro's family was poor. Although it is not clear how it actually happened, Loloro's family was incorporated into the Il Chamus community and Loloro was circumcised and initiated into the *il medoti* age set, the *il murrān* of the late 1950s and 1960s. Nonetheless, Loloro was never able to shake the status of being a Turkana, and accrued most of his wealth in rather unconventional ways. He traded in tobacco, beer, and, to a lesser extent, livestock, while earning income from the Perkerra farm that he inherited from his father, who died in the 1960s. In the late 1970s Loloro purchased an irrigated farm of two hectares from an elderly man in Il ng'arua. This transaction was later to create many problems for Loloro.

Loloro has a reputation – in some respects undeserved – of being a greedy man, and he tries to counter this by certain actions: for example, he uses his vehicle to transport the Il Chamus religious leader (*laibon*) to ceremonies, and he extends credit to needy families. In July 1980, Loloro became embroiled in a controversy over irrigation, which he provoked by refusing to allow three local farmers to cut a water channel through a small corner of his farm. He felt the request was unreasonable and held firm on his position. The Il ng'arua community reacted by completely cutting off water from the main canal to his farm; “cursing” his Il ng'arua shop, so that neighbors would not shop there; and demanding that he return his farm to the original owner. The offended parties were also relatively well-off, with average herds in excess of fifty stock units; two of the three owned retail stores as well. Clearly, many factors were at work here, in addition to the dispute over irrigation, since at least two plaintiffs could be considered strong business rivals of Loloro. The three farm owners gained the support of a group of local elders who invoked a “traditional” curse against Loloro's business. The ceremony was carried out at midday in the presence of much of the community and had a strong effect. The actions against Loloro, including the curse, resulted in the loss of his 1980 harvest and an immediate decline in retail sales at his Il ng'arua store. Loloro allowed the waterway to be cut through his farm, and the elders lifted the curse on his store about twenty days after the dispute began. Many people felt it might have been lifted anyway for pragmatic reasons. Loloro had used his vehicle to transport essential supplies directly from Nakuru to his shop, and therefore he was able to outcompete, in terms of price and availability, the other eight shop owners at Il ng'arua. Had the curse not been resolved, it is questionable whether consumers would have continued much longer to boycott the business. Because Loloro refused to return the farm – which was said to have been purchased unfairly at a very low price – to the elder many members of the community have continued to be hostile toward him, often emphasizing his Turkana origins in conversations. In the year after the incident, 1981, local irrigators again blocked water to his farm, causing Loloro's second consecutive crop failure.

The local sanctions against Loloro were especially severe, reflecting both the seriousness with which water issues are treated and the marginal social status of the defendant. His tenuous ethnicity and the local resentment over his successful businesses unleashed an uncharacteristically harsh social response. The plaintiffs in this case were able to mobilize considerable support by emphasizing Loloro's “Turkana-like” characteristics and by drawing on the cultural ideals of reciprocity and community; Loloro was accused of violating societal norms. In short, they used a local water conflict to stir up a larger form of protest that incorporated

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elements of ethnic and class division. Despite his considerable wealth, Loloro was bound to lose. As will be shown below, disputes over livestock trespass on farms rarely conjure up the hostility that was displayed toward Loloro.

### *Disputes over livestock trespass*

Frequent conflicts arise from the trespass of livestock on irrigated farms. Occasionally a herd owner will be involved simultaneously as complainant in one case (where another's animals have trespassed on his or her farm) and as defendant in another (where his or her animals have grazed on someone else's farm). The proliferation of disputes is considerable, especially in such areas as Loropili, where grazing and irrigable land are scarce. Most of these cases involve rulings by local elders rather than by the government. In Loropili more than half the irrigated farmers were involved in at least one dispute related to livestock trespass during the agricultural season of 1980. Fifteen percent were implicated in multiple cases, serving as both accusers and defendants. This level of conflict, which is likely to increase in the future, characterized the area after the mid 1970s, when most of the growth in irrigation took place.

Analysis of livestock-versus-farm conflicts reveals several tendencies that highlight the complexity of the issue. First, owners of animals that damage another's farm are fined in only 50 percent of the cases. Moreover, when fines are levied they are usually small. The wronged party knows that the tables could be turned in the future (his animals could be caught grazing in someone else's field), and thus he seeks low damages. As one *il mirisho* herder explains: "Why charge a big fine, if your cattle might someday trespass on that individual's farm." In Loropili, for example, fines for livestock trespass average only Ksh 61 – less than the average value of a goat or a half sack of grain. The highest fine recorded is Ksh 150, allocated to an absentee herd owner whose animals had grazed on a widow's field. Fines are more likely to be imposed when a poor or very-poor homestead is the accuser than when richer homesteads are advocates. Eighty percent of homesteads in wealth strata IV (poor) and V (very poor) (see table 4.2) demand payments from trespassers, which is well above the average. Plausible explanations for the discrepancy are (1) the more vital the subsistence value that poor and very-poor homesteads attach to their farms; and (2) their more pressing needs for cash.

A second important point derived from analyzing livestock/farm conflicts is that animals belonging to rich and very-rich herders trespass on farms no more frequently than those of other herders. For example, only 30 percent of very-rich herd owners in Ngambo (with average herds in excess of 130 livestock units) are implicated in cases involving their animals' eating the crops of neighboring farmers, while more than 50 percent of the general population are guilty of such violations. How can this be so, if the very-rich own so many more animals than others? The lower frequency of trespassing among the largest stock owners signals their greater labor advantage *vis-à-vis* other homesteads: in contrast to poor and very-poor homesteads, which frequently leave their animals unherded,

owners of large herds control enough labor to avoid having their animals graze another's field. (Exceptions to this may be found among wealthy "progressive" animal owners who rely on hired herders.) They will occasionally leave their herds without supervision but do so less frequently than others. The sad irony is that poor and very-poor homesteads, who are engaged in several activities, do not command enough labor to herd their few animals, nor can they afford to hire labor. Consequently they are as likely – perhaps even more likely – to be involved in disputes over crop damage than are homesteads controlling many more animals.

Finally, in contrast to disputes over water and land rights, state officials are asked to participate in very few cases involving crop damage. The only example of livestock trespass in Loropili where the police and administration were called in on behalf of the farm owner involved a local politician. He referred the case to the local administration because he was part of this structure and thus likely to receive a favorable ruling. His strategy seems to have been effective, since the fines levied on the violating parties were among the highest imposed in 1981. By not relying on local elders to mediate the dispute, the official was working outside the normal mode of dispute settlement. As noted earlier in this chapter, leaders in the area are not selected by local consensus but are usually appointed by the government.

### *The emergence of exclusivity*

Cultivation by herders can complement livestock production if animals are grazed on harvested fields. This practice is very common in Il Chamus. For example, when fields are located near a homestead, lactating cattle will be grazed there early in the morning prior to milking. Now, however, certain herders who control irrigated fields limit access to their own animals only, refusing to allow others to use their postharvest fodder. Differences in the pattern of postharvest grazing correlate closely with the level of animal ownership: rich and very-rich homesteads are the most restrictive. While 80 percent of poor and very-poor herders allow animals of other homesteads to graze their harvested fields, only 40 percent of rich and very-rich herders do so.

Restrictions regarding postharvest fodder are more prevalent among wealthy herders of Loropili and Ngambo where competition for irrigable land is high, than among wealthy farmers of other neighborhoods. In contrast to Ngambo and Loropili where only 25 percent of category I and II homesteads permit others to graze animals on their fields, 50 percent of rich and very-rich herders in Salabani/Meisori and Kailerr allow other herders access to their fields.<sup>5</sup> Although they restrict access to their own fields, rich and very-rich herders depend heavily on the fields of others. In a sample of seventy-one homesteads, almost two-thirds of rich and very-rich herders graze their livestock on others' fields, while less than one-fifth of poor and very-poor herders do so. In short, exclusivity with respect to postharvest grazing is highest among rich and very-rich herders, while at the same time their animals frequently graze the fields of other homesteads.

The recent practice of fencing fields with metal wire, described earlier in

chapter 5, increases restrictions on land use. Since 1980 more than twenty irrigated farmers in the Ngambo/Loropili area – approximately 15 percent of all irrigated farmers in the area – have fenced their fields with permanent metal fences. These frequently are among younger-generation farmers (il kiapu and il medoti) who, like Loloro, have lucrative nonfarm investments and/or positions in government. They represent the so-called “progressive” herders of the area. Metal fencing reinforces private claims to land, restricts herder access to postharvest fodder, and places the owner in a favorable position when land registration begins. Under current conditions of land competition and tenure uncertainty, the use of metal fencing will probably increase.

Only once have I witnessed direct expropriation and fencing of rangeland by an individual, but the location, in the swamps, makes it significant. The incident took place in 1983 and entailed the enclosing with a metal fence of approximately 100 hectares of prime lakeside grazing. The “owner,” a civil servant working outside of Baringo, is using the enclosure to raise a dairy herd to supply milk for the Marigat and Kampi ya Samaki markets. He maintains a family in the area, and together with hired workers they work the dairy farm. He went through local government officials to gain permission to enclose the area and I do not know how the local community has responded to the action.

Data collected by other Kenyan researchers indicate that this enclosure may not be an isolated incident. A study team of the Institute of African Studies, University of Nairobi, reported in 1986 that some Il Chamus, “especially the educated rich, are beginning to fence off individual plots, particularly those close to Lake Baringo, to ensure that they have dry and wet area private grazing grounds” (Institute of African Studies 1986: 33). The authors warn of potential problems arising from spontaneous privatization, recommending to the government that “the fencing-off of portions of watering points, for instance along the lake-shores, for private use should be discouraged for it conflicts with community interests and it is bound to result in social and economic problems later” (Institute of African Studies 1986: viii). The issue is not likely to be resolved as long as wealthy individuals are able to initiate such actions without state reprisals.

### *Different responses to land reform*

Local opinions about land reform diverge. The differences correspond closely with the size of an individual’s herd, as well as with the person’s access to government influence and positions.<sup>6</sup> The greatest controversies arise over whether communal land should be registered on a group or individual basis. In the group concept the Il Chamus see a legal means of defending their territory and of discouraging permanent settlement in disputed areas, such as Arabel. The policy of registering land on a group basis (the “group ranch” approach) has been pursued mainly in the Maasai areas of southern Kenya (see Galaty 1988; Migot-Adholla and Little 1981). The division of Il Chamus into three group-ranching units – Arabel, Mukutan, and Ngambo – would force the government to confront the “encroaching farmer” issue in Arabel, and in other areas as well. While the

vast majority of Il Chamus favor group ranches, one segment of the population (very-rich herders) does not want any restrictions on herd movements and another (“progressive” herders) wants private subdivision within each group ranch. Poor and very-poor homesteads, on the other hand, are indifferent toward group ranches but do not want private subdivision, while middle categories of herders tend to split evenly between the position of the “progressive” and that of the very-rich herders.

Very-rich herders favor the demarcation of outside boundaries in order to slow Tugen and Pokot encroachment, but want no internal divisions within Il Chamus. This would allow herders to continue to take advantage of a variety of grazing areas, as they do now, but would reduce competition with outside groups (recall the statements by Sipal, a wealthy herder, earlier in this chapter). More than 65 percent of very-rich herders claim that grazing would be insufficient in any single group ranch – whether it is Ngambo, Arabel, or Mukutan – to sustain their animals throughout the year. They want to retain the option of being able to migrate their herds anywhere within the three-ranch area. By contrast, the consensus of other homesteads is that grazing resources within any single unit would be adequate throughout the year. More than 90 percent of homesteads feel that grazing shortages would not be a problem within ranch boundaries. Not surprisingly (given their small herds), all of the poor and very-poor homesteads feel that grazing would be sufficient in any of the designated ranches.

Young, “progressive” homestead heads –including the “educated rich” referred to in the report by the Institute of African Studies (1986) – have vigorously pursued group ranching schemes. As noted, these frequently are il kiapu and il medoti who are employed in skilled positions, have nonfarm investments, and favor privatization of farm lands. They comprise the majority of positions on the “caretaker committees”<sup>7</sup> for the group ranches, although a token elder or two of the very-rich category is frequently included in these organizations. The latter tactic allows the committees to make comparisons between themselves and the indigenous lamaan councils, discussed earlier in the chapter, that were composed of elders. “Tradition” is invoked again in a clever way. The position of progressive herders is that private subdivision can take place more easily if the land is first registered on a group basis. The experience from the Maasai areas has shown that this is generally true (*The Standard* 1985; Grandin 1986). More than 85 percent of so-called progressive herders in Ngambo and Salabani/Meisori want the state to provide private titles for farms, while only 40 percent of the general population favor this action. Those most vehemently opposed to adjudicating land on an individual basis are the older herders of wealth category I, who also oppose group ranches. Fewer than 10 percent of these very-rich herders want to see a program of land adjudication, although some of them have staked out claims to large farms. In addition, the majority of poor and very-poor herders are opposed to private division, since few of them have access to irrigable land and they would therefore benefit little from registration. Not many Il Chamus perceive of either private registration or the group ranch as an appropriate vehicle for improving livestock production and range management (i.e. “livestock development”), as envisaged



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by government planners. Most of those who favor the group-ranch concept do so only to protect against outsider encroachment, while a small group of elite perceive the group ranch as a vehicle for speeding up private subdivision.

Ambiguities about land rights motivate many homesteads – whether they favor private subdivision or not – to pursue some form of cultivation. This was addressed in some detail in chapter 5, but its consequences will be more explicitly examined here. In an area where labor and good land are simultaneously scarce, this strategy can have severe ecological implications. Kjaerby, using a case study from Tanzania, warns of the environmental consequences when herders pursue cultivation:

In terms of land-use, the two forms of production combined in agro-pastoralism compete both for available land and labor power. The conflicting requirements of sedentary agriculture and mobile pastoralism tend to impose mutual limitations upon each other with the result of lowering productivity in forms of production. In the long run, as population and stock pressure builds up, the likely result will be land degradation and further impoverishment. Agro-pastoralism does not appear to be a viable future agricultural system. (Kjaerby 1979: 141)

This description holds true also for Il Chamus, where most of the visible signs of environmental degradation (gullying, overcutting of trees, and prevalence of unpalatable vegetation) exist near settlements practicing extensive agriculture. The diversion of labor to agriculture keeps herders (especially the poorer ones) from moving animals to distant grazing, which would allow nearby vegetation to recover. The problem grows when homesteads engage in wage employment and other nonfarm activities, further straining the labor available for herd and land management.

## **Economic diversification and resource management**

As was seen in chapters 4 and 5, the diversion of labor to nonpastoral activities is a survival strategy for many homesteads and an investment option for others. Nonetheless, it aggravates existing problems of sedentarization by further restricting the mobility of populations and increasing land-use pressure around settlements. Many “progressive” herders own stores in the larger settlements such as Ngambo and Il ng’arua, and keep their animals in the surrounding pastures. Strategies of economic diversification, which may include irrigated agriculture and retail business ventures, usually call for maintaining linkages with the pastoral sector. For example, shop owners purchase livestock for investment purposes and, like livestock traders, quickly “turn them over” for market reasons. They hire local herders to look after the animals.

These part-time herders tend to concentrate their livestock year round in or on the fringes of the swamps near Ngambo and Il ng’arua. They do not have the commitment to pastoralism that many of their neighbors have, and they are not likely to move their cattle during the year unless it is absolutely necessary. When that happens, they hire herders for the move and visit the herd camps on a part-

time basis only. Because their activities are more diversified than those of deeply committed herders, drought has less of an impact on their economic well-being – although it can devastate their herds (see discussion later in the chapter). As their livelihood is not as tightly linked to herd welfare, they tend to be less concerned with long-term conservation and control of grazing. Meetings about grazing regulations, such as those held in Kailerr in 1980 and 1981 (discussed earlier in the chapter), are not of major concern to part-time herders.

### *Environmental problems around settlements*

It is not a coincidence that most of the resource management problems are concentrated around the larger settlements, where sedentary agriculture and commercial activities are greatest. These areas are heavily used by livestock, leaving the range outside of the swamps with virtually no ground cover for most of the year. The heavy utilization in these areas restricts the growth of palatable vegetation, reduces infiltration of rainfall into soils, and facilitates erosion. The following statement describes the process as it occurs in Il Chamus:

Only a small portion of the total rainfall infiltrates into the soil. This is due to lack of cover, low levels of organic matter and other edaphic characteristics, and high intensity rainfall. The very high grazing and browsing pressure in most areas means that palatable and potentially productive plants are eaten before they have a chance to realise their full potential. The pressure on the most palatable species is so great that the individual plants are eaten back so severely that they are destroyed . . . As mentioned earlier, the current trend is towards more xerophytic, ephemeral or unpalatable species. (Kenya 1984: 67)

While the above quotation refers to all of Njemps rather than only the settlement areas, the situation is much more severe in the vicinity of large settlements. Recent evidence from elsewhere in northern Kenya confirms that herder sedentarization, whether spontaneous or state-sponsored, can create major land-use problems in range areas (see Hogg 1987; Dahl and Sandford 1978; UNESCO 1984). Hogg shows that this is especially a problem in Turkana and Isiolo districts, Kenya:

Sedentarization [for the Turkana and Borana] has meant a declining resource base and increased insecurity; and desertification, as a result of population and livestock concentration, has continued unabated and largely unchecked. If this decline is to be halted, then government and donors must make a positive commitment to the importance of pastoral nomadism. Every effort should be made to encourage mobility and maintain full utilization of the rangeland. (Hogg 1987: 57)

It should be noted that the settled Borana and Turkana pastoralists described above are engaged both in irrigated agriculture and wage employment and thus, like the Il Chamus, are likely to confront labor constraints for herding. In these cases (and with the Il Chamus as well), what had originally been perceived as problems of overgrazing by nomadic herders is now seen as a dilemma resulting from combining agriculture and wage employment with sedentary livestock-

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rearing. As will be shown in the next chapter, this reality, however, has not changed development planners' attitudes toward pastoral development.

### *Effects of labor shortages*

Resource management problems associated with sedentarization are aggravated by labor shortages. Labor constraints are most acute among poor and very-poor homesteads who frequently leave their animals, especially goats, unattended. A comparison of herd-management strategies among different categories of homesteads reveals that 67 percent of strata IV and V homesteads allow their goats to roam without supervision during most of the year, and more than 85 percent do not herd their cattle during the wet season (see table 7.1). When they are herded, goats always are combined with sheep although the animals prefer different grazing habitats. No homesteads of either category IV or V in the sample manage their goats and sheep in separate flocks, although they would if they controlled adequate labor. In addition, most of these homesteads graze their animals (including cattle) within a six-km radius of their home area, although some lend their animals during the dry season to homesteads residing in other neighborhoods (see chapter 4).

By contrast only 17 percent of homesteads in strata III-H and III-L leave goats unherded throughout the year, while 50 percent do not herd their cattle during at least part of the wet season. Only 15 percent keep their goats and sheep in separate flocks during the year, however (table 7.1). Eighty-five percent of these middle-strata homesteads move their cattle and some of their sheep outside a six-km radius during the dry season, but they rarely migrate their animals more than 15 km outside of their home areas. Consequently, these homesteads do not usually send cattle to Arabel during droughts.

Rich and very-rich homesteads, in turn, rarely leave goats unherded throughout the year, while cattle are left unsupervised for only a small part of the wet season (an average of one month). More than 90 percent of these homesteads move both sheep and cattle to pastures beyond a 6-km radius of their settlements, and they frequently move cattle more than 15 km during the dry season. The exception are rich, "progressive" herders who concentrate their animals around market centers, and who rely on hired labor. In addition, a large percentage (63 percent of the total) of category I and II homesteads herd their goats and sheep in separate flocks during the year.

What are the implications of these different husbandry strategies for resource management? First, the scarcity of labor among many homesteads results in animals being unsupervised throughout much of the year. This practice "is in sharp contrast to the careful herding of many other pastoralists" (Homewood and Hurst 1986: 29). The problem is most serious for poor and very-poor homesteads, but also is an issue for other homesteads. The lack of attention to herding in the wet season not only leads to animals wandering onto cultivated areas – which, as has been shown, results in conflict – but it also makes difficult the regulation of grazing. For example, at the beginning of the wet season new vegetation is

Table 7.1. *Herd management strategies*<sup>a</sup>

Management characteristics	Category of homesteads <sup>b</sup>		
	I and II	III-H and III-L	IV and V
Average labor size (in Adult Units) <sup>c</sup>	7.73	5.74	3.95
Percentage of homesteads that herd G and S separately	63	15	0
Percentage of homesteads that leave goats unherded <sup>d</sup>	13	17	67
Percentage of homesteads that do not herd goats in wet season	37	58	100
Percentage of homesteads that do not herd cattle in wet season <sup>e</sup>	40	50	86

*Notes:*

<sup>a</sup> Based on a sample of thirty-eight homesteads that owned at least some cattle, goats (G), and sheep (S).

<sup>b</sup> See table 4.2.

<sup>c</sup> This represents the average amount of homestead labor. An Adult Unit is defined in table 4.1.

<sup>d</sup> Defined to mean that the homestead's goats are not herded at least 75 percent of the time.

<sup>e</sup> This includes homesteads that did not look after their cattle at least 25 percent of the days during the wet season.

frequently eaten down to ground level before areas have had a chance to regenerate from the previous dry season. This is a problem especially for the western part of Njemps, where annual and perennial grasses are sparse. Goats that are left unherded frequently browse on vegetation along steep slopes and in riverine areas already vulnerable to erosion.

Second, because many homesteads do not keep goats and sheep in separate herds, goats frequently enter the swamps to graze when sheep are moved there. Ideally, goats should be taken to browse areas away from the wetlands, to take advantage of different vegetation and to reduce competition with grazers (that is, sheep and cattle). Homewood and Hurst, for instance, show that while *II Chamus* goats are primarily browsers, they spend more than 20 percent of their feeding time in grasslands (swamps) rather than in browse areas (1986: 8, 34). This can lead to overutilization of the swamps and their immediate surroundings by cattle, sheep, and goats, while zones of good browse remain underutilized. Herders recognize that optimal strategies of herd management call for splitting up animal species, but many do not have enough labor to do this. In some cases the situation is resolved temporarily when school children return on holiday and can be used to manage goats and sheep separately.

A third resource management problem arising from labor shortages concerns the lack of mobility among herders. In part, the tendency to focus on goat rearing is symptomatic of this shift toward sedentary livestock production. Goat production requires less labor per animal than other livestock-based systems and,

therefore, is well-suited to sedentary pastoralism. Diversification of the economy decreases mobility among herders, as labor is diverted to farm and nonfarm activities. At least part of the explanation for land conflicts near Arabel and Mukutan stems from a decline in the number of seasonal transhumances, which allows other groups to occupy and enforce claims to these areas. The largest proportion of homesteads – the poor and very-poor – keep most of their animals around settlements throughout the year. This is especially acute in the Ngambo area where many are engaged in contract labor arrangements. Stocking problems in the area are aggravated also by strategies of part-time pastoralists who, as noted earlier, keep their animals around the settlements of Ngambo.

Ngambo has excellent perennial pastures, but good stretches of dry-season grazing exist also along the eastern shore of the lake (between Loiminange and Rugus), areas utilized by only a small number of herders. Population density in the eastern sublocations of Mukutan and Loiminange is only eight persons per square km, while that in Ngambo is sixty-six per square km (Central Bureau of Statistics 1981). Chapter 5 discussed some of the reasons for this discrepancy: the abundance of contract work in Ngambo, for example. In a severe dry season wealthy herders will move their cattle to these less-populated areas, in anticipation of grazing shortages elsewhere. This pattern was observed during the 1979–1980 and 1984 droughts (see discussion of Panale later in the chapter), and it reduced some of the grazing pressure around Ngambo. In sum, shortages of labor lead to the overutilization of some grazing zones and the underutilization of others.

### **The sustainability question**

Recent studies have shown that impoverished rural regions often simultaneously face shortages of labor and land. Collins, using case studies from Latin America, explains how this contradiction can occur:

While land scarcity and labor scarcity might appear to be in contradiction, they actually may occur together. First, land scarcity may arise from processes of land transfer and encroachment as well as demographic growth. Secondly, whatever the cause of land scarcity, the downward pressure it exerts on household income may force productive members into other activities, or to leave rural areas permanently. (1987: 22)

Under very different circumstances the Il Chamus case reveals a similar contradictory process, although shortages of animals occur as well as of agricultural land. Poor and very-poor herders, who lack access to adequate supplies of irrigable land and animals, sell their labor while at the same time they confront labor shortages. The cases of Letom and Lekikaan that were discussed in chapter 5 show the difficulties of herders who must engage in wage employment, but lack sufficient labor for herding. Downward pressure on income forces them to divert part of their labor away from livestock production, leaving them with too little labor to manage their herds in a sustainable fashion. The structural variables and

the different behavioral stages involved in this process of decline are summarized in the model presented in chapter 1 (see figure 1.1).

### *Effects of wealth differentiation*

Class differences are reflected both in the use of space and in resource management strategies (see table 7.1). Wealthier herders utilize different management techniques than the poor and, as shown earlier, also occupy different parts of the range. The cycle of poverty described in chapters 5 and 6, reflected in labor shortages and low incomes, makes it difficult to maintain the current land-use system. Poor herders are compelled to diversify into agriculture and wage employment; this generates land-use problems around settlements, conflicts between herders and farmers, and livestock-production problems. "Progressive" herders also contribute to these problems by concentrating their animals, often with the use of hired labor, around market settlements. Thus, the concentric bands of degradation that are found around settlements in Baringo and elsewhere in northern Kenya (Coughenour *et al.* 1985; Hogg 1987; UNESCO 1984) are reflective of these different social and economic processes.

The production strategies of rich and very-rich herders only marginally improve the sustainability of the system. As noted earlier, they have invested in agriculture, fenced-off areas of common land, and diverted labor into education and other nonagropastoral activities. In contrast to other homesteads, they have the resources to improve land-management practices, but in most cases their investments have not done so. As indicated above, practices of "progressive" homesteads in particular have worsened the situation, and future actions are likely to make matters worse. Their "spontaneous" privatization of lands restricts herd mobility and accelerates the overutilization of certain areas. In addition, they frequently have alliances with absentee herd owners whose animals are grazed on Il Chamus pastures. While the heavy use by outside cattle is not likely to lead to irreversible damage to the swamps (Homewood and Rogers 1987: 122), it does reduce the amount of fodder available to local herds, damaging the livelihoods of their owners.

### *Increased vulnerability to drought*

The calamitous droughts of 1979 to 1980 and 1984 demonstrate the current vulnerability of the Il Chamus economy. The critical questions here are as closely related to socioeconomic, as they are to environmental factors. The two sets of variables are interdependent, as recent droughts have shown. The last two disasters, in particular, reveal that current management and investment practices provide little protection against droughts.

A reduction in cattle and goats of about 50 and 25 percent, respectively, occurred during the 1979–1980 drought.<sup>8</sup> Cattle declined from approximately 26,000 to 13,000, while goats decreased from 40,000 to 30,000. Numbers of sheep, in turn, declined only 5,000, or 10 percent of an estimated total of 50,000

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in 1979. Veterinary records from the foot-and-mouth (FM) vaccination program of 1979 to 1981 suggest that cattle losses may have been even higher, with fatality rates as high as 66 percent (table 7.2). In October 1979, 25,379 cattle were vaccinated, while in June 1980 less than 8,000 were available for treatment. Such areas as Ngambo and Loimkumkum, where losses may have been higher than 80 percent, were especially hard hit according to these records. The data, however, do not take account of seasonal movements of herds in and out of the vaccination campaign areas. They must therefore be supplemented with other sources of information, such as herder interviews, so that a more accurate assessment of drought-induced loss can be formulated.

Several different grazing strategies were pursued during the 1979–1980 drought, but only two of these involved relatively long migrations. The first was the movement of cattle around to the eastern shores of Lake Baringo, to use the relatively underutilized wetlands there. The second strategy was to migrate herds to the hills around Arabel, a common action during periods of stress. Both options, however, proved to be ineffective in combating the negative effects of the drought. The cases of Panale, a very-rich herder, and Ngologen, a poor herder, illustrate well the different management responses to the 1979–1980 drought and the devastating losses associated with each.

In July 1979, Panale of Sintaan had about 410 cattle and 400 goats and sheep in his homestead herd. He owned the bulk of the cattle, but some were divided among his five wives and his married son, who owned about thirty of the cattle. Except for his son's herd, decisions about sales, migration, and lending of homestead animals were mainly made by Panale. Of course, revenue earned from the sale of a wife's animal was for her and her children's use. Panale had loaned about 140 of the homestead's cattle to Il Chamus families of Loropili and Loimkumkum, and to a Tugen family of Lobo. Anticipating that the dry period of June and July would continue, Panale sold forty-one cattle at the August auction in Marigat, the last sale to be held in the area until mid 1980. His impulse proved to be correct; the rains never arrived. By October 1979 local drought conditions were severe and some cattle had already perished. Panale recalled all his loaned animals from the Loropili and Lobo homesteads, but allowed the Loimkumkum family to keep seventy cattle and later to move them to Arabel. At this time he also sold an additional twenty cattle, at "throw-away" prices, to a private trader from Nakuru. The cattle that were returned, as well as his remaining herd were grazed in the swamps around Ngambo. With no sign of improvement in grazing conditions and with more than fifty cattle having already died, Panale moved the bulk of his remaining cattle to Loiminange. The animals grazed there for about one month and then were moved eastward to Rugus, where a group of Panale's in-laws reside along the shores of Lake Baringo. For herding tasks, Panale relied on his married son, two other sons (ages fourteen and seventeen) – one of whom had been taken out of school during the drought – and the son of his father-in-law. Panale also assisted in herding and watering tasks, as well as in moving the animals to Loiminange and Rugus. Despite these efforts, his homestead's cattle holdings were reduced to about 169 (including his son's animals) by June 1980. When the final count was tallied, Panale's homestead had lost about ninety cattle in Ngambo, fifty in Arabel, and forty in Rugus and Loiminange. He had reduced further the herd by an additional sixty-one through sales, as well as lost an undetermined number of goats during this period. Over a twelve-month period in 1979 and

**Table 7.2. Records of foot-and-mouth vaccination program, Njemps location, 1979–1981<sup>a</sup>**

Area	Number of cattle vaccinated <sup>b</sup>		
	October 1979	June 1980	July 1981
Ngambo	6,219	1,085	950
Salabani	900	880	1,123
Bull Centre (Ngambo)	1,571	666	500
Il ng'arua	2,318	910	553
Eldume	2,653	380	300
Loiminange	1,050	495	575
Loimkumkum	2,650	200	281
Nasoguro	870	200	365
Mukutan	2,600	1,300	1,600
Kapindasim (Arabel)	2,140	744	1,560
Kasiela (Arabel)	2,408	947	705
	25,379	7,807	8,512

*Notes:*

<sup>a</sup> Based on vaccination records, Veterinary Department, Marigat, Kenya.

<sup>b</sup> The records do not account for movements of cattle between different areas, which explains part of the decline for certain settlements. Much of the decline, however, reflects losses incurred because of the drought.

1980 his homestead's cattle holdings had declined by an estimated 59 percent. Yet, while Panale bitterly complains about the drought and disease outbreaks of this period, his homestead continued to hold one of the largest herds in the area even after these losses. When pastures recovered in 1981, he was able to rebuild part of his holdings by exchanging sheep directly for heifers and young bulls, and by selling small stock and using the cash to buy cattle.

Ngologen of Kailerr began and ended the drought under very different circumstances than Panale. In 1979 she owned only twenty-five cattle and about thirty goats and sheep. Her husband had died during the 1970s, so she depended heavily on her oldest son (twenty-one years old) for herding and other tasks. During the drought of 1979–1980, she combined her cattle with those of a nearby male kinsman, and her son and the relative's two boys moved the joint herd to Arabel. This took place in January 1980, by which time nine of her cattle had already died. Her oldest son stayed with the animals in Arabel, assisting with the arduous tasks of herding and watering animals, which are made difficult by Arabel's terrain. Water points in this area, for example, are often at the bottom of steep ravines and frequently are ten or more kilometers away from good pastures. When the son and his cousin returned to Kailerr in April 1980, only six of Ngologen's cattle were still alive. The herdboys complained that most of the cattle, weakened by drought, had succumbed to the disease East Coast Fever (see discussion later in the chapter). The final count revealed that the drought had reduced Ngologen's herd by almost 80 percent and, unlike Panale's herd reduction, none of this was through sales. As a result of this disaster, Ngologen concentrated even more effort during 1980 and 1981 on her small irrigated farm (0.3 hectare in size), while her son found temporary employment at



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the Perkerra Scheme, using his wages to help the homestead meet subsistence requirements. In contrast to Panale, Ngologen was not able to use the exchange or sale of small stock to help rebuild her cattle herd.

Other case materials from the 1979–1980 drought confirm that individual loss was severe (often 50 percent or more of the herd) and that impact on the poor and very-poor was far more devastating than for other homesteads. Only wealthy herders like Panale could begin to partially “recapitalize” their holdings quickly. Such individuals lost considerable numbers of animals, but may have come out of the drought with even a greater advantage over other homesteads. They could use small stock sales and exchanges to purchase low-priced cattle that were being marketed by others in dire need of cash. Moreover, as was discussed in chapter 5, they also frequently own the larger irrigated farms that can be used both to bolster cattle holdings and to reduce food expenditures (recall the example of Lenamali, chapter 5).

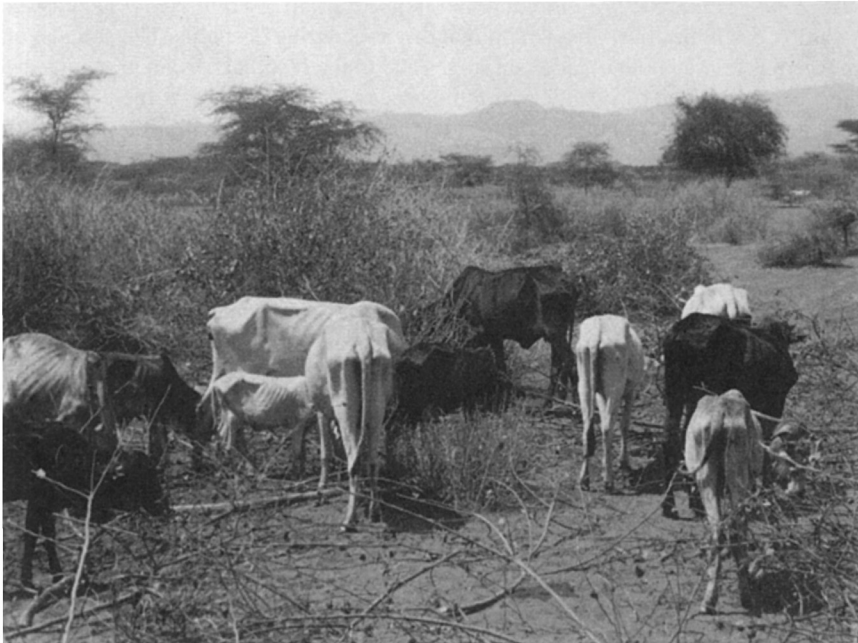
Loss of goats during the drought was because of an outbreak of contagious caprine pleuro-pneumonia (CPP), which struck mainly during the first half of 1979 and affected areas of western Il Chamus, including Eldume, Ngambo, Il ng’arua, Loropili, and Salabani. The weakened conditions of the animals at the time probably facilitated the spread of the disease. In most years of drought goats do considerably better than other animals because of their ability to feed on



**5** The dramatic effects of the 1980 drought

browse species and withstand water deprivation. The coincidence in 1979 of an outbreak of goat disease and severe drought made this one of the worst periods for local pastoralism that elders could remember. Nevertheless, the drought of 1984 was to exceed it and other droughts, including the calamities of 1928 to 1933, as the most disastrous period in living memory.

The 1984 drought severely crippled an already damaged livestock sector, which had reached only about half of its pre-1979 stocking levels when the drought struck. My own surveys and those of Homewood and Lewis (1987) estimate that 60 to 70 percent of Il Chamus cattle were lost in the 1984 drought. Overall cattle herds were reduced to about 6,000, or to less than one cattle per capita. This per capita figure is lower than for most pastoral or agropastoral groups in East Africa where herd data are available (Schneider 1979). The situation had not improved when I revisited the area in late 1985, finding only two Il Chamus stock owners – one of these being Panale – who owned more than 100 cattle. In my livestock surveys of 1980–1981 three stock owners in a relatively small random sample ( $n = 60$ ) owned 100 or more cattle. The resiliency of the small stock sector during the recent drought reduced the overall impact of this disaster: goats, with their ability to browse, seemed to have fared better than sheep, although precise data on their losses are not available.



6 Weakened cattle feeding on cut branches during the 1984 drought

*Unsustainable management practices*

Current management practices exaggerate the effects of drought. First, labor shortages prevent many homesteads from moving cattle to reserve grazing areas that could lessen the impact of drought on the livestock sector. Several herd-owners indicate that they would move cattle to Arabel if they had enough labor to do so. In some cases, failure to migrate cattle until very late in the dry season causes considerable loss during moves. Weakened by drought, animals often perish during moves attempted late in the dry season. At least a few of Ngologen's cattle died in this fashion. A large proportion of cattle died en route to Arabel during the 1979–1980 drought; many died on long migrations during the 1984 drought as well.

Because homesteads often do not utilize mobility as a strategy during droughts, cattle are crowded into important dry-season grazing areas, such as the swamps. This is especially so in the wetlands around Ngambo (see figure 2.2, chapter 2), where, unlike Panale, many herders do not move their animals in the dry season. When utilization is too high, “the swamp can be ‘overgrazed’ in terms of its provision of forage to the stock using it but it is unlikely to suffer in terms of its speed of recovery and its long-term potential” (Homewood and Rogers 1987: 122). Nonetheless the increasingly sedentary nature of livestock production places undue stress on dry-season pastures, making communities vulnerable during periods of drought.

Second, the practice of crowding herds into certain grazing areas, such as the swamps, facilitates the spread of animal diseases during droughts. The congestion problem is related both to labor shortages and to the fact that certain grazing areas have been alienated by outsiders, forcing herders onto available pastures. Animals that are herded close together provide ideal circumstances for the spread of disease (Maliki *et al.* 1984). Data from interviews with sixty herders show that virtually all goat deaths during 1979–1980 were due to the spread of CPP, while a large percentage of cattle deaths also was related to disease. Causes for cattle deaths were said by herders to be related mainly to East Coast Fever (ECF) or to lack of grazing, the greater importance of one of the two varying in different areas.<sup>9</sup> In Mukutan, for example, the main cause of cattle death identified by local herders was ECF, followed by trypanosomiasis and drought. In Ngambo, on the other hand, the main cause of cattle loss was said to be drought (i.e. lack of grazing), followed by disease. Overall, herders indicate that more than 40 percent of cattle loss during the 1979–1980 drought was related to animal diseases, with the most important being ECF, trypanosomiasis, and bovine pleuro-pneumonia. The need to manage animals carefully, to protect against disease outbreaks, is especially important during droughts.

A third management practice that heightens susceptibility to drought is allowing animals to graze in the wet season without supervision. This reduces the animals' ability to withstand drought months, as poor husbandry in the rainy period affects livestock well-being later in the year. In short, the steep reduction in labor inputs for animal care during the wet season, as in the case of the II

Chamus (see figure 4.3, chapter 4), may not be a prudent strategy. Among the Wodaabe of Niger, for example, Maliki *et al.* (1984: 497) suggest that careful, wet-season husbandry is required to insure that animals graze the proper mix of vegetation. This is needed for cattle to regain weight lost from the previous season, and to prepare for the next dry season. As a consequence, the Wodaabe provide levels of labor to herding in the wet season similar to those in the dry season. By contrast, the Il Chamus greatly reduce labor inputs in the wet season – in part to divert labor to agricultural work – permitting animals to graze unattended. This practice allows goats to feed in swamp areas, reducing the amount of fodder available to sheep and cattle during drought months. With a scarcity of annual grasses and a proliferation of low-quality vegetation in the wet season, herders should insure that animals are directed to good grazing zones. The lack of attention to animal husbandry in the wet season can diminish the chances of animal survival (especially cattle) in drought months.

Finally, the phenomenon of absentee herd ownership, described earlier in this chapter, seems to increase the probability of disastrous loss during droughts. On the whole, absentee herd owners experienced considerable stock loss during the drought of 1979–1980. Although specific information was obtained from only two absentee herd owners, the proportionate number of cattle that these two lost during the drought was considerably above the area’s average: from average herds of 155 cattle, the two lost more than 75 percent of their bovines in 1979–1980. During the drought they had relied exclusively on hired labor for herd management and rarely visited grazing areas to observe conditions. Certain absentee herd owners who used trucks to transport cattle during the 1984 drought, did better than they did in the 1979–1980 disaster, however, surpassing the performance of indigenous herders in certain cases (see chapter 4). According to Homewood and Lewis (1987), though, absentee herd owners may have fared no better in the 1984 drought than they did in the earlier one: during the 1984 drought, they note, “owner managed cattle did better than cattle placed with hired herders” (Homewood and Lewis 1987: 615). If this is so, then the presence of absentee herd owners only increases the level of loss during droughts.

The difficulty that most herders are experiencing in rebuilding their herds also distinguishes recent from past droughts. Recurrent droughts are the norm for the area, but the magnitude of recent ones is atypical and may represent a distinct break with earlier “boom/bust” cycles.<sup>10</sup> In the post-drought years 1981 to 1983, Il Chamus herds had only restocked – through purchase, natural reproduction, or borrowing (in some cases from the Samburu) – to approximately 60 percent of the herd level of 1979.<sup>11</sup> This is not to say that the area was understocked in 1984, as absentee herd ownership and encroachment by Pokot herders increased in the interim. In comparison, the 1965 drought resulted in cattle losses of approximately 40 percent, but by 1968 the herd was almost completely reconstituted to pre-drought levels (Ministry of Agriculture 1967–1968). This type of recovery has not taken place in the 1980s, because fewer herders have the resources to recoup losses or to avoid marketing female animals to meet subsistence needs. The increasingly restricted land base for pastoralism in the area intensifies the problem

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(see discussion earlier in this chapter). In short, the capacity of the local economy both to withstand and to recover from drought has declined since the 1960s.

### **Summary**

This chapter has shown that land-use problems are an outcome of low and poorly distributed incomes, labor shortages, and inappropriate investments by wealthy homesteads. The ecological “crisis” in the area is not separable from social and economic factors. Rather, we must assess linkages among national, regional, and community phenomena to understand local land conflicts. At the level of the state, herders are subject to unfavorable tenure policies and to damaging activities of absentee herd owners, who often have strong ties to the state. The Il Chamus are also losing out to regional groups, as large portions of their territory have been encroached on by neighboring agriculturalists and agropastoralists. Finally, the cultivating herder, and to some extent the absentee herd owner, symbolize differentiation at the community level, by which rich and poor herders pursue conflicting land-use strategies.

## 8

### **In pursuit of the granary: development responses of community, donor, and state**

The term “crisis” can be used to describe Il Chamus since the initiation of large-scale relief programs in the 1920s. According to certain administrators, the area had already reached an economic and ecological end point by the 1930s (Maher 1937). Despite recognition of its problems, few development efforts were launched there before the late 1970s. Those that were implemented, like the Perkerra Scheme, provided few benefits for the majority of the population. Rather than re-creating the irrigated “granary” that had existed previously, the Perkerra impoverished the area and increased its dependence on food imports. Thus, while considerable research had been conducted to identify potential development programs (Brown 1963; Maher 1937; CPK 1932–1937; Food and Agriculture Organization 1967), virtually no appropriate development efforts were initiated.

This chapter looks at development activities in Il Chamus, examining the policies, programs, and ideologies that have informed them. The emphasis is on the period from 1980 to 1986, but attention is given to earlier eras as well. Lowland Baringo experienced a massive increase in the volume of development funds in the 1980s, as the area emerged as an integral component of a national arid and semiarid lands (ASAL) development program (Institute for Development Studies 1979; Kenya 1984).<sup>1</sup> The chapter suggests that state and donor programs have been preoccupied with two priorities: investment in irrigation (the “granary” pursuit) and improved conservation and land management. Both have strong precedents in the colonial period. Several assumptions about the local ecology and economy, often discrepant with the realities, are made to justify development programs in Il Chamus. The most important assumptions concern labor availability, homestead production and investment strategies, and the causes of range degradation. A comparison of the development concerns of the local population with those of the state and donor agencies points out discrepancies and contradictions. The chapter also shows that development has been based on an antipastoral ideology reflected in both colonial and postcolonial policies and programs. While lip service is paid to the significance of livestock production in the area (Ottley *et al.* 1978), adequate resources have not been allocated to animal production. In fact, a considerable portion of the investment in other sectors actually weakens the pastoral sector. The chapter concludes with a summary of the

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main findings of the book and their relevance for understanding development and underdevelopment in pastoral areas of Africa.

### Cultivators as “civilized”: irrigation development

Development policy in Baringo stems from an ideology that equates settled agriculture with development, and pastoralism with underdevelopment. The attitude was particularly blatant in the colonial period, when Victorian notions of civility excluded a pastoral way of life. As the Il Chamus originally were cultivators, the state’s initial appraisal of them was positive:

Gradually the Masai will settle and become civilized cultivators, such as the Njamusi [Il Chamus], who abandoned nomadism for a settled agricultural life.

(East African Protectorate 1904: 27)

This tribe [Il Chamus] which has arisen out of a remnant of broken Masai who have intermarried with Suk and Kamasia [Tugen] is perhaps the most progressive and ambitious in this district.

(CPK 1914: 19)

After their transition to herding, however, the Il Chamus were perceived quite differently. No longer agriculturalists, they were not an appropriate model for other groups. By the late 1920s the state had hopes of making them a “partially agricultural people” (CPK 1928: 18), and by the 1930s they were described as “unenergetic and notoriously heavy drinkers” (CPK 1938a: 8). Over a period of approximately twenty years, coinciding with their departure from settled agriculture, the Il Chamus went from a group to be emulated to one in disfavor.

This disdain for pastoralism and bias toward agriculture has flavored post-colonial policies as well. A major objective of the second district development plan for Baringo (1979–1984) was “to reduce the people’s dependence on livestock as their main source of subsistence and cash income through the development and expansion of dryland and irrigated crop production” (Kenya 1980: 26). The same plan went on to argue that “the food crop development relates closely with livestock development in that when a farmer has sufficient food, his reliance on livestock is reduced hence *indirect destocking* [my emphasis]” (1980: 124). Comparing these statements with the earlier ones from the colonial period demonstrates the continuity between past and present policies; the current goal, as was true in the colonial era, is to transform pastoralists and agropastoralists into settled cultivators. Consequently, again in the period since independence, little in the way of funding goes to livestock-based activities.

The bias against livestock-raising is translated to field programs, where livestock-based activities always seem to rank lowest in funding and staffing. The first major integrated development program for Baringo, the World Bank-funded Baringo Pilot Semi-Arid Area Project (BPSAAP), provides a good illustration of this. In its five-year report the project laments the insufficiency of resources that have been allocated to livestock activities:

Livestock and the rangelands they utilize are the most important resources of the semi-arid area of Baringo District. It is therefore very unfortunate that the livestock

and range components of BPSAAP have been consistently underfunded. A persistent shortage of funds has limited the scope and impact of this vital development activity. This has inevitably reflected badly on the overall performance of the project, as one of the highest priority components has been forced to take a relatively minor part in project implementation. The importance of this sector cannot be overstressed. (Kenya 1984: 114)

While compulsory destocking and other blunt methods of the past have not characterized the independence era, an antipastoral ideology persists. One need only examine the allocation of funds for pastoral versus crop production activities in Baringo and in other parts of northern Kenya to confirm this (Hogg 1987; Livingstone 1986; Migot-Adholla and Little 1981). Even when projects are relatively well designed, as in the case of BPSAAP, the government appears indifferent toward livestock development.

### *The Baringo basin as an irrigated granary*

Local herders perceive the Njemps flats, with its lush wetlands, as a good environment for livestock production. As earlier discussion of the region's history shows (see chapter 2), the area's rich resources have been a source of much competition among pastoral groups. In contrast to this local perspective, the state's interest in the basin has always been based on its potential for irrigation. The differences between the two perceptions could not be greater. Early explorers, colonial administrators, and, more recently, African officials and expatriate advisers have remarked on the fertile soils and irrigation potential of the Njemps flats:

Njemps country lends itself to extensive cultivation and should provide the Granary for the whole of the northern area of Baringo. (CPK 1927: 3)

The soils being the very richest loam, brought down from the mountains and spread over comparatively level plain to the south of the lake, it is capable of producing anything . . . (Thompson 1885: 265)

Between 70,000 and 80,000 ha of low potential zone is estimated to be suitable for irrigated agriculture . . . in the Lake Baringo Basin and Kerio Valley. (Kenya 1985: 38)

Colonial reports are replete with mention of the irrigation potential of the Baringo basin, with plans for large-scale irrigation (the Perkerra Irrigation Scheme) beginning as early as the 1930s. It was hoped that the Il Chamus would move away from pastoralism, "for it will hardly be possible for the people to attend to their crops as well as their stock" (CPK 1932–1937: 9). Is this the same group that only thirty years earlier was described by the administration as "civilized cultivators?" In these accounts no mention is ever made of the basin's – especially its swamps' – potential for supporting in excess of 15,000 cattle and 40,000 goats and sheep during most of the year and thus being a rich resource for livestock. Enthusiasm for irrigation continues within the current government, often to the detriment of local pastoralism. The state maintains heavy subsidies for the Perkerra Irrigation



Scheme and is proposing new methods of tapping water for irrigation, including the construction of additional dams.

The Perkerra Irrigation Scheme, discussed in earlier chapters, remains the area's major investment in irrigation. Among Kenya's early irrigation schemes the Perkerra was the most expensive to develop on a per hectare basis (Chambers 1973). Like other medium- and large-scale irrigation schemes in Kenya, it is owned and managed by a government parastatal, the National Irrigation Board (NIB). It has proved to be extremely unprofitable, costing the state hundreds of thousands of shillings per year in subsidies.<sup>2</sup> In 1976 and 1977, for example, the scheme received in government subsidies more than Ksh 800,000 per annum (Irea 1979: 5). In the 1980s it is estimated that the scheme's revenues meet less than 20 percent of production and maintenance costs. Excluding capital development costs, which were around Ksh 60,000 per hectare in the 1950s, annual subsidies currently exceed Ksh 5,000 per hectare, an amount that approximates the total start-up costs of some small-scale schemes (see Blackie *et al.* 1984). These costs are for a scheme that by the mid 1980s was irrigating less than 300 hectares of crops!

#### *Large-scale versus small-scale irrigation*

Who has benefited from investments in large-scale irrigation schemes like the Perkerra? Certainly tenants have accrued revenues from the Perkerra, but these mainly have gone to wealthier individuals who treat their tenancies as supplemental investments. The majority of these individuals are non-II Chamus who reside outside of the Marigat area, particularly in the Baringo highlands (Kettel 1980). While government by-laws for irrigation require that tenants reside on or near the scheme, most are absentee owners who hire a manager/worker to supervise their plots. The II Chamus who have plots on the scheme are usually from wealth strata I and II, with a few from categories III-H and III-L. The vast majority of them reside in Ngambo or Il ng'arua. In many cases they are pastoralists who "live away from the scheme and who treat income from it as a supplementary bonus" (Blackie *et al.* 1984: 99). Since charges to tenants account for approximately 10 to 20 percent of the scheme's costs, government grants directly subsidize the production of these relatively wealthy, absentee tenants.

The dismal experience of the Perkerra Scheme has not discouraged the state from investing locally in other high-cost irrigation projects. In 1986 the government opened a capital-intensive irrigation project of about seventy-five hectares, called the Chemeron Scheme, that focuses on cotton, papaya, and groundnut production. Like the Perkerra Scheme, it is managed by a government parastatal, the Kerio Valley Development Authority. Approximately two-thirds of the land is operated directly by the scheme's management on an estate basis, while the remainder is allocated to smallholders in 0.4-hectare plots. The investment has had very high start-up costs: costs of the scheme have been estimated at over Ksh 150,000 (approximately US \$9,500) per hectare (Kenya 1984: 68). This

figure is probably on the low side because the actual amount of irrigated land at Chemeron is smaller than the estimates (about 200 hectares) used in the original cost analyses. As on the Perkerra Scheme, returns per tenant on the Chemeron project are likely to be too low to warrant farmer specialization in irrigated agriculture. Instead, the scheme will likely serve as a secondary investment for wealthier homesteads, with low-paying ("contract") employment being the major "benefit" for the poor and very poor. At the same time, the scheme will have several negative impacts, among them further impeding livestock activities in the area, allowing more outsiders to gain a foothold in Il Chamus, and creating a financial strain on the government that may limit funds for other development activities.

Government support of small-scale irrigation has shown more favorable results than its large-scale ventures, but even these often have not achieved anticipated results. Public investment in small-scale irrigation activities has been spurred largely by foreign donors.<sup>3</sup> The main work in Baringo has been carried out by the Provincial Irrigation Unit (PIU), which receives most of its technical and financial support from Dutch Aid. Small-scale irrigation represents a much more cost-effective form of investment than does large-scale irrigation. The most important small-scale scheme in the area, Nolororo (Eldume), cost approximately Ksh 25,000 per hectare, including the cost of technical assistance (Kenya 1984). This is approximately 17 percent of the Chemeron's costs per hectare, but it is nevertheless above the costs of locally financed (indigenous) schemes, where the state's role is minimal. Regarding the latter, for example, it is estimated that developing the Lamelok Scheme (twenty-five hectares) in Salabani, mentioned in chapter 4, required less than Ksh 4,000 per hectare.<sup>4</sup> Approximately 25 percent of this scheme's costs relate to the construction of a low-cost intake structure at the top of the main canal (Kenya 1984: 68).

Government/donor investment in small-scale irrigation tends to curtail the local pattern of shifting irrigation and creates engineering works that the local communities often cannot maintain without outside assistance.<sup>5</sup> Already the Nolororo Scheme is experiencing canal erosion and drainage problems that may require further technical assistance (Molenaar 1986). The Sandai scheme, on the other hand, raised more serious problems when it halted the local pattern of shifting irrigation, and dismantled complex reciprocal water rights in the area. The Sandai case illustrates the difficulties that well-intentioned donors often create when they intervene, with technological solutions, in local irrigation practices.

Original planning for the Sandai scheme, which began in 1979, aimed at the "improvement" of existing irrigation in the area. Irrigation in this area is based on a form of shifting irrigation, where farmers cultivate in a particular area for three or four years and then move to another area that may have been lying fallow for up to four years. They practice this form of shifting irrigation to allow cultivated areas to rest, and because weed growth is excessive after successive years of watering a field. There are six irrigated areas that Sandai farmers move to during the course of this cycle, and they usually farm in at least two or three of these areas at one time. The cycle is not rigid, depending on such factors as the availability of

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water and the number of farmers interested in cultivating in any given year. All the areas are fed by canals leading from the Waseges River, a seasonal river that originates in the hills of southeastern Baringo. In any particular year about half the canals are blocked so that water can be directed to areas under cultivation during that year. One of these canals provides water to farms at an area called Cheploch in Kailerr. Some two dozen Il Chamus of Kailerr farm this area about three years out of every six; they allow Tugen also to cultivate farms at this location. In exchange for these rights, the Tugen permit the Il Chamus to keep farms at an area in Sandai called Temberue, which is part of the Sandai irrigation cycle.

The PIU/Dutch Aid plan was to consolidate this form of shifting irrigation by implementing one irrigated scheme, fed by one large concrete-lined canal, of about seventy-five hectares. This plan meant cutting off water to five irrigated areas, including Cheploch, and forcing farmers to cultivate in one area only. The rationale for it was that the costs of weirs, canal construction, and other irrigation inputs could be justified only if the local practice of shifting irrigation was halted. Anticipating social problems, the Dutch commissioned a sociological survey of the area, which pointed out possible conflicts with the Il Chamus, as well as tensions among Tugen cultivators themselves, especially those who had lost rights to farms near their homes. Nonetheless, the plan for one consolidated irrigated area was not altered, and implementation was slated to begin in 1983. The project was delayed for more than three years, however, because of local protests, both by the Il Chamus and by some Tugen irrigators who also were to lose water for their farms. Most irrigators who lived near the planned scheme, of course, favored the new project, because it meant that their land rights were recognized and they would benefit from the improvements. The project was not completed until the 1987/1988 season.

Instead of modifying the existing system of irrigation in Sandai, which had been the original goal of the project, the PIU introduced an entirely new system of irrigation, as well as a novel organization for managing it. Concrete structures replaced the temporary weirs, reducing the flexibility that had been the hallmark of the earlier system. The project not only increased tensions between the Il Chamus of Kailerr and their Tugen neighbors, relations that were already strained because of grazing disputes (see chapter 7), it also heightened conflicts within the Sandai community.

### *Indigenous irrigation development*

In contrast to this Sandai example, many small-scale irrigated schemes are developed by local communities, with very little outside intervention. Previous chapters point to the social and economic factors that motivate homesteads to pursue irrigation and the role that local organizations assume in managing it. The rapid growth in indigenous irrigation schemes, which has occurred largely since the 1960s, follows two paths. First is the expansion of existing irrigated areas, where new farmers are recruited, alternative canals are constructed, and in some cases new management committees are formed. This pattern typifies the recent

growth of irrigation in Eldume, Kailerr, and Mukutan. These are locations where irrigation has been practiced for most of this century, although on a very reduced scale after the expansion of livestock activities in the 1900–1920 period. The second path of growth involves the development of new schemes, which currently account for approximately 75 percent of the total irrigated area. They have been established in Ngambo/Sintaan/Il ng’arua, Loiminange, Salabani, Meisori, and Rugus, where there was very little irrigated agriculture until the 1960s, or in some instances the late 1970s. Some of these local schemes use the runoff water of the Perkerra Scheme, attesting to the resourcefulness of local herders in responding to irrigation opportunities.

The expansion of small-scale irrigation has been gradual, with the exception of two significant spurts. The first took place around 1962–1963, when local farmers of Ngambo/Sintaan/Il ng’arua dug a canal leading from the drainage (outlet) channel of the Perkerra Scheme, in order to irrigate maize fields. The area of cultivation initially was about sixty hectares, although it fluctuated from year to year, depending on drought and other factors (cf. Ministry of Agriculture 1964–1967). The amount of water for irrigation here is determined by the demand for water on the Perkerra Scheme, however, making expansion difficult in certain years. When water is low on the scheme – which is increasingly the case today – very little is released to surrounding areas. At the time the Il Chamus began irrigating from the Perkerra’s runoff, very little sustained irrigation existed in Njemps other than in small areas around Eldume, Kailerr, and Mukutan.

The second spurt of irrigation growth took place between 1975 and 1981, when irrigation schemes opened at Meisori, Salabani, Loiminange, and Rugus, while irrigation works elsewhere, including at Ngambo/Sintaan/Il ng’arua, expanded. The period was one of high inflation, unreliable grain markets, and general hardship for the livestock sector. This second expansion has greatly strained available supplies of water and irrigable land, and heightened tensions among farmers as well (recall the example of Lolero in chapter 7). This is especially so in Ngambo/Sintaan/Il ng’arua, where, as noted earlier, wealthy individuals clear, fence, and claim areas larger than they can profitably cultivate.

Spurred by young, “progressive” herders, local communities have approached the government for assistance to indigenous schemes. The Baringo Pilot Semi-Arid Area Project (BPSAAP), for example, funded the intake structures of schemes at Loiminange and Salabani after receiving requests from these communities. Its role was limited to construction, and the project did not intervene in management or water-use issues. These decisions were left entirely up to the local farmers and their elected committees. In the case of Lamelok, its irrigation committee worked closely with BPSAAP selecting a location for the intake structure that was very near where the indigenous structure had been. After construction of the intake was completed, outside assistance was withdrawn and the arrangement of water schedules, canals, and other internal matters were left entirely up to the community.

This model of providing supplemental support may prove more sustainable than the approach of the PIU. While the PIU approach allows some local

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participation, it does dictate the organizational model, water rules, and maintenance procedures for local schemes. In the Baringo basin the PIU model has been attempted at both Nolororo and Sandai, each of which had made requests for assistance. In contrast to indigenous irrigation practices, the PIU projects determine the cultivation and fallow cycle, and in some cases cut off water from existing irrigation channels. They also impose an organizational model that is discrepant with the structure of the indigenous committee (*lamaal*). While this has not greatly hindered progress in Nolororo, the same cannot be said of Sandai. As shown above, implementation at Sandai was delayed for several years because of local disputes. They arise mainly from failure to include in the plans an important segment of irrigators, namely, Kailerr farmers with irrigated fields who lost access to their canals because of the scheme's actions. The costs of such schemes, which in Baringo approach Ksh 25,000 (US \$1,562) per hectare, and their negative effects on local autonomy and uncertainty about their sustainability raise questions about their appropriateness (cf. Hogg 1987).

## Impact

The vision of making the Baringo basin a granary, with thousands of hectares of contiguous irrigation, has not been achieved. Despite the increased investments of recent years, gains in irrigation have been marginal. The amount of irrigated land on the Perkerra scheme, for example, has been declining in recent years – down from 400+ hectares in the mid 1970s to 250 hectares in 1983 (Kenya 1975; Blackie *et al.* 1984) – while new schemes represent a net gain of only 200 irrigated hectares. The quantity of irrigated land in the Baringo basin, including the Perkerra and Chemeron Schemes, remained less than 700 hectares (in 1987).<sup>6</sup> In many cases, development of irrigation has been achieved at considerable financial and social cost, with allocations to irrigation activities and their recurrent expenses exceeding public investment in any other productive sector, including the most important, livestock. Moreover, the largest projects (Perkerra and Chemeron) have not promoted food crops that could contribute to the local granary concept, but rather have involved water use and cropping patterns that draw resources away from food production. This is in spite of the fact that the original objective of the Perkerra Scheme was to produce food crops that would reduce famine relief expenditures in the area (CPK 1932–1937: 2).

Problems with the development of irrigation in Baringo also stem from the conflicting interests and agendas of the institutions concerned. For the community and homestead, irrigation activities are pursued as a means of diversifying income-earning opportunities. In no community or homestead category do individuals express a desire to become full-time farmers of irrigated lands. As a result, irrigation remains a supplemental activity, with communities and homesteads preferring flexibility in order to accommodate other economic activities, especially pastoralism. By contrast, such government organizations as the National Irrigation Board view irrigation in the basin as a source of state revenue, whereby crops having a comparative advantage at the national level can be grown.

Crops like onions and chili peppers that have no local market are therefore promoted, while commodities with a strong local demand, such as maize and millet, are discouraged. Production and management schedules also must be regimented to insure high yields, and farmers with irrigation should be nearly full-time tenants. In reality the tenants become more like employees of the scheme than full-time farmers. Livestock-keeping and other activities among tenants are given only token accommodation – for example, tenants are permitted to keep up to eight animals on the scheme – while flexibility in cultivation schedules is not tolerated. Thus, the interests and requirements of the state schemes are in almost complete opposition to those of local communities and homesteads. The “trespass” of cattle on these enterprises is one way in which local homesteads demonstrate their displeasure.

The interests of outside organizations involved in small-scale irrigation also conflict with the concerns of local producers, but to a lesser extent than that described for large-scale schemes. Advocates of small-scale irrigation, particularly donors, pursue an irrigation model that does not allow the flexibility that herders desire and require. The Sandai case is a good example of this. The organizational and engineering structures advocated require a commitment to irrigation that herders are unwilling to undertake.

Conflicts occur also among state institutions themselves with regard to irrigation. The development of the Chemeron and Lamelok schemes, both in Salabani, exemplifies this. The Chemeron Scheme, financed by the Kerio Valley Development Authority, has had an adverse effect on the nearby Lamelok Scheme described earlier, which received assistance from a different government institution, the Ministry of Agriculture through its BPSAAP project. While the Lamelok scheme was a low-cost operation, the Chemeron Scheme is capital intensive and provides farmers with subsidized services that were unavailable at Lamelok. The Dutch, BPSAAP, and the Provincial Irrigation Units are promoting low-cost irrigation, like that at Nolororo and Lamelok; at the same time, government parastatals are promoting high-cost, capital-intensive irrigation projects. This piecemeal approach to irrigation reveals a lack of coordination that reduces the potential benefits of each activity, while making the “irrigated granary” concept even more difficult to achieve.

### **Land improvement and conservation**

The zealous attraction to irrigation in Baringo is coupled with a pessimistic perception of local-resource use. As noted in chapter 2, the area has received considerable publicity, starting as far back as the early colonial period, for its “seriously degraded” rangelands. According to at least one source, overgrazing in Baringo “is probably the worst in Kenya and is among the worst in the world” (Brown 1963: 16). This concern for improved resource management is the other factor – in addition to irrigation potential – that has attracted outside funds and donors. As with irrigation, the concern has been to reduce the population’s dependence on pastoralism which, along with excessive population pressure, is

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viewed as the main cause of degradation. At another level, the environmental problems of Baringo have always been seen by the state as a threat to the large-farm sector of Nakuru (Anderson 1982). This perception has also motivated conservation programs in the region.

The development of Baringo's tourist industry since the late 1970s also provokes current interest in conservation programs. Because the maintenance of the resource base is critical to sustaining the region's wildlife, and, in particular, its unique variety of birdlife, there is an incentive to improve local land use. Representatives of the tourist industry have been strongly in favor of government and donor-funded conservation projects in the area. At one of the local tourist lodges it has even become fashionable to show colored slides of "environmental degradation," while emphasizing to visitors the threat that local practices pose to the environment.

The environmental assessments of lowland Baringo that shape outside opinion of the region have been flawed in one important respect: they do not acknowledge the importance of the wetlands. Ecological assessments of Il Chamus, for example, invariably fail to acknowledge the productivity of the swamps. In fact they are not even mentioned in most environmental reports of the area (cf. Brown 1963; Pratt 1963; de Wilde 1967; Ottley *et al.* 1978). An important exception is the range survey conducted by the Food and Agriculture Organization (1967), which has been little used by government institutions. This study notes that local swamps comprise more than 5,000 hectares of good grazing (a closer approximation would be 7,000 hectares), and annual stock rates there should be as high as one cattle per hectare (FAO 1967: 16). This stocking rate is more than five times as high as the usual recommended rates for Il Chamus (de Wilde 1967: 18; Brown 1963: 16).

Failure to recognize the vital role of wetlands in the regional ecology may relate to a reluctance among government and donor officials to ask herders about grazing resources. If they did, the importance of swamps would show up immediately. The Il Chamus themselves make detailed ecological and linguistic distinctions regarding the wetlands (see figure 2.2, chapter 2). The inaccessibility of the swamps discourages official investigations, and might also explain why they are underrepresented in reports on Baringo. As Robert Chambers (1983) portrays so vividly, the planner's perception of an area is largely influenced by what can be observed through the windscreen of a moving car. Thus while the "degraded" state of the nonswamp zones is evoked as evidence of land mismanagement, the most important pastoral resource, the wetlands, remains poorly understood:

The well-watered swamps between Lake Baringo and Lake Bogorio provide an enormous amount of feed for livestock. Very little is known about the productivity of these areas, and whether production can be improved. There is a need to study the extent, use, production, ecology and management of this vital resource.

(Kenya 1984: 147)

This quotation is based on the experiences of BPSAAP, which, as noted earlier, does not have sufficient support for range management activities. Instead, as will

be discussed below, BPSAAP focuses predominantly on labor-intensive approaches to agriculture and to water and soil conservation.

### *Water harvesting and conservation*

BPSAAP, initiated in 1980, is the first serious effort in the area to promote dryland agriculture as well as a participatory approach to conservation. It has the heroic task of trying to establish cost-effective, long-term solutions to the economic and ecological problems of the semiarid zone. For example, BPSAAP's mandate includes convincing local farmers to grow drought-resistant varieties of sorghum and pulses rather than maize. The objective is a worthy one, but it has proved unattainable, in part because of the low priority that herders, except for the poorest, allot to dryland agriculture. A second emphasis of the project is to introduce labor-intensive approaches to soil and land management (Hogg 1988).

Local conservation work in Baringo includes planting trees, constructing stone terraces and cutoff drains, and establishing water-harvesting structures. These all have a common element: they require considerable commitments of labor. The emphasis on labor-intensive techniques is a conscious policy of BPSAAP: "Low family income and a lack of sophisticated skills and training amongst the project area's population has led us to concentrate on uncomplicated, labour-intensive systems which could be adopted by the majority of the population" (Kenya 1984: 237). While the project tries to promote conservation work on a voluntary basis, it finds that labor contributions have to be paid for in either food or cash. More than 70 percent of local labor used on soil conservation works, for example, is paid primarily through food-for-work schemes (Baringo Pilot Semi-Arid Area Project 1983b). As indicated in chapter 6, most of the labor for the conservation/food-for-work schemes comes from the poorer homesteads, who can least afford to contribute labor. In general, adoption rates for conservation techniques have been disappointing, with few homesteads utilizing on-farm recommendations of BPSAAP. The lack of responsiveness relates to (1) the labor requirements of the new conservation techniques and (2) the project's failure to acknowledge that labor has opportunity costs.

The establishment of water-harvesting schemes is an important component of BPSAAP, as well as of other programs in the region (e.g. the East Pokot Agricultural Project). It entails several different techniques, each with different labor costs, that can be used for crop, range, and tree production (Kenya 1984: 237). In the simplest terms, water harvesting is a system that tries to maximize water and soil retention in areas where both are scarce factors. The Il Chamus are familiar with the concept and do practice a form of water harvesting in certain areas, where they construct small channels to direct water to cultivated fields. However, they do not perceive of it as a major component of their local production system.

The water-harvesting program of BPSAAP is based on the assumption that "labour availability should not be a major constraint on farmers' adoption of



runoff harvesting systems” (Kenya 1984: 82). It is this aspect of water harvesting that Hogg blames for its lack of adoption among the Il Chamus. According to him, “The major constraint to the adoption of water harvesting techniques in Baringo, and the main complaint of farmers, is the increased labour necessary to prepare the plot” (1988: 77). To address the issue of labor, it is necessary to examine the actual requirements of the different water-harvesting techniques. The project notes that labor requirements per 0.5 hectare of the four different water-harvesting techniques vary from 100 to 920 “man” hours, with an average of 376 hours for the first year. The system that is advocated for range areas such as the flats is the “external catchment system,” which requires 300 hours (or 37.5 person-days) per 0.5 hectare during the first year (Kenya 1984: 83). Maintenance costs of this system are estimated at 160 hours per year thereafter.

The reduction of labor inputs after the first year of a water-harvesting system is not likely to be an important consideration for many farmers. Water harvesting appeals mainly to poor and very-poor homesteads, who do not have the luxury of planning investments over multiyear periods. Their concerns are immediate and urgent. Analysis of the external catchment system, restricted to first-year labor costs alone, shows that it requires 40 percent more labor than is needed for dryland farming. This is a considerable amount of additional labor for dryland farmers who are too poor to hire additional workers and are among the most labor-constrained homesteads in the area.

On-farm demonstrations show that water-harvesting techniques can improve grain yields (up to 300 percent in some cases) and reduce risks associated with dryland farming. Nevertheless, acceptance of the technology by local producers has been poor. This includes cases where “cut-off drains and waterways were constructed for the farmers using food-for-work labour” (Kenya 1984: 103). In other words, some of the labor costs for the water harvesting systems were met by the project, but still “the experience with local farmers was disappointing” (Kenya 1984: 103). Even in a “best-case scenario” the additional returns from water harvesting do not exceed the opportunity costs of the extra labor. Thus, Hogg’s assertion that water-harvesting techniques have not been accepted because of excessive labor requirements is at least partially correct.

To go beyond Hogg’s argument, one needs to place water harvesting and dryland agriculture within the context of the homestead economy, which also includes livestock production and wage-labor activities. The benefit/cost analyses in chapter 5 show that returns to labor in dryland agriculture are below those of other economic activities, including wage labor. Of all potential homestead activities, dryland farming has the lowest priority. The government policy of not permitting dryland farmers to participate in the subsidized tractor-hire program makes the activity even less attractive, particularly in years of low rainfall. Dryland agriculture will continue to be pursued by the poor and very poor, but using additional labor for the activity (including for water harvesting) would require reducing inputs to livestock production and/or wage-labor activities. This scenario is just not sensible at present.

### *Local perception of problems*

Conservation programs conflict even more with the expressed development needs of communities than do irrigation activities. While a local consensus about development goals does not exist, very few homesteads, regardless of socio-economic standing, favor conservation projects.<sup>7</sup> Local concerns revolve around immediate problems – children’s health, livestock diseases, and water shortages, for example – rather than distant environmental goals. A survey of more than 100 homesteads reveals that veterinary services, water, health, education, irrigation, and livestock-based extension programs are all valued more than conservation projects. Research by BPSAAP reached similar findings, with land-management programs in particular receiving a low priority. BPSAAP data indicate that the six greatest development needs of local communities are: construction of cattle dips, access-tracks, dispensaries, dams, and primary schools, and improvement of irrigation. It should be noted that range management, soil conservation, forestry, and other land-management programs are not indicated (Kenya 1984: 253). Confronted with a lack of receptivity, conservation programs in Baringo have been able to proceed only by subsidizing “voluntary” labor with food payments.

### **Decentralization and elite control**

Conservation and irrigation activities are supposed to be planned and implemented in accordance with the new state policy of decentralization. Decentralized planning in Kenya, and in Baringo in particular, has received considerable attention in the 1980s with the initiation of the “district focus” program (Makokha 1985). This program makes the forty-two administrative districts in Kenya the most important vehicles for rural development. The district is considered the appropriate administrative unit for soliciting the type of local participation and planning that facilitates rural development. Under the district focus initiative, five-year development plans are formulated for each district, including Baringo (Kenya 1980, 1985). The institutional mechanism for identifying and planning rural development programs is the district development committee, which maintains a majority of members from national ministries. Below this are division and location development committees that report to the district development committees. Local notables, such as chiefs and councillors, are on these committees but very few “average” farmers or herders are represented. While large, national projects like the Perkerra Irrigation Scheme are planned from Nairobi, the Baringo district development committee has authority to plan and allocate funds for smaller development programs. Theoretically, development grants are allocated by the central government to each district development committee, allowing it a source of discretionary funds for small projects. In addition, district committees have to approve of most development activities for their districts. In reality, however, most districts are poorly funded, while many of the important development decisions affecting districts are still made from the center (Barkin and Chege 1989).

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The district focus is in its infancy in Baringo, and consequently it is premature to try to assess fully its development impact. On the positive side, an improved capacity to use local data for district plans has been an important achievement, as evidenced in the most recent plans (1989–1993). Over the past two decades the analysis of development problems and the formulation of feasible programs in these plans have improved considerably. Nonetheless, evidence at the district level shows reason to be concerned about implementation. The location development committees in Il Chamus have been successful in acquiring relatively large grants to finance local projects, mainly because Baringo itself has attracted large amounts of resources from the central government (see Throup 1987: 63). In 1985 and 1986 the Il Chamus received more than Ksh 600,000 (US \$36,364) to finance small irrigation projects in Ngambo and Mukutan. With these funds, local laborers were recruited to build canals and were compensated at twice the average daily wage in the area. The cash allowed the local elite of Ngambo to reward political supporters. Workers benefited from the relatively high wages, but the project was halted after one year because of engineering problems and water-use conflicts with the Perkerra Scheme. Apparently the development committee's planning was inadequate; consequently the project confronted problems that soon led to its demise.

In Mukutan, on the other hand, the location development committee is repeating the mistakes of government and donor. An amount in excess of Ksh 300,000 has been used there to establish an irrigation scheme of thirty hectares that replaces existing farms. With the abandonment of the farms, however, the investment represents a net gain in cultivated area of only about 20 percent over the previous level. Like the Dutch-funded project at Sandai, the new scheme cuts off water from indigenous schemes, forcing farmers to take plots at the new location. In a break with the past, Mukutan's irrigators no longer have the multiple plots that allowed them to practice shifting irrigation.

The Mukutan scheme is faced with engineering problems that have resulted in a lack of adequate water for irrigation. Ironically, the local development committee has now turned to a national ministry (the Ministry of Agriculture) to assist with the engineering and water-delivery aspects of the scheme. While it is not known how the project site was selected, it has proved to be less suitable for gravity-fed irrigation than the locations of the indigenous schemes it is replacing. The Mukutan scheme was pushed through mainly by the location development committee, and it is likely to have had input from only a small group of residents. For educated, "progressive" herders who favored the new scheme, it is a mechanism to diversify investments and speculate on land. Because they control enough capital to hire labor or tractors they can take advantage of the irrigation opportunities. The schemes also give them resources that they can use to pay "above average" wages to clients and solidify their position in the community. Wealthy pastoralists, on the other hand, prefer the previous, less formal system, while poor and very-poor homesteads do not favor allocating more resources to an activity – irrigation – in which they participate only marginally. In terms of land management, the concentration of irrigated land in a single location rather than in

several sites as in the past, is likely to increase environmental problems (see chapter 7).

As have most development initiatives in the area, the decentralization program exacerbates tensions between the old and the young.<sup>8</sup> The young “progressive” herders, particularly members of the *il medoti* and *il kiapu* age sets, reap more benefits from the recent “district focus” program than do older members of the community, many of whom still maintain relatively large herds in the area. We have already shown that “progressive” herders, who frequently serve on location development committees, favor land titling and have been in conflict with older herders about range-use regulations. One of the causes of pastoral land conflicts in Il Chamus, a process described in chapter 7, is that outsiders have been granted grazing rights by Il Chamus officials who are on local committees. Tensions over this have been so high that members of certain age sets have refused to go to meetings called by local officials who were granting privileges to non-Il Chamus. In one neighborhood it has been more than two years since members of a particular age set have attended a local *baraza* (meeting) when the subchief is present. Generational conflicts are also revealed in related contexts: for example, educated members of the location development committees recently (1986) raised the possibility of restricting the size of individual herds to no more than 100 cattle, another initiative that older herders vigorously oppose. Local opposition was so strong that it was dropped. This would have allowed more area for irrigation without competition from livestock production. Such a policy is in the interests of the “progressive” herders, who have more investments outside the pastoral sector than do other herders.

Generational tensions caused by local development initiatives – in this case, education – are also revealed in areas of strong cultural sensitivity. The *il medoti* generation, which controlled most of the local political offices in the early 1980s, tried in 1981 to alter the schedule of initiation rituals (the *il mugit* cycle), to accommodate the demands of the modern education system. Similar to those of the Maasai and Samburu cultures, these rituals, involving both men and women, are the most complex and important ceremonies in Il Chamus society. They represent the initiation of a new generation of *il murren* (warriors), as well as the graduation to elderhood of the existing *il murren*. No other series of ceremonies is more important for defining the Il Chamus community and for reinforcing its values and symbols. Nonetheless, the *il medoti* leaders, under pressure from the government to improve school attendance, tried to hold the final ceremony (*ilmongo opoy amite*) of the *il mugit* rituals at a date convenient to the leaders, rather than the one deemed appropriate by ritual elders. They argued that the final ceremony interfered with the school calendar and therefore should be held during the school holidays of 1981. This affront to local ritual mobilized Il Chamus age sets – including the *il medoti*’s current ally, the *il kiapu*, and even their own ritual sponsors, the *il paremo*<sup>9</sup> – against them. When confronted with such opposition, the *il medoti* leaders stopped their campaign, and consequently the date of the final ceremony was not altered. This episode reveals the depth to which generational tensions can penetrate into areas that appear very remote to concerns over

development, but that are nonetheless enmeshed in the social fabric and therefore affected.

In sum, the state's emphasis on decentralized planning and management confronts the problem of participation by allotting some authority to local organizations. The decentralization program is less controversial in sectors where some consensus about benefits exists. These include health, veterinary, and primary education activities, all favored by most homesteads. The local development committee can be instrumental in identifying appropriate projects in these sectors. As this chapter has shown, however, the devolution of power to local development committees in production and land-management issues may accelerate problems. The district focus program, for instance, does not rule out the strong possibility that power and the material resources accompanying it will be co-opted by local elites under the guise of decentralization. Advocates of decentralization in Kenya rarely acknowledge this possibility.

### **Contradiction and crisis: a conclusion**

The contradictory aspects of development in Baringo highlight the complex relationships among production, ecology, and social change. Even in well-intentioned programs, such as BPSAAP, contradictions are revealed in the design of activities intended to benefit the poor. By advocating labor-intensive techniques in an area of low incomes and assuming underemployment, the project is confronted with problems of labor shortages. As Collins (1987) has shown, rural labor shortages occur frequently in areas of low agricultural productivity where participation in wage-labor markets is important. Engagement in wage-earning activities allows poor homesteads to remain in Baringo, but it reduces the quantity of labor available for local conservation programs.

At the regional level, contradictions are equally telling. The present land-use mosaic in Baringo is absurd at best. Chapter 2 has shown that the higher-rainfall agricultural areas are increasing their production of nonfood export crops, while semiarid areas are being pushed into growing more food crops. The process is encouraged by programs of private land titling and export crop promotion in the highlands (see chapter 7). This creates a predictable reaction: migration from the highlands to the lowlands, encroachment on pastoral lands, and increased land-use conflicts between herders and farmers. As displaced farmers seek to grow grain in the semiarid lands, they compete with herders for land and water. The increased orientation to grain production by people of the semiarid areas (including II Chamus locations) can be interpreted as a reduced vote of confidence in the regional economy. The regional economy no longer provides them with the commodities that they do not produce themselves.

In short, Baringo scores poorly on the basis of regional integration. This shortcoming has weighty implications for the II Chamus economy. Marketing and production linkages that used to exist between different sectors and subregions have almost completely disappeared. Many subregions of Baringo have greater market contact with centers outside of the region than they do with each other.

Trade within the region is limited at present, inhibiting the evolution of specialization and the subsequent benefits of comparative advantage. Policies directed at increasing commodity trade between surplus and deficit areas of Baringo might be more effective for improving incomes and land management in Il Chamus than are current local development programs. Chapters 3 and 4 have argued that the pursuit of agriculture among local herders is partially a result of unreliable markets for grain and livestock.

The social and economic realities of Il Chamus are not too different from those of other semiarid areas of Africa (Swift 1984; Arhem 1985). They are characterized by pockets of impoverishment where, ironically, certain homesteads have prospered considerably. Most of these regions experienced colonial histories that pervasively shaped land-use activities, and they now face development programs that embody common themes of "improved" land management, water use, and agricultural technologies. The Il Chamus case highlights the problems of trying to address local issues whose origins are regional and/or national, of assessing development priorities divorced from ideological concerns, and of treating ecology rather than social relations as the entry point in examining land management. Attempts elsewhere in Africa to treat land management as an environmental issue rather than as a social issue linked to larger regional concerns have encountered problems similar to those of Baringo (Blaikie and Brookfield 1987).

The recent growth in development activities occurs at a time when many Il Chamus homesteads have for several years endured a downward spiral of lower real incomes, substantial losses of livestock (through sales, drought, and disease), higher expenditure needs, and greater involvement in wage-labor markets with consequent shortages of labor for herding and farming. The previous chapters have discussed many of the social, historical, and economic reasons for this downward spiral. To return to the model discussed in chapter 1 (see figure 1.1), the real crisis is that more than one-third of the homesteads do not earn enough income to meet reproduction needs without mortgaging their futures, and this has serious implications for land use and development. Homesteads are diverting labor to activities that help meet immediate subsistence costs but do little to enhance the sustainability of the resource base. The high expenditure needs and dependence on wage-labor markets affect the response of poor homesteads to management techniques that require additional labor. Thus many homesteads are diversifying into nonpastoral activities, and although irrigation programs are facilitating this process, they are not lucrative enough to attract the full-time commitment that project planners advocate.

Changes like these discussed above are frequently disguised by cultural idioms that invoke "tradition" as an important resource to be respected but in some cases manipulate it. The "cursing" of a farmer in conflict with the community over water; the use of "clan" by a poor herder to disguise a wage relationship with an absentee herd owner; and the manipulation of "traditional" usufructary rights by a wealthy elite to stake permanent claims to land are all cases where important social transformations are mediated by cultural expression. These unprecedented changes in social relations have been conveyed through different cultural milieus

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that draw on traditional symbols and norms, but nonetheless represent significant departures from the past. Such examples – whether they be a dispute over grazing in Kailerr, a conflict over water in Il ng'arua, or the negotiation of a contract labor arrangement between a widow and a Perkerra farmer – provide context and meaning to the quantitative representations of development and social change. The latter are reflected in the statistical tables and the former in the experiences of individuals and communities that the previous chapters have presented. Both perspectives – quantitative and qualitative – are necessary for examining agrarian change and crisis among the Il Chamus and, I would argue, among other pastoral groups. Because the permutations of local cultural expression are virtually endless, anthropological studies of development and change are challenged to discover the processes hidden in idioms that at first inspection may appear “traditional.”

Solutions to the development problems of areas like Baringo require a more comprehensive knowledge of processes of social change in these regions. The official pursuit of an irrigated granary in Il Chamus reveals just how far from local realities large-scale models of development are. Diversification, labor shortages, and myopic land-use strategies are all symptoms of broader social transformations that affect pastoral zones hitherto considered to be relatively isolated. To analyze these processes as if they are somehow unrelated to each other does little to enhance our understanding of development difficulties. Rural Africa, including the high-rainfall zones, is replete with contradictions that question the very foundations of most development approaches and force scholars to rethink theories of development and social change. This book discusses many of these social and economic contradictions in the setting of Baringo, with a focus on the Il Chamus area. It has also demonstrated that merely because they pursue a livelihood and life style deemed “tradition-bound” and “exotic” by outsiders, pastoralists are no less affected by history and by national and global processes than farmers and city dwellers. As long as this is unrecognized and as long as the environmental, income, and food problems that plague dry regions of Africa are treated as unrelated, development solutions will continue to elude practitioners.

# Notes

## 1 Introduction: the study of agrarian change among African herders

- 1 In the recent literature on the “crisis” in African agriculture, however, studies of pastoralists and agropastoralists have assumed some importance in discussions of drought and famine (cf. Timberlake 1985; Glantz 1987).
- 2 It should be noted that there is considerable opposition to Hyden’s theory of peasant agriculture (see Kasfir 1986; Cliffe 1987).
- 3 Along similar lines Swift, using data from West Africa, hypothesizes “that West African pastoralists are more involved in market transactions than sedentary peasant farmers” (1986: 184).
- 4 The Il Chamus are often referred to in the literature as the Njemps, which until recently was the official term for their territory. Njemps is a mispronunciation of their name adopted by the colonial administrators. In this book, the people will be referred to as the Il Chamus, but their territory will be cited as either Il Chamus or Njemps.
- 5 Large-scale imports of food aid (famine relief) into the area did not begin until the 1920s, although the area probably received smaller amounts as early as 1903–1905.
- 6 Recent work in East Africa demonstrates the utility of a regional perspective for examining historical patterns among pastoralists (Cassanelli 1982; Hjort 1981b; Waller 1985) and farmers (Ambler 1988).
- 7 A region rarely has easily defined boundaries, but despite its impreciseness the concept helps to explain important changes in Njemps. As chapter 2 will illustrate, the Il Chamus community formed a part of a large regional system in the precolonial period. This somewhat diffuse system was broken up into several smaller units by the colonial state, which segmented it along administrative boundaries. In the twentieth century the “region” that took on significance for the Il Chamus was Baringo District, composed of the Pokot, Tugen, and Il Chamus. The significance and integrity of this unit, however, as subsequent chapters will show, varied considerably during this period, depending in part on changes in policies.

## 2 Society, ecology, and history

- 1 For more detailed histories of Baringo District and northern Kenya generally, see Anderson (1981a and b, 1982, 1988) and Sobania (1980, 1988).
- 2 The classification system of Jaetzold and Schmidt (1983) is used, but it has been modified for the Baringo situation.
- 3 The term grade refers to imported, European varieties of cattle, while “cross bred” animals are those resulting from the breeding of imported with native cattle.
- 4 The original Il Chamus administrative unit, Njemps Location, was divided into two separate units in 1983, Il Chamus and Mukutan Locations. I have been told that the population of the



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- two locations is likely to be around 13,000 to 14,000 when the most recent census (1989) is tallied.
- 5 With the exception of studies of the Nuer and Dinka (Evans-Pritchard 1940; Scudder 1980), the importance of swamps to pastoral grazing systems in East Africa is seldom emphasized. This is in spite of the fact that the Maasai (personal communication, John Galaty), the Borana (Hogg 1981), the Somali (Turton 1975), and other East African groups (Little 1990) depend on wetlands for dry-season fodder.
  - 6 Most meteorological data in the area are only available for Marigat (the Perkerra Scheme) and in some years for Mukutan. The Perkerra data represent the upper limits of rainfall, since the scheme has a favorable microclimate and receives rainfall from the south. It is likely that in some years annual rainfall at Marigat could be almost 100 mm greater than other areas of Il Chamus (Kenya 1984: 43).
  - 7 Conflicts over grazing in the basin also characterize the contemporary era, with the most recent incidents occurring as a result of the 1984 drought. In 1985, the Pokot moved down the eastern edge of Lake Baringo onto Il Chamus grazing near Loiminange and fighting nearly erupted (for more details on contemporary grazing conflicts in the basin, see chapter 7).
  - 8 For a good discussion of the important role of clans in other parts of northern Kenya, see Schlee (1989).
  - 9 Il Toijo is the local pronunciation of Il Doigo.
  - 10 Spencer has observed a similar process among the Maasai, whereby in different sections the same clan can be associated with different sub-clans and clan groupings (1987: 19).
  - 11 The Il Chamus also supplied ivory to traders, in exchange for the same types of consumer goods and livestock (Anderson 1988: 251).
  - 12 During this time a small number of Il Chamus also resided on an island in Lake Baringo.
  - 13 The use of the labor of prisoners from the Mau Mau uprising was also responsible for the construction of Kenya's Mwea and Hola schemes, in Kirinyaga and Tana River Districts, respectively.
  - 14 There is some planting of maize as a second crop in a double-cropping rotation that is not reflected in these figures.

### 3 Markets and the state

- 1 There is considerable historical evidence demonstrating that colonial policies in Kenya broke down much of the symbiotic trade that had existed between herders and farmers (Dalleo 1975; Migot-Adholla and Little 1981). For the Meru area of Kenya – a buffer zone between the arid, pastoral lands of the north and the fertile, agricultural highlands of the south – Bernard shows that “The symbiosis of interdependence between herders and farmers at the edge of Meru waned in the early colonial period and was later actively discouraged” (1979: 286).
- 2 The Europeans residing in what is now south Baringo had a separate district at this time called Ravine District. The Il Chamus were administered under this district from 1918 to 1927, after which time they were transferred back to the strictly “native” district, Baringo.
- 3 Grinding reduces a 90 kg sack to about 65 kg of posho, or about 2.5 pisi per sack. At 1 goat per pisi and 6 shillings per goat, a sack would return about 15 shillings (not net of transport or other costs, however).
- 4 It was noted in the district records of the time that there appeared to be no solid evidence of the disease in the area, however (CPK 1921: 11). Quarantine restrictions against livestock sales were common throughout northern Kenya during the colonial period (Dalleo 1975; Van Zwanenberg 1975).
- 5 This calculation is based on figures for the whole of the north Tugen area, since data are not disaggregated at location or village levels.
- 6 A European trader petitioned the government in the early 1930s to start a retail store (*duka*) in Kampi ya Samaki, but eventually he decided against opening it. The government had warned the

- prospective store owner that it would be virtually impossible to carry on all retail transactions in cash, and if he wished to succeed, he would surely at times have to accept goats as a form of payment (CPK 1932–1942).
- 7 In 1931 European farmers were selling maize at the Baringo border for 8/20 shillings per sack; these were later sold at Marigat for 13 shillings (CPK 1931–1932). Europeans saw this as a lucrative business, since the worldwide depression at the time made production for international export unprofitable.
  - 8 Improved roads, especially in Njemps, also resulted from the locust campaign that was initiated in the late 1920s. This program constructed several small access roads, which initially allowed locust teams to penetrate the thick bush of Baringo but later served as transport links.
  - 9 This is an estimate based on import figures for Kabarnet, which was the most important retail center for Baringo in the early 1920s (CPK 1921: 9). As there were few other market centers at the time, I have assumed that the Kabarnet figures represent approximately 50 percent of total maize imports – a calculation that is probably low.
  - 10 This figure represents official exports recorded by the government and is only indicative of the total volume of exports. I would suggest that at least an equal number of cattle were exported unofficially each year.
  - 11 Abattoirs were attempted in other pastoral areas of Kenya, with equally dismal results (see O’Leary 1984).
  - 12 A similar diversion of grain away from low rainfall, pastoral areas occurs in certain West African countries and in the Sudan, with similar effects on local food security (personal communication, Michael Horowitz; also see Swift 1984).
  - 13 It is likely that the percentage of surplus controlled by the state varies annually, but almost surely the general trend since the 1960s has been upward.
  - 14 The strategy of the NCPB is to rely on commissioned agents and temporary buying centers in zones of low to medium supply (approximately 20,000 to 40,000 bags annually), while setting up its own buying and storage depots in areas of large surpluses (usually in excess of 50,000 bags annually). An important difference between the two is that the latter are staffed by permanent employees of NCPB, whereas workers at temporary buying stations and agents are hired seasonally. The new NCPB depot at Eldama Ravine has a storage capacity of 100,000 bags, and during the 1988/1989 season farmers supplied more than 85,000 bags of maize to it (NCPB 1989).
  - 15 The major agricultural development project in Baringo, the World Bank-financed Integrated Agricultural Development Programme, has carried out many of its activities through local cooperatives.
  - 16 While the district’s smallholder credit program is active in the Tugen Hills, less than 15 percent of farmers receive agricultural loans under it. The reluctance to join credit schemes may be motivated by a desire to avoid controls on maize marketing.
  - 17 The percentage is based on my fieldwork. Highland farmers are reluctant to discuss private marketing arrangements, which are against established government policy. This is probably why most farmers indicated to me that in the future they would sell surplus grain to government buyers. That is unlikely to be the case unless price discrepancies are reduced.
  - 18 Recent research of mine in Tana River District, a major cattle-producing area of northeastern Kenya, revealed a similar pattern among local retail businesses (Little 1990). Since I observed this change in the availability of flour, I have learned that under the system of gazetted prices returns for large millers (e.g. Unga Millers, Ltd.) from processing the high-quality flour is about three times higher than those from milling the coarser posho flour (Bill Grant, personal communication). It is therefore possible that supplies of posho are being restricted by large mills (and, indirectly, by the NCPB which supplies grain to the large mills), in order to promote the sale of the finer, packaged flour.
  - 19 It should be noted that at least part of the price rise was due to general inflation in the country caused by an approximate 75 percent devaluation of the Kenya shilling during 1980–1983.

- 20 Export of live animals from the district are forbidden during a foot-and-mouth quarantine, but meat that has been inspected and approved by the Veterinary Department can be exported. Local merchants recently have established a few small abattoirs along the Baringo/Nakuru border that legally allow them to sell meat to the Nakuru and Nairobi markets during bans. This may partially reduce the negative effects of market quarantines (Chabari 1986: 24).
- 21 As discussed earlier in the chapter, quarantines usually do reduce animal prices because they discourage market competition by traders.

#### 4 Labor and agropastoral production

- 1 The strategy of producing grain to avoid unfavorable and unreliable markets has been noted also for pastoral areas of Tanzania (Arhem 1985; Kjaerby 1979), Niger (Sutter 1978), and Sudan (Mustafa 1980).
- 2 Bridewealth payments of cattle did not begin until the early twentieth century. In subsequent years, the amount rose gradually until the 1950s when the current rate of twelve cattle was established.
- 3 I observed this practice being used by wealthy herders of the Lower Juba Region of southern Somalia during a prolonged dry period in 1987. In addition, I have been told that Maasai and Sukuma herders of northern Tanzania sometimes use trains to transport animals through the central tsetse belt to pastures in southern Tanzania (personal communication, John Galaty).
- 4 The term “progressive” is a translation of the Swahili term *maendeleo*, meaning progress or development. It is used to describe a group of young herders who frequently have formal education, nonpastoral sources of income, and favor many of the development initiatives (e.g. land titling) that are opposed by other II Chamus. They show up as an important category in discussions of income, development, and local politics.
- 5 Sile is a credit relationship between two individuals based on the exchange of livestock. It resembles credit relationships found among other herding groups of East Africa (Schneider 1979), in that repayment to the lender can be delayed several years. The usual transaction involves a large ram or he-goat in exchange for a heifer or young bull to be paid at a later date.
- 6 The names of individuals in the book’s case studies have been changed to protect identity.
- 7 A similar pattern of marrying partners from distant neighborhoods, based on an analysis of 179 homesteads, was found in Salabani.
- 8 Herding needs are not solely responsible for the establishment of secondary homesteads. A wife or her family may exert pressure on the homestead head to allow her to reside with her children in a separate residence near her parents’ home. The establishment of a secondary homestead may also be in response to domestic conflicts, either between the husband and a particular wife or between different wives. Regardless of the reasons for its establishment, considerable negotiation takes place between wife and husband prior to establishment of a secondary homestead.
- 9 I visited Baringo briefly in 1989 and found that average monthly wages for herders, as well as for unskilled farm workers, had risen very little since 1985.

#### 5 Income, wages, and investment

- 1 In most cases I use the more common term “nonfarm.” It implies both nonpastoral and nonagricultural activities.
- 2 The “simple reproduction squeeze” occurs when the value (revenue) of household production is not sufficient to allow the unit to purchase what it needs for sustaining itself. This usually “means a reduction in levels of consumption or an intensification of commodity production, or both simultaneously” (Bernstein 1982: 166).
- 3 The regression equation for the model is:

$$Y = 8.81X_4 + 19.35X_5 + 1.00X_{10} - 44.52$$
$$r^2 = 0.7970$$

- where:  $Y$  = maize yield (kg),  $X_4$  = weeding labor,  $X_3$  = harvesting labor, and  $X_{10}$  = cash input (Kenya shillings). (See Little 1985b: 249.)
- 4 Average irrigated maize yields, based on a sample of twenty-nine farms, are 1,242 kg per hectare.
  - 5 The figure is based on reported yields for dryland agriculture in 1983, divided by average labor inputs per hectare in 1981. I assume that labor inputs for dryland agriculture did not differ much in 1983.
  - 6 This represents the amount available for human consumption and does not include the amount that goes to calves, kids, and lambs. During periods of drought women decide on how much milk can be taken for children and other family members without jeopardizing the well-being of calves.
  - 7 Ensminger and Rutten, for example, show how Orma herders of Tana River District, Kenya, are creating sedentary settlements in order to protect their land rights. They suggest that sedentarization in the area is partially to “establish more recognized rights to land” (1987: 23).
  - 8 It should be noted that the leasing of land is restricted mainly to Ngambo, Sintaan, and Il ng’arua, where a form of sharecropping has emerged. The right to cultivate a parcel of land controlled by another often involves an exchange of agricultural labor on the part of the borrower. Wealthy notables in the area frequently lease out portions of their farm to gain access to additional labor and to increase their political support.
  - 9 By contrast, in the 1950s and 1960s the lack of labor was a major constraint to increased production on the scheme and frequent reference is made to the unwillingness of local herders to work for wages (CPK 1956).
  - 10 Early colonial accounts frequently bemoan the reluctance of the Il Chamus to participate in wage-labor markets. At the time the Il Chamus rarely went out of the area to work for wages (CPK 1933: 22).
  - 11 On the basis of my own observations it seems likely that population grew at an even faster rate between 1979 to 1989, when drought-induced poverty and immigration to Ngambo sub-location was widespread. Data from the current census (1989), however, has not yet been analyzed, so it is not possible to confirm this observation.
  - 12 Since Mukutan was not a separate administrative location until 1983, the prior administrative structure, where Mukutan was a sub-location of Njemps Location, is used for the population figures.
  - 13 Even in this case at least some of the growth is related to Tugen immigration into Salabani.
  - 14 The spectacular growth in commercial activities during the period was mainly a result of the completion of a tarmac road linking Marigat to Nakuru and to Kabarnet.
  - 15 Access to nonfarm sources of employment and investment has been shown to be the major source of rural differentiation in Kenya (Haugerud 1984; Leys 1974) and elsewhere in Africa (Berry 1985). The potential for accumulating surplus is generally greater for nonfarm activities than for agricultural/livestock production, which reflects in part the poor productivity of African agriculture. This has been well documented for rural parts of central Kenya (Leys 1974; Cowen 1981; Haugerud 1984). Participation in trade, lucrative forms of formal employment, urban-based investments, etc. have only recently evolved in Il Chamus and, thus, it is still too early to evaluate their impact on rural differentiation. Control of livestock is still the most important source of differentiation, but it is likely to change in the near future. Investments in education and business among young “progressive” herders have already increased their economic advantage over other groups, and the gap is likely to widen.

## 6 Expenditures, consumption, and the food crisis

- 1 The aggregate number of cattle marketed from Njemps seems also to have stagnated since the 1950s. Even in years of “open” markets annual sales of cattle remain at around 2,000 to 2,200 head during the mid 1950s to 1980 (see chapter 3). This is further evidence that aggregate animal numbers may have increased little in recent years.

- 2 Of course the “paradox” in this case is partly a result of the increased level of demand, both phenomena tending to raise price.
- 3 Daily kilocalorie requirements of Kenyan pastoralists are estimated to be 2,300 per adult unit (Pratt and Gwynne 1977: 35).
- 4 The recent establishment (1989) of a National Cereals and Produce Board depot in Marigat is likely to alleviate local storage problems.
- 5 The relief efforts used the homestead as the unit for distribution; thus many prominent families were able to register the homesteads of elderly kinsmen in the programs. This partially reduced the burden of support among wealthy families. In the past these homesteads, headed by the elderly, would likely have received support from their families.
- 6 This includes the value of beans and dried milk, which have higher market values than maize.
- 7 Good descriptions of this program are provided in Kenya (1984) and Bezuneh (1985). The latter is based on work elsewhere in Baringo but concludes that FFW participants benefited from increased consumption and saving “without creating disincentives to either own-farming or to local agricultural production” (1985: iv). Most of the data in this section comes from Kenya (1984), which covers Il Chamus areas, and from my follow-up visits of 1984 and 1985.
- 8 Il Chamus has approximately 16 percent of the population in the area covered by the program. The food share figures for them are probably high because many of the conservation/afforestation activities funded under the FFW program are outside of Il Chamus locations. Data that disaggregate disbursement figures by location and sublocation are not available.
- 9 This figure is based on an average yield of 1,200 kg of maize per hectare of irrigated land, representative of yields in years of above-normal rainfall. It is estimated that 311 hectares of maize were under irrigation in 1985.
- 10 A visit in 1989 shows that the amount of irrigated land has increased very little in recent years, and in such areas as Loiminange and Ngambo it is likely to have declined since 1985.
- 11 Recent development activities in Marigat and Il Chamus have attracted impoverished herders to these locations from Pokot and Turkana areas, generating downward pressure on local agricultural wages.

## **7 Land conflicts and sustainability**

- 1 In terms of development investments, the President’s influence is most evident in Baringo’s highlands, where he was born and once worked as a school teacher. During the early phase of fieldwork, 1980 to 1981, his presidency had not yet had the major impact on Baringo’s development that it was to have in later years. If the bulk of my data had been gathered after 1985 rather than before it, the analyses in this chapter and the next would likely have given more emphasis to the national context of land use and development in Baringo.
- 2 The original trial design for the project was called the “Njemps Pilot Irrigation Scheme,” reflecting the project’s initial intention of focusing on the Il Chamus.
- 3 A parallel case can be found in Kajiado District, Kenya, where in the past Maasai allowed non-Maasai to cultivate along border areas. However, recent agricultural expansion into critical grazing zones, and the desire of certain Maasai to farm in areas where non-Maasai now are cultivating, have strained relations between Maasai herders/farmers and Kikuyu and Kamba farmers in the region (Campbell 1984: 40–43).
- 4 Grants by international relief and development agencies to small-scale irrigation schemes have allowed some low-income herders – who otherwise would not have been able to afford them – to acquire irrigated farms. This has been the case at Loiminange where, as noted in chapter 6, food aid and other subsidies have been made available.
- 5 Not surprisingly, reciprocity is highest in Kailerr, where approximately 80 percent of herders allow others’ animals to graze on their harvested fields. Recall that labor reciprocity is also highest here where affine and kin-based ties are very important (chapter 4).

- 6 The data in this section is based on discussions in 1981 with more than 100 Il Chamus herders about their attitudes toward land reform.
- 7 These associations were formed in the late 1970s for each of the proposed group ranches. The majority of Il Chamus do not even know that caretaker committees have been formed.
- 8 Estimates are based on information from interviews with herd owners, veterinary and vaccination campaigns (Ministry of Agriculture 1981), and the hide and skin trade. Data on the latter are an excellent indicator of the magnitude of stock losses, since their sales increase considerably during periods of stress. In the herder interviews, individuals often failed to distinguish between losses caused by stress sales and by death. To the herder, both represent loss because animal prices are very low during droughts. Consequently, some of the loss attributed to drought-induced death or disease may have been caused by stress sales.
- 9 It is difficult to distinguish between disease and drought as causes of stock death during periods of drought. Stock disease is likely to take a greater toll on herds during drought years, when animals are weak and very vulnerable to infections. While a herder may perceive the death as being related to disease, it is likely to be indirectly linked to the incidence of drought.
- 10 The term “boom/bust” cycle is used to depict periods of livestock buildup in non-drought years (the “boom”), followed by steep drop-offs in drought years (the “bust”). Many pastoral economies should be examined over at least a five-to-seven year period, depending on the frequency of drought in the area, to gain a full appreciation of the dynamics of the system.
- 11 Some individuals of Mukutan Location did borrow cattle from Samburu clansmen or exchange their small stock for cattle with related Samburu after the 1979–1980 drought. These types of post-drought strategies were more prevalent in the past, even as recent as the early 1970s. According to informants, the Il Chamus currently rely very little on the Samburu for rebuilding herds because: (1) the Samburu now export most of their surplus cattle through formal market channels; and (2) Samburu herds also have been badly damaged by recent droughts.

## **8 In pursuit of the granary: development responses of community, donor, and state**

- 1 Another factor that insured an increasing flow of development resources to Baringo was the rise to power in the late 1970s of President Daniel Arap Moi. As mentioned in chapter 7, he comes from the Tugen highlands of Baringo, where recent development investments have been concentrated. Important spillovers, however, have accrued to all locations of the region, including those of the Il Chamus.
- 2 It is well known that revenues from the one successful NIB scheme, the Mwea Irrigated Settlement Project (in central Kenya), are used to subsidize the Perkerra and other NIB money-losing schemes.
- 3 As used here, small-scale irrigation systems can range up to 150 hectares but normally are between 20 and 100 hectares. They are usually low technology, gravity-fed, and maintained and managed by the local community. In general, small-scale systems differ from medium- and large-scale systems with respect to capitalization, mechanization, size, technical scale, and the importance of food versus export crops (with food crops predominating in small-scale systems).
- 4 With the establishment of the Chemeron project in Salabani, the nearby Lamelok scheme has become inoperable.
- 5 Some Il Chamus communities, such as Kailerr, shift every four years between two or three different irrigated areas. In such areas as Ngambo, where irrigable land is very scarce, shifting irrigation is not practiced.
- 6 A phenomenon that particularly irritates irrigation planners is the movement of Il Chamus herders in and out of irrigated farming. While herders will maintain permanent claims to irrigated farms, they may not cultivate them every year, especially not in years when both the preceding harvest and current local pastoral conditions are favorable.
- 7 A recent FAO/Government of Kenya forestry program in the area that integrates reforestation with

local range-management practices seems to be receiving a favorable initial response among the Il Chamus. It is too soon to evaluate its impact, but it is worth noting its main difference with the conservation program of BPSAAP: the FAO project links conservation activities more closely with livestock production than with dryland agriculture, the latter being the emphasis of BPSAAP.

- 8 The introduction of group ranches in Maasai areas of Kenya also have dramatically increased tensions between younger and older members of the community (Galaty 1980; Grandin 1986).
- 9 During initiation ceremonies (including circumcision), the initiates are sponsored by members of an elder age set, who play important roles in the different rituals. Individuals of the il paremo age set assumed this responsibility for the il medoti during the latter's il mugit ceremonies.

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