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PASTORAL PRODUCTION AND CHANGE:
PASTORALISTS, DEVELOPMENT AND THE STATE IN KENYA

by
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A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of
Master of Arts
Department of Geography

Carleton University
Ottawa, Ontario

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While livestock development in Kenya has failed to transform pastoralists into commercial ranchers, it has set an agenda for further research into pastoral production systems. The Maasai in particular have received a great deal of attention from various researchers recently (c.f. White and Meadows, 1981; Evangelou, 1984; ILCA, 1984). They are a relatively well-studied society, which perhaps reflects their long history of interaction with settled groups in the core of Kenya (Waller, 1985).

The organization of this thesis proceeds as follows. The next section reviews the various theoretical approaches that may be of use in the analysis of pastoral development. An approach is proposed which conceptualizes development as an historically and socially specific process which involves fundamental social changes in the conditions of production in which rural producers are engaged. A schema of pastoral production systems is then put forward which stresses their social, technical and ecological dynamics.

Chapter Two criticizes an orthodox view of pastoral development, substantially that of planners, range managers, and economists who are more concerned with resource development than social development. This dominant view utilizes a model of pastoral development which narrowly limits analysis to simple ecological relationships between

ABSTRACT

The State in Kenya expects pastoralists to contribute to national development either by becoming producers of cheap meat for the nation, or by giving way to forms of land use perceived to be more productive. While Maasai pastoralists in Kajiado District are not commercial beef producers, they are also no longer prototypes of a traditional pastoral society, for their conditions of production have changed drastically over the past few decades. The combined effects of land loss and population growth, commodity relations, and increasing State control of production have transformed the social context within which the pastoral household exists, and the Maasai can no longer be considered outside the Kenyan class structure as a whole. The goals of rural development can best be met not by replacing pastoralism with commercial ranching, but by redeveloping pastoralism within this new social context and by developing various alternative activities which would build upon, rather than threaten, the existing pastoral economy.

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CHAPTER 1

INTRODUCTION: THEORETICAL APPROACHES TO THE STUDY OF PASTORAL DEVELOPMENT.

1.1 INTRODUCTION.

The concepts of "change" and "development" in relation to pastoral societies are relatively new perspectives in the social sciences, for pastoralists have for a long time served as prototypes of the "traditional" (Galaty, 1981c). Nevertheless, there are several reasons for focusing on pastoralists in the development process.

On one hand, there are the concerns of national governments, which are often articulated by development planners and economists (c.f. Evangelou, 1984; Simpson, 1984).¹ They perceive rangelands to be relatively unproductive under traditional systems of livestock husbandry. In order to meet the needs of burgeoning national populations while conserving the environment, the rangelands must be brought under commercial systems of production (Kenya, 1980). From this "resource-based" perspective, pastoral resources are national resources, to be developed in the "national interest" (Aronson, 1981). According to this view, pastoralists must contribute to development efforts by settling down, submitting to bureaucratic

control, and selling more of their cattle.

On the other hand, there are the concerns of those who envisage development as a process of enabling people to improve their own lives. Attention is diverted from national economic goals towards the needs of local communities (Taylor, 1985). This group tends to be critical of the impact that expanding national societies have had on the welfare of pastoralists. Development efforts are advocated which are firmly predicated on the needs and values of the peoples involved.

Any approach to change and development in pastoral societies must firstly conceptualize what pastoralism is and what has changed about it. "Pastoralism" generally refers to a genre de vie or a type of productive activity. It is a subsistence livelihood based on the exploitation of the primary-producing herbaceous layer through the intermediary of flocks or herds of domestic livestock. It presupposes certain conditions of production. It presupposes determinate ecological relations which channel energy through the system; determinate techniques of management or labour processes through which organic materials are appropriated; a determinate ensemble of social relations which govern access to resources and the distribution of products; and a determinate reproduction cycle which replaces the conditions

under which production can continue to operate.

The objective of this thesis is to demonstrate the ways in which some of the conditions of production have changed for one group of pastoralists in Kenya. It argues that in addition to limited technical changes in the production process, there have been fundamental social changes in the conditions of production in which these pastoralists are engaged. As a result, they can no longer be considered outside of the Kenyan class structure as a whole, for their conditions of existence are reproduced by the total system of social relations.

This thesis attempts to contribute to the practice of rural development (which is distinct from the analysis of the process of development). "Rural development" is here considered to involve enabling rural dwellers to gain a greater degree of control over the processes of change affecting their lives, so that these changes will work to their benefit. This standpoint is based on certain ethical presuppositions of what should be, and is not a particularly original one (Chambers, 1983; Taylor, 1985). The analysis here is not explicitly designed to provide guidelines for government intervention. Rather, it is critical of the role of the national government in rural development and recognizes that the interests of the State

and of pastoralists are in many ways incompatible. But neither does it accept the view of those who would enforce isolation on pastoralists in accord with romantic notions of traditionalism. It is affirmed here that the conditions of existence for pastoralists have changed, and pastoralists will in some way adapt to these changes. Knowledge (i.e. theories of change) is required before the best choices are made to facilitate this adaption.

This thesis will focus on Maasai, pastoralists in Kajiado District, Kenya. Pastoral development is of special significance within the Kenyan context. Approximately three-quarters of the country's land area is classified as arid or semi-arid land, inhabited mainly by pastoralists (Pratt and Gwynne, 1977). Historically, economic and social development programs have tended to concentrate in high potential areas, where population densities are far greater and the productivity of resources substantially higher than in the semi-arid and arid pastoral zones. However, the country's rapidly growing population and sluggish economic growth (of late) has shifted some attention to the rangelands. Its most concerted attempt to bring rangelands under commercial production systems is the Kenya Livestock Development Program (KLDP). Initiated in 1968 and now in its second phase at a cost of US\$60 million, KLDP emphasizes the

development of extensive range beef production using ranches as its primary organizational form (Ayuko, 1981; Bennett, 1984). While there has been some evidence of increased output from project areas, the country's total marketed beef production has not increased (EARLS/Kenya, 1982). According to the Ministry of Agriculture and Livestock Development's recent strategy paper, "Failure to recognize livestock producers objectives relative to product and species mix has been the key shortcoming" (Kenya, 1983:14). For instance, the subsistence base of the pastoral economy is milk production, yet development efforts stress beef production rather than increased milk output. Like livestock development efforts elsewhere in Africa, the over-riding economic concern with increasing meat production has precluded a deeper understanding of the societies that were treated as so much "raw material" by the project planners. As Behnke puts it,

The thinking behind most livestock projects has been based on a simple dichotomy between subsistence pastoralism, the 'traditional' pre-project starting point, and fully developed and fenced ranches, the 'modern' post-project end point. According to this scheme, pastoralists were to be plucked out of history at the beginning of the project, and redeposited according to project specifications at the end, a process of social engineering made possible by project inputs which suspended the the normal functioning of the indigenous economic system. No ranching scheme ever engineered this type of abrupt and total economic reorganization of a pastoral society (1983:3).

While livestock development in Kenya has failed to transform pastoralists into commercial ranchers, it has set an agenda for further research into pastoral production systems. The Maasai in particular have received a great deal of attention from various researchers recently (c.f. White and Meadows, 1981; Evangelou, 1984; ILCA, 1984). They are a relatively well-studied society, which perhaps reflects their long history of interaction with settled groups in the core of Kenya (Waller, 1985).

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Chapter Two criticizes an orthodox view of pastoral development, substantially that of planners, range managers, and economists who are more concerned with resource development than social development. This dominant view utilizes a model of pastoral development which narrowly limits analysis to simple ecological relationships between

livestock, pastures and people. It is argued that any examination of supposed ecological "imbalances" in pastoral systems must place these systems in their social, political and economic context. The ecological model provides an unsatisfactory framework from which to approach rural development. However, the prominence of the knowledge created within it is related to the power of the social interests which produce and sustain it.

Chapter Three presents an analysis of two processes which have fundamentally changed the conditions of production of pastoralists in Kajiado District. The selection of the administrative boundary of Kajiado is admittedly a somewhat arbitrary unit of analysis for the study of a fluid social group such as the Maasai. However, it will facilitate the analysis of statistical data, which is often available only at a district level. The first process of change is the loss of dry season grazing to other forms of land use. The loss of this land has substantially reduced the total livestock capacity of the District, yet the total population of humans who are dependent on livestock has greatly increased over the past two decades. Expansion as an adaptive response to population growth is no longer an option for the Maasai, and they must find new strategies to adapt to the deteriorating subsistence base of

their economy.

The second important change is the extension of bureaucratic control over the Maasai production process through the Group Ranch program. While the program has failed to meet its objective of bringing about a "sound" pattern of land use resembling that of commercial ranching, it has locked Maasai producers into a system of commodity production.

Chapter Four presents substantive material on the contemporary Maasai political economy. It argues that Maasai producers have incorporated commodities into their reproduction cycle as an economic necessity, largely in response to the falling cattle to human ratios described in Chapter Three. The Maasai have responded to this deterioration by producing and consuming commodities to a greater degree than they had in the past. This change, it is argued, has transformed the conditions of production of Maasai producers, in the sense that they are now reproduced within a wider field of social relations.

Some alternative development strategies for pastoralists are considered in Chapter Five. The alternative of commercial ranching is rejected on the grounds that it would replace an ecologically efficient system which is able to support large populations with one that might be

profitable for a few, but in the long run of considerably lower productivity. It is argued that pastoralism could be made more viable in light of contemporary conditions while alternatives are provided for those who are forced out of the system.

1.2 THEORETICAL APPROACHES TO THE STUDY OF PASTORALISM.

Since Herskovits' (1926) classic work on the "East African Cattle Complex", studies of East African pastoralism have focused on the internal social value of livestock and the cultural rationality of pastoralists. Herskovits utilized the "culture-area" concept in his discussion of the cattle-keeping peoples of East Africa. He claimed that East African peoples were "cattle complex" peoples, and in his paper he sought to justify the selection of this trait as the one that characterized the culture area. Although he cited Wissler as the most sophisticated proponent of the culture-area concept, his own application was profoundly different. Whereas Wissler (1929:79) saw the primary determinants to be environmental, and referred to the dominant food source and mode of subsistence, Herskovits understood the East African culture-area in terms of cultural factors alone: East Africans were "cattle-complex" peoples because of the high social value and prestige that

the possession of cattle brought. He showed this by citing examples of the central role of cattle in customs and ceremonies such as marriage and divorce, birth and burial, inheritance, diet, and exchange.

Herskovits' paper has provided the starting point for many studies of East African pastoralism. He is judged harshly by critics, who correctly identify the idealist basis of his thesis (Hedlund, 1979). Indeed, he focused exclusively on the ideological or exotic aspects of cattle keeping to the exclusion of the material aspects of production. Nevertheless, certain ideas about pastoralists' attitudes toward livestock found in Herskovits' paper have remained influential. In particular, pastoralists have retained an image or reputation of having an "irrational" attachment to cattle. This trait, it is popularly believed, is the major obstacle to pastoral development (c.f. FAO, 1980). On one hand, pastoralists appear to be driven to accumulate livestock to the point where pastures are dangerously overstocked; on the other, their reluctance to sell their animals prevents them from contributing to, and benefitting from, national development efforts (Livingstone, 1977).

Writers working within a formalist economic framework have attempted to correct Herskovits' culturalist

"shortcomings" by stressing economics (Konczacki, 1978; Schneider, 1979, 1981, 1984; Crotty, 1980). Economics may take as its starting point either the view that the internal relations of social systems are logically prior to individual behaviour, or the reverse, that individual behaviour is prior to social relations. The formalists take the latter view, and seek to deduce the rationality of herd accumulation from the assumption that humans are economic maximizers. They find, quite correctly, that livestock have a multitude of functions beyond means of subsistence, not the least of which is their role as repositories of value. As well, there are few existing incentives that would encourage individuals to part with their wealth by reducing herd sizes. For the formalists, pastoral rationality is thus revealed in individual behaviour. However in the long run and in the aggregate, the outcome of this rationality is not conducive to development. What should change? Individual behaviour or the social relations in which they are embedded? With no theory of the systems of social relations that determine individual rationality, the formalists can only vaguely oppose "culture" in the name of development.

With the growth of ecological studies of pastoralism, which stressed the subsistence role of livestock, the rationality of traditional systems became more closely

understood (Dahl and Hjort, 1976; Deshler, 1965; N. Dyson-Hudson, 1966; Dyson-Hudson and Dyson-Hudson, 1982; Gulliver, 1955; Ingold, 1980). Deshler (1965) suggested that food production per animal is so low that large herds are necessary to supply even modest amounts of milk, meat, and blood. Furthermore, large herds provide famine insurance: what in good years seemed like excessive numbers of cattle in bad years was not be enough to feed a family throughout the dry season.

3
Later work in cultural ecology extended this type of analysis to demonstrate the adaptive nature of pastoral social institutions. Kinship systems, fertility rates, property relations, details of herd structure, and in fact the entire design of East African pastoral societies were re-evaluated as organizational responses to particularly harsh environmental circumstances (Swift, 1977; Dahl, 1979a, 1981; Dyson-Hudson and Dyson-Hudson, 1982:234). Furthermore, human ecological studies sought to apply biological models of interspecific exchange to pastoral production systems (Dyson-Hudson, 1984; Western, 1982). In this way, their complex ecological inter-relationships began to be illuminated. The implications of this work were twofold. Firstly, they stressed that behavioural and environmental traits were part of a single system, and for development

purposes, must be approached holistically (Dyson-Hudson, 1984:266). Second, they suggested that not only was pastoralism a rational adaptive strategy, but by biological standards, it was an extremely productive one in terms of food chain efficiency (Western, 1982).

Ecological approaches have been extremely fertile in pastoral research. Most importantly, they have directed attention to the sphere of production by focusing on environmental constraints. It makes more sense to look at the material aspects of production for explanation before drawing conclusions about "values and customs" or "human nature". A concern with ecology is one step in this direction. In contrast to the earlier environmentalist approach which saw nature and culture as opposing forces or as separate entities, the cultural ecological perspective sees nature and culture as interlocking components of an "ecosystem" and, as such, there is recognition that the systems may be quite complex (Mikesell, 1970). In accepting a systems approach an appreciation for process emerges, and nature/culture interaction is examined "...through the study of processes by which a society adapts to its environment" (Steward, 1968:337). Within this framework, the adaptive value of pastoral social practices is revealed, overcoming the economy-culture dualism of other types of social science

analysis (Galaty, 1984).

Ecological studies have helped us to identify significant functional relationships in pastoral production systems and have set the agenda for the collection of empirical data (N. Dyson-Hudson, 1972; c.f. Dahl and Hjort, 1976). Some of these data have allowed us to correct mistaken notions about unfamiliar aspects of pastoralism and uncover new relationships that were previously neglected. Ecological studies have drawn attention to the ramifications of particular relationships and the value in retaining them.

Ecological approaches do have significant limitations, however. One is their tendency to understress the role of social relations. From the perspective of cultural ecology, for instance, the economy is reduced to the technical relationship between humans and the natural environment; social relations become merely technical forms of organization that are adaptive in a particular environment. In this manner, social relations are seen in terms of the necessary functions they perform in a system of technical-environmental interaction. Cultural ecology thus falls into the pitfalls of functionalist explanation. Social practices are said to persist if they contribute to that society's maintenance. This assumption, as Spencer points out, "...is frankly teleological. It argues that the purpose of society

is its own preservation" (1965:3). In addition, explanations in cultural ecology can lead quickly into tautologies. Social practices are seen as adaptive because they fulfill a necessary function for the perpetuation of a system. Such an explanation cannot be disproved, because it defines the practice in relation to itself. "To say that society functions is a truism, but to say that everything in society functions is an absurdity" (Levi-Strauss, 1977:13).

A second weakness from which ecological approaches suffer is an inability to account for historical processes of change. This stems from the difficulties in applying the concept of adaption to human populations. Cultural adaption refers to the purposeful selection of certain behavioural practices by a population in order to maintain its conditions of existence. On one hand, this kind of analysis has a "homeostatic bias" (Chorley, 1973) -- there is a strong tendency to interpret cultural practices in such a way as to show how the system is functionally integrated. There is no room within this framework to explain practices that are not adaptive. Much adaptive behaviour, even if it is explicitly designed to maintain certain conditions of existence, may have the effect of disturbing others. Also, adaption frequently operates to extend the conditions of existence of particular individuals and groups only (Ellen,

1982). At another level, ecological analyses can lead to a conservative fear of change among its practitioners. The assumption that all cultural practices are adaptive leads to a pessimistic emphasis on the repercussions of minor change (c.f. Dyson-Hudson, 1984:266). To claim that traditional pastoral populations are ideally adapted (i.e. have maintained their conditions of existence) cannot take us very far.

On the other hand, all social change cannot be subsumed under processes of cultural adaption. A certain cultural practice may have effects that make it ecologically adaptive; and it might be argued that this trait has a natural necessity. However, this is not enough to explain its historical necessity, its particular form and conditions of existence. "Environmental pressures act on what has already been created; they cannot be held responsible for the appearance of social forms" (Ingold, 1980:6). In practice, social change is often explained by ecologically oriented researchers as a result of "external" forces such as dominant national societies or the State "encapsulating" the local community (Hariss, 1982). This does not allow for more dynamic analyses of the effects of this articulation on both the local and national society.

Ecology is a vitally important tool for understanding

any system of material production. It is especially significant in the case of pastoralists who, "Perhaps more than other peoples with other adaptations... are limited and constrained in their social organization and culture by ecological factors" (Salzman, 1967:121). Nevertheless, human ecology can only be one element of a wider social theory (Cook, 1973; Ellen, 1982). In spite of the claims of Dyson-Hudson, very few forms of human behaviour can be subsumed under the general framework of (what he calls) "behavioural ecology" (1984:264).

1.3 AN ALTERNATIVE APPROACH.

An alternative approach is put forward here which places priority on the analysis of social relations of production, and conceives of social change or "development" as a historically and socially specific process.

The concept of material reproduction refers to the process by which human societies produce and circulate material goods, and at the same time, replace the conditions of existence under which production can continue to operate. Thus, "The conditions of production are also those of reproduction" (Marx, 1977:531). The unit of production, whether it be an individual, a household, or some larger entity, is not self-sufficient. All the conditions necessary

for the continued operation of a particular labour process are rarely present in the unit of production in which that production takes place. It must enter into definite social relations in order to acquire the means and conditions of production. The social relations of production thus refer to the social distribution of the means and conditions of production (Hindess and Hirst, 1977).

The process of material reproduction entails technical as well as social components. The former components include the environment, resources, instruments of production, as well as the skills and organization of labour. When all these conditions necessary for the operation of a particular labour process are combined in the unit of production in which that production takes place, they are referred to as the means of production (Ibid., p 65). These technical components secure certain of the conditions of existence of the relations of production. However, they cannot be considered apart from these relations, since the relations define the capacity to set in motion the production process. It is this capacity to control the functioning of the means of production and ultimately to exclude others from their use which is central to the definition of economic class relations:

As mentioned above, one common way of conceptualizing

development among ecologically-oriented researchers is to construct an image of a traditional society undergoing a process of "encapsulation" by a dominant colonial or national society (c.f. World Bank, 1982). Such a view, however, reproduces the simple traditional-modern dichotomy of theories of "dualism" and "modernization". The weaknesses of these currents of thought are now well known (Brookfield, 1975). In essence, they tend to equate development with the diffusion of Western "modern" attributes throughout traditional "undeveloped" societies, a view perhaps exemplified by the "geography of modernization" studies (Gould, 1964; Soja, 1968; Riddell, 1970). An alternative approach is found in structural/historical studies, which recognize that development is a historically and socially specific process (Lee, 1981; Hariss, 1982). By using the process of production as their starting point, these studies focus on the inter-relationships of people and the environment, and the social relations in which the production process is embedded.

Capitalism is a historically specific mode of production defined in terms of its major relation of production: the relationship between capital, which has effective possession of the means of production, and "free" labour, which has been separated from these means and is

therefore dependent on capital for its reproduction. Because the means to extract surplus labour through the wage form is built right into this relationship, capitalism has facilitated great material growth over several centuries. Today, it has expanded into an international economic system into which most societies in the world are integrated.

It was expected by Marx and some of his early followers that capitalism would tend to eliminate all forms and relations of production that were alien to its logic of production founded on capital and wage labour. This would take place through a process of "primitive accumulation", an expropriation of producers from their means of production giving rise to the class of "free" labour presupposed by capitalism (Marx, 1977). This process of "primitive accumulation" has been amply documented in the past and continues to take place in both the First and Third Worlds (Steinbeck, 1939; Moore, 1966; Rodney, 1974). Nevertheless, many forms and relations of production which on the face of things appear to be non-capitalist, i.e. where producers continue to possess certain of their means of production, continue to exist within the world capitalist system. Their relationship with the expanding capitalist system is the concern of structural/historical studies of development.

One approach to the study of these societies is the

"dependency" or world-systems perspective (Frank, 1969; Wallerstein, 1976). This approach tends to ignore rigid analyses of relations of production and instead focuses on the hierarchical differentiation between metropolis and satellite and its spatial expression (P.J. Taylor, 1985). The development of the former and underdevelopment of the latter is seen as two sides of the same coin, with every relation of production and exchange leading to the world-wide accumulation of capital.

A second approach examines the ways in which capitalism is "articulated" with non-capitalist modes of production (c.f. Meillassoux, 1972; Wolpe, 1980; Riddell, 1981; Crush and Rogerson, 1983). It attempts to overcome the conceptual underdevelopment of the dependency approach by distinguishing between relations of production which are or are not specifically capitalist. "Articulation" used in this sense means more than simply a linkage, but "...implies that there is some intervention in the social practices of capitalism within those of the other mode and vice-versa" (Hariss, 1982:23). Here, the persistence of non-capitalist relations is sometimes explained in terms of the functional requirements of capital. The peasant economy is often the example given, as it subsidizes the capitalist mode by bearing some of the costs of reproducing labour, thus

enabling capitalists to pay low wages.

The approach adopted in this thesis displaces focus from the concept of mode of production to that of social formation. The highly abstract concept of mode of production is of considerable heuristic value, helping us to understand the logic of a particular form of production. However, the concept becomes too complicated to be of much use when one speaks of its articulation with other modes (Clarence-Smith, 1985). Furthermore, articulation theorists tend to have an overly rigid and formal definition of capitalism. Any forms of possession of or separation from means of production which vary from the capital/wage labour relation are reduced to manifestations or residues of non-capitalist modes of production (Chevalier, 1983). An alternative approach is to focus on the notion of social formation, conceived as a determinate set of relations of production and the forms in which their conditions of existence are secured (Cutler et al., 1977; Hindess and Hirst, 1977). It sees the relation between capital and the forms of production it meets in terms of struggle for possession of the means of production between conflicting classes in varying concrete conditions (Bernstein, 1982). No analytic priority is accorded to any specific set of economic relations.

1.4 A SCHEMA OF PASTORAL PRODUCTION SYSTEMS.

The following schema of pastoral production systems is drawn from a number of "pastoral studies" by researchers using various theoretical approaches. Although applicable elsewhere, the remarks which follow are made with East African pastoralism in mind.

i. Social Relations.

As a subsistence "natural economy", pastoralism is oriented toward the production of use-values for local personal or productive consumption. The logic of production is the simple reproduction of the conditions of production and the production unit (household). As such, pastoralists do not try to maximize output per unit of animal, but rather are concerned with the continuity of the supply of foodstuffs (primarily milk). The maximization of household livestock holdings facilitates this end by (a) ensuring an adequate food supply throughout the dry season and, (b) ensuring enough animals survive a drought to allow herd regrowth (Dahl, 1981).⁵

The household constitutes an autonomous production unit. It controls the disposition of livestock and supplies the necessary labour for the growth and upkeep of herds. However, pastoral households have always presupposed to them

and as necessary conditions for their reproduction wider social relations. (Bonte, 1977; Lefebure, 1979; Rigby, 1979). As Ennew et al. stress in their critique of the concept of a domestic mode of production,

Enterprises are socially constituted, and the form of the distribution of the means of production (and the operation of this distribution in the reproduction of the conditions of production) enable us to designate the form and conditions of existence of enterprises (1977:309).

In traditional pastoralism, the reproduction of the household production unit depended on the wider community as a means of distributing women, labour, livestock, and grazing resources.

Ideally, the domestic group seeks to balance herd size with family size (Leeds, 1965). The larger the herd, the more people it is capable of supporting; but at the same time, more labour is required to manage it. In practice, however, herd and family sizes are not so easy to balance. The livestock of a particular household may be redistributed through the community if the growth of a herd begins to entail more labour power than the household is able to provide. This redistribution may involve future demands on the associates who are given the animals. Poorer people thus enter into patronage relationships with wealthier herdowners: in exchange for their labour power, destitute herders receive certain rights to livestock and its

products. Unfortunate pastoralists are able through such associates to gain access to animals for rebuilding herds. Other forms of stock friendship, loans, and so on serve to circulate livestock throughout the community.

A young male pastoralist who seeks to found a production unit and ensure its reproduction is faced with two requirements: first, he needs to acquire livestock and one or more wives; second, he must be able to maintain the size of his herd and beget heirs (Lefebure, 1979). Women's role in social reproduction is crucial. They provide access to stock through bridewealth and affinal links which they bring in and create through their own and their daughters' marriages. As well, they hold "in trust" rights that are gradually transferred to sons upon their marriage or at some point after (Jacobs, 1969; Waller, 1985). Although animals are herded as a group, under the direction of the male household head, individuals within the household are allocated different rights of ownership and control.

The households making up the community enjoy access to grazing land, wells, natural salt licks, in other words, "...to natural resources that have been more or less transformed and are collectively developed and administered" (Lefebure, 1979:4).

Property concepts thus become blurred in pastoral

society. As Gulliver observes, "Property is not an individual entity residing with one person or a small group. It is a cluster of rights appertaining to some object" (1955:264). According to Dahl (1981), a local culture may in theory or practice differentiate between the rights to sell and dispose of stock; the rights to milk cattle and dispose of their offspring; and the rights to make decisions over the care and herding of stock.

Because the individual propriety rights associated with ownership do not strictly apply in East African pastoral society, there is little basis for the development of classes or inequality (Galaty, 1981:b). Pasture is indivisible within the community; livestock are divisible, but because of household labour constraints on herd sizes, there are definite limits on the capacity of an individual household to actually "possess" livestock. The exchange of livestock is basic to the process of accumulation, but the social relations produced through this process act as a continuous check on inequities in livestock holdings (Ibid.).

Through wide social relationships, the pastoral producer thus gains access to all the conditions of production necessary for the needs of simple reproduction: animals, wives, grazing and water, labour power, and social

security.

ii. Technical and Ecological Relations.

Pastoral production systems are organized primarily to provide a daily supply of food for individual households while at the same time cushioning this food supply from the effects of natural disaster. Management of livestock is geared to the production of several different foodstuffs, including milk, blood and meat. Milk and blood are both harvested on a renewable basis, and milk is consumed most regularly and has the lowest cost of production. Since each step in the chain of conversions from pasture to milk, and from milk to meat and blood involves a net loss of energy, the appropriation of milk places pastoralists at an earlier point of the food chain and allows them to support larger populations than would be the case if they slaughtered their animals for meat.

Ingold (1980) uses the term "protective" to characterize the human-animal association of pastoralism, but he is concerned with carnivorous reindeer pastoralism. For "milch" pastoralism, perhaps the notion of "parasitism" is the most useful one. This association is parasitic in the sense that both species live together, but the human species "...derives its nourishment at the expense of the other"

(Smith, 1977:269). Pastoralists are in effect competing with calves for the milk of cows, and overexploitation of the milk supply comes at the cost of endangering the reproductive capacity of the herd.

Pastoralism is a very labour-intensive enterprise (Behnke, 1983:). Daily herding is required to protect the animals from predation and theft, lead them to pasture and water, and render them docile. Depending on the herd composition, between 100 and 200 head is the upper limit that a sole herder can graze effectively (Horowitz, 1979:44-45). Household nomadism is required as well; since food is stored "on the hoof", whole families must move with every major shift in grazing zone. Milking animals is a daily task as well.

East African pastoral herds are typically composed of a variety of species, usually including some combination of cattle, sheep, goats, donkeys, and camels. In drier climates, the spectrum will include a higher proportion of the latter more arid-adapted species; cattle predominate in more favourable zones. By combining herds of different species under the same management, households are able to even out milk supply throughout the year because of different, and sometimes complementary lactation patterns (Dahl and Hjort, 1976). As well, multi-species herds make

more efficient use of pastures because of their complementary feeding habits as browsers and grazers. The added diversity means that a greater offtake of vegetation can be achieved than would be the case with a single species. The high reproductive rate of sheep and goats enable flocks to grow quickly after a drought and allow pastoralists to slaughter them for meat or use them for transactions without endangering the future reproductive capacity of the total herd (Hedlund, 1979). The annual percentage rates of incremental increase of pastoral stock are as follows (Dahl and Hjort, 1976:231):

Cattle.....	3.4%
Camels.....	1.5%
Sheep.....	18.0%
Goats.....	33.0%

Following a drought, an impoverished household will invest in small stock as a quick way of rebuilding depleted herds. As herds grow, the household will gradually consolidate its wealth by converting to more secure holdings of large stock which, though they do not multiply so rapidly, are less susceptible to drought and disease, and are more reliable as producers of food (Dahl and Hjort, 1976; Ingold, 1980).

The favoured cattle species for Kenyan pastoralists is the short-horned zebu (Bos indicus), which has adapted to the severe selective pressures of the East African climatic

regime over 5,000 years (Stanley-Price, 1981). Although its capacity to grow at very high rates under good range conditions pales in comparison with the European Bos Taurus, it has several other advantages. They are resilient to heat stress and disease; in times of drought, mature zebu are able to withstand reductions in food intake over long periods without significant reductions in weight; and they are able to fully recover from weight loss of up to 30 per cent following periods of extreme stress (Pratt and Gwynne, 1977; Stanley-Price, 1981).

Dyson-Hudson and Dyson Hudson (1982) have analysed some of the peculiarities of pastoral cattle herd structures. Firstly, there is a high proportion of adult females in pastoral herds, typically around 60 per cent. This is consistent with the milk production orientation of pastoralism, whereas 35 per cent adult females has been deemed optimal for beef herds (UNDP/FAO, 1969). Second, 70 to 80 per cent of pastoral herds are mature animals. Even older animals that make no contribution to milk production or the reproduction of the herd are retained for bleeding or as emergency meat supplies.

Mobility is a basic pastoral strategy to safeguard livestock production. It allows herders to move livestock in response to pasture and water availability, avoid

overgrazing in one area, and avoid disease-carrying insects (Dahl, 1981). If the environment changes in regular and predictable seasonal patterns, transhumance develops along fixed routes of migration (Johnson, 1969). Where environmental variation is wide and unpredictable, such as in much of Kenya, pastoralists use a more opportunistic strategy based on decentralized individual decision making (McCabe, 1983).

Pastoralists stock a range according to what has been characterized as an "r" strategy (Dyson-Hudson, 1984). "r" strategists make use of unstable or unpredictable environments by reproducing rapidly in favourable conditions, but face catastrophic mortality when conditions change (Smith, 1977). Indeed, this strategy closely resembles the "sawtooth" pattern of accumulation found in pastoral systems. Family herds increase rapidly to make maximum use of available forage, "tracking" the changing annual production in a manner that resembles the strategy of wildlife herbivores in identical environments. Thus, under favourable conditions, no forage is left ungrazed. This gain, however, may be offset by drought losses: catastrophic mortality among livestock occurs when too many animals are left on the range when conditions change. Herdowners recognize the inevitability of this crash, but also

recognize that, according to one Samburu elder,

If a man has alot of cattle, and some die, he still has some left, but if a man has a few cattle and they die, he has none left (cited in Oxbly, 1975:6).

In order to secure immediate food production as well as long term recuperation of herds after a large-scale loss, herd sizes must be large in order to provide a safety margin.

1.5 CONCLUSION.

It is essential that some of the insights of ecology are retained in this thesis. Ecological approaches are vital in identifying some of the functional relationships of pastoral production systems and in understanding the rationality of certain cultural practices. Nevertheless, ecology can only take us so far in determining the social conditions of existence of pastoralists and how these conditions have changed with the development of capitalist relations of production. The social and ecological relations of pastoralism must be considered together as analytically distinct dimensions of a single production system. One cannot be reduced to the other.

NOTES FOR CHAPTER 1

1. This view has been clearly expressed by Evangelou: "In the midst of such dismaying conditions [of food production in Africa], the underexploited potential of range areas, regions mainly utilized by, largely self-

sufficient, nonmarket oriented pastoral peoples, is increasingly attracting the attention of national governments. The nutritional needs of burgeoning populations make the expansion of livestock production in these areas imperative, and yet pastoral systems are characterized as 'production systems in the waiting room of development' the presumption being that 'development must be expected to set in elsewhere'. The challenge lies in disproving this assumption by overcoming the constraints which currently prevent expanded livestock production in pastoral areas" (1984:1-2). Evangelou is citing Jahnke (1982), who from a similar national-economic perspective argues that pastoralism is basically "undevelopable" and recommends that investments be pulled out of pastoral areas.

2. The collision of these two perspectives is documented in the volume, The Future of Pastoral Peoples (Galaty et al., 1981).
3. "Cultural ecology" refers to "...the study of processes by which a society adapts to its environment" (Steward, 1968:337). "Human ecology" refers more generally to attempts to apply biological concepts of interspecific exchange to human communities (Chorley, 1973).
4. The logic of the pastoral economy does not preclude sales or exchange; but sales are only to purchase essential items of personal or productive consumption and not to invest in the factors of production. Thus pastoralists often display a "backward bending supply curve", selling fewer animals when prices rise in order to meet a target income (Monod, 1975).
5. A "herd" properly refers to a group of cattle or camels while a "flock" refers to a group of sheep or goats. In this thesis, the former term is occasionally employed to refer to a group of livestock in general.

CHAPTER TWO

THE ECOLOGICAL MODEL AND THE POLITICS OF PASTORAL LAND USE.

2.1 INTRODUCTION.

This chapter critically evaluates the ecological model of pastoral crisis and change within the sub-Saharan African context. It is argued that sometimes approaches which use this model may be better understood for the ideological ends they serve than for their scientific value. The ecological model is shown to suffer from serious substantive and methodological flaws, and the social interests it serves as an ideology are revealed.

The ecological model has its origins in the natural and technical sciences, and tends to see rural poverty as a physical phenomenon. It is distinct from the political economy perspective, which sees rural poverty as a social phenomenon, a consequence of processes which concentrate wealth. Robert Chambers (1983) has contrasted these two "cultures", and argues for a healthy pluralism. Geographers, who straddle both the natural and social sciences, can surely appreciate the difficulties involved in such an achievement. Unfortunately, rather than the pluralism providing a balanced view, the former perspective appears to.

be more influential among policy-makers.

Several authors have criticized overconcentration on ecological explanations of pastoral poverty (Galaty, 1981; Hjort, 1981a; Sandford, 1983). That ecological approaches may serve ideological ends has been noted as well (Hjort, 1981a). This chapter focuses on how ecology has been recruited to perform ideological functions in the political process of economic change in Africa's rangelands.

THE POLITICS OF PASTORAL LAND USE IN KENYA.

Pastoral peoples in Africa have suffered for decades the adverse effects of the expansion of powerful colonial and national societies. Loss of land has severely undermined the ability of pastoralists to continue their way of life, and has led to the decimation of some groups. This has generally been accepted as an inevitable by-product of development and has been legitimized by numerous ideologies, some of which are outlined by Oxby (1975) and Bennett (1984).

In Kenya, this process is well documented (van Zwanenberg with King, 1975; Spencer, 1983). In the nineteenth century, pastoralists were the dominant political and economic force in East Africa (Soja, 1968; Kitching, 1980; Waller, 1985). Colonialism reduced pastoralists into

the position of a marginalized and impoverished portion of the population. The colonial State undertook the "pacification" of indigenous populations, and land was alienated and appropriated for the production of agricultural commodities on settler estates (Morgan, 1963). From the beginning, the primary concern of the colonial State was to foster the economic power of settlers:

There can be no doubt that the British administration did in fact follow a policy which invariably allowed the interests of settlers to prevail at all the critical points where they conflicted with those of the African population (Brett, 1973:180).

During this period, a stereotype developed which held that pastoral societies were extremely conservative and resistant to change. According to Rigby (1969), this stereotype was reinforced by crude anthropological analyses which sought causal links between pastoralism and conservatism. One such link concerns adaptation to harsh environments and a second concerned the high cultural value placed on livestock in these societies, usually summarized in the phrase "cattle complex". Nkinyangi (1981) points out that such explanations were tautological in the sense that they explained the so-called conservatism of pastoral peoples in terms of factors internal to those societies. Nevertheless, despite their logical flaws, these views played a role in justifying the exploitation of pastoralists

that went beyond mere bias and thus should be seen "...as part of the ideology of a particular historical epoch and the social relations thereto" (Ibid., p 184).¹

The colonial appropriation of prime grazing land² amounted to a semi-dispossession of pastoral producers. When combined with several other processes set in motion by the colonial administration,³ this loss led to large concentrations of livestock on much reduced grazing resources. However, the administrators defined the problem of one of overstocking, leading to overgrazing and soil erosion, and made every effort to protect the land rather than develop the people and resources. Occasional attempts at forced destocking and a spate of grazing control schemes were attempted in the period from 1930 to 1960, all of which provoked a great deal of political dissent among pastoralists (Spencer, 1973; Migot-Adholla and Little, 1981). The Swynnerton Plan (1954) likewise expressed concern that overstocking and uncontrolled grazing would lead to "near-desert" conditions in the rangelands and advocated the launching of livestock marketing schemes which would absorb "excess" stock. However, the prices paid by the monopolistic Kenya Meat Commission in the late 1950s was less than half of what was paid for European stock and amounted to a disincentive to sell (Spencer, 1973). In some cases,

Africans were even prevented from selling stock at official auctions to prevent the prices from dropping and to protect European sales (van Zwanenberg with King, 1975). The failure of colonial schemes to generate a significant increase in marketed stock from African areas helped to reinforce the image of "conservatism".

In the post-colonial period, interest in Africa's pastoral rangelands has intensified. Development planners point to the low levels of productivity of rangelands under traditional systems of production (c.f. Simpson, 1984). It has become clear that agriculture cannot encroach much further into semi-arid lands without prohibitively expensive capital intensive inputs. The limits of crude transfer of surplus from subsistence pastoral production systems to the "modern" sector seem to have been reached as well. Substantial increases in marketed offtake can only be achieved under commercial systems of production.

The State's central role in creating conditions that facilitate capitalist expansion in post-colonial societies has been noted by several scholars (e.g. Alavi, 1972; Leys, 1978; Bernstein, 1982).

The State in Post-Colonial society directly appropriates a very large part of the economic surplus and deploys it in bureaucratically directed economic activity in the name of promoting economic development (Alavi, 1972:62).

Bernstein (1982) locates this role in relation to the possibilities of accumulation by the ruling classes which have formed since independence, whether they are reproduced and accumulate on the basis of individual or State property. Their ability to reproduce and accumulate is tied to the development of their own territorial economy and their ability to extract surplus from the countryside. In the case of livestock production, this economic role has found expression in Kenya and elsewhere in several forms, for instance, forced destocking, the development of grazing blocks and quotas, and the creation of government-sponsored meat marketing schemes. Another significant intervention is land tenure reform. Processes of land adjudication in many parts of Africa are turning traditional pastures into private ranches and dispossessing subsistence producers.⁴

2.2 THE ECOLOGICAL MODEL.

At the same time, development planners seem to be broadly informed by the ecological model of the relationship between livestock, pastures and pastoral populations. This model is only superficially related to the field of ecology itself, which is concerned with the totality of relations between organisms and the biological and physical factors affecting them, because it limits itself to these three

parameters. Typically, it assumes that changes associated with modernization have disrupted the adaptive equilibrium of pastoral systems, resulting in socio-cultural values and institutions that are incompatible with the environmental base. The destruction of the environment is the outcome as livestock numbers grow to a point that far exceeds the carrying capacity of pastures. According to this "mainstream view", several processes are seen to be at work (Sandford, 1983). One is the increased human populations in pastoral areas, which in turn have triggered increased livestock numbers to support the extra pastoralists. Second, certain factors that have constrained herd growth in the past, such as limited water resources and epizootics, have been removed as the result of water development and the provision of veterinary services. Third, pastoral societies place a high social value on the accumulation of cattle, rather than on the economic value of these livestock or on environmental conservation. Fourth, a contradiction is seen between the communal ownership of rangeland and the private ownership of herds. Under these circumstances, management of range resources is impossible where control of stock numbers is not combined with equal managerial power over land use. In this classic "tragedy of the commons" scenario, it is in the individual's short term interest to accumulate livestock to

the long term detriment of communal resources. Finally, proponents of the ecological model often stress the seriousness or irreversibility of environmental degradation and consider it imperative that governments intervene.

Elements of the ecological model are widespread throughout the development literature. Through the citation of a few examples, we shall see how the generalizations made above have worked their way into development policy in explicit ways.

Z.A. Konczacki, an economist, outlines the pastoral problem in terms of the rangeland/herds/population triad:

In the pastoral nomad groups, the pattern which has emerged during the modern phase of development has been one of increasing pressures on pastures. As a result of successful attempts to reduce mortality rates, human population is growing faster and so is livestock. On the whole, efforts to increase the area of rangeland do not keep pace with the change in the two other variables. There is also progressive deterioration in the quality of pastures due to overgrazing (Konczacki, 1978:54).

Forms of social organization are seen as obsolete, and reference is made to the "tragedy of the commons":

While, in the past, the existing institutions were consistent with the fairly stable needs of the group, today this is not the case anymore. The basic institutions are the family or individual ownership of livestock, and the common ownership of rangeland.... An asset commonly owned is economically inefficient in that it tends to be overused, unlike assets subject to more restrictive property rights (Ibid., p 54).

The case for intervention is made:

Sooner or later it will be imperative to regulate the use of common pasture, if that use is to continue.... This can be accomplished only by turning them into private or public property subject to an unified [sic] directing power (Ibid., p 55).

The same pattern appears in the FAO publication, "Human Influences in African Pastureland Environments", an educational handbook aimed at extension staff. The priorities here are clearly stated: "...preservation of the environment should surely take priority over all political, social, and economic considerations" (FAO, 1980:75). Unfortunately, pastoral social organization and cultural values are the biggest obstacle:

The pastoral inhabitants of low-rainfall regions are generally conservative people, probably the world over in the sense that they cling to familiar customs and procedures and are slow to adopt new ideas.... it is understandable people will not easily abandon long established beliefs and customs even though some of these... have now become partly or wholly irrelevant (Ibid., p 23).

The "customs and attitudes which can react harmfully on pastoral environments" include a desire for large families, a high social value placed on livestock, and uncoordinated land use stemming from common ownership of rangeland (Ibid., p 34). Traditional pastoral systems

...appear to have been successful in conserving the habitats so long as periodic checks such as warfare, famine and disease redressed the ecological balance between people, animals and plants [that triad again!] before much damage had been done to the vegetal cover (Ibid., p 23).

However, these stabilizing factors

...are now only partly functional or are no longer operative. Consequently, national governments are faced with the urgent task of re-establishing equilibrium at high levels of productivity in the context of new and altered circumstances (Ibid., p 23).

Many of the assumptions of the ecological model may be found throughout the related resource management, livestock development, and desertification literatures. Some seminal examples are Dasman et al. (1973), Pratt and Gwynne (1977), and some of the documents of the United Nations Conference on Desertification (UNCOD, 1977b, 1977c).

The ecological model is clearly influential among policy makers in Africa. In Kenya, the belief that pastoralists are incapable of managing their range resources has been the justification for the imposition of organizational and tenurial innovations (Davis, 1971; Hopcraft, 1981). Kenya's National Livestock Development Policy aims to "help the nation avoid any shortfalls in livestock production" but is also very concerned about the environment:

Despite warning sounded as far back as 1929 on the overstocking condition in pastoral areas, no satisfactory solution has been found to this problem yet. This has been the greatest failure in Kenya's livestock development history. Overstocking and thus overgrazing, which may be defined as keeping animals on a piece of land to the long term detriment of the carrying capacity of that land, leads to environmental degradation, loss of natural resources, reduction in carrying capacity of the land and thus decline in the

national herd (Kenya, 1980:21).

The document clearly values the ecological knowledge of the government more than that of the pastoralists:

Policy measures to instil proper stocking rates will include... land tenure reforms away from communal grazing land and the institution of grazing quota with the participation of pastoralists; constant dialogue and education on the evils of overstocking; and where socio-territorially appropriate strict enforcement of natural resource conservation rules (Ibid., p 21).

Furthermore, Botswana's President Seretsa Khama advocated the enclosure and privatization of tribal grazing lands through direct appeal to the "tragedy of the commons":

Under our communal grazing system it is in no one individual's interest to limit the number of his animals. If one man takes his cattle off, someone else moves his own cattle in. Unless livestock numbers are somehow tied to specific grazing areas, no one has an incentive to control grazing.... (Khama, 1975).

Ecological approaches are vital for understanding some inner relations of pastoral production systems. It is argued here, however, that one must understand the social interests that sustain them before their value can be fully assessed. Science does not exist in a pure or neutral form. Scientific discourses are characterized by a peculiar pattern of presences and absences in terms of the questions that are posed and those that are excluded. Theoreticians as well as practitioners are bound by their own methods and disciplines to emphasize certain aspects of a problem while possibly overlooking others. Upon entering a problematic, the kind of

knowledge produced is thus, to some extent, predetermined.

Scientific discourses become ideological discourses when they become articulated with and sustained by certain social interests. The partial or incomplete nature of science means that it can serve as a disguise for complex political issues. If scientific work supports the tacit aims of the dominant interests in society, it may be used to justify actions based on political predilections rather than "balanced" or "ethically neutral" judgement.

2.3 SUBSTANTIVE CRITIQUE.

In this section, the substance of the ecological model outlined above is subject to critical analysis. The evidence that supports it will be shown to be less than decisive. It is argued that the reduction of ecological crisis in pastoral areas to such factors as population pressures on resources cannot be sustained.

i. Is Pasture Degradation "Irreversible"?

One serious accusation levelled against pastoralists is that they are responsible for desertification. According to Stiles, "The origin of pastoralism in the Sahara coincides with with desertification. Is this just a coincidence?" (1981:378). Environmental degradation is the deterioration

of land, water and other natural resources under ecological distress. Desertification is the destruction of the biological potential of land (UNCOD, 1977a). Policy makers who are informed by the ecological model sometimes link the two phenomena to justify intervention into indigenous production systems. However, the role of land users, pastoralists in particular, in desertification is sometimes overestimated.

Since the 1968-1973 Sahelian drought, several explanations for desertification have become current. One tendency is to emphasize the importance of local conditions. For instance, it has been hypothesized that overgrazing may create positive feedback mechanisms which destroy rangelands related to wind and soil erosion (Rapp, 1974), an increase in albedo from a reduction in vegetative cover (Guterman, 1974; Charney et al., 1975), or natural selection of plant species under selective grazing pressure (Hopcraft, 1981).

Other theories locate the primary causal factors for drought and desertification in the macroclimate, and point to a southerly-moving inter-tropical convergence zone (Smagorinsky, 1974) or an interannual persistence of sea temperature anomalies in the North Atlantic (Gilchrist, 1975).

It may be that rangelands are more resilient to local

conditions of overgrazing than we have been led to believe. After a historical survey of Samburu, Kenya, P. Spencer comments that "...the case [that soil erosion is taking place] has been overstated from time to time and expert opinion may have underrated the recuperative power of some vegetation" (1973:181). Jacobs (1980) has come to a similar skeptical conclusion in Maasailand. Horowitz (1981) notes that the bulk of pasture in Sahelian zones comprises of annual grasses which set seed at the end of the rainy season. After the seeds have been set, animals may graze the grass to the ground without endangering the next season's growth. He cites Peyre de Fabregues' agrostological study of Sahelian pastures in Niger:

Changes in pasture produced by dry season grazing only last as long as that grazing continues. Indeed, it has been noted that annual, perennial, and native plants have sufficient regenerative power, due to their seeds, to appear as soon as the range is deserted for at least one year with good rainfall (cited in Horowitz, 1981:74)

As well, it is not clear just what constitutes desertification, for "...only over periods greater than a decade can desertification be clearly distinguished from the less long lasting effects of drought" (Warren and Maizels, 1977:1). Indeed, rangeland production resumed in many parts of the Sahel following the heavy rains of 1974, as was the case following the North American dust bowl of the 1930's.

Global circulation processes thus appear to override local human-related feedbacks (Hare, 1977). As East African range ecologist David Western puts it,

The increasing aridity of the Sahelian zone in recent millenia is an oft-quoted example of pastoral overuse, either as a primary or contributory factor. Against this, however, must be weighed the fact that pastoralists have inhabited the East African savanna ecosystems for millenia, according to recent archaeological findings.... Most concern over habitat degradation centres on the arid areas, such as the Sahara, but these are precisely the areas where the most unstable climatic conditions exist, and where natural erosion is highest (1982:202).

ii. The Concept of "Carrying Capacity".

The concept of "carrying capacity", so central to the ecological model, is sometimes confusing when applied to pastoral systems. Carrying capacities are sometimes presented unproblematically, as if their calculation was simple and straightforward. For one thing, however, it is unclear to what degree carrying capacities constantly regulate animal numbers, are subject to deterioration due to overstocking, or are capable of regeneration when grazing pressure is relieved (Hjort, 1981a). Likewise, it is unclear whether the critical limits of carrying capacities are defined by the inability of the range to provide sufficient food for the animals, which reduces reproduction rates and increases death rates (Haaland, 1975:25), or the point where

the environment is destroyed (Pratt and Gwynne, 1977:36). Evidence presented above suggests that rangelands are capable of regeneration; and since pastoralists' strategy of maximal herd growth and opportunistic mobility closely resembles the strategies of wild game (whose herd sizes closely "track" the environmental carrying capacity), it appears that forage availability limits herd sizes, and not vice-versa. A good proportion of the world's grasslands were, after all, created by herbivores.

Temporal dimensions must be taken into account as well when applying the carrying capacity concept to pastoral systems. Given the wide and unpredictable variations in pasture quality and quantity, carrying capacities may fluctuate wildly within very short periods of time. Moreover, pastoral herds are mobile; they may graze heavily in numbers which appear to overstock a range, but move in order to allow grasses to recover.

iii. The "Tragedy of the Commons".

The problem of the "tragedy of the commons" is now considered. This parable, popularized by Hardin (1968; 1977), contrasts the costs and benefits of the individual and those of society, where a group of individuals share a common resource. Hardin argues that the tragedy may be

averted through the unification of private and social interest, through the institution of "...private property, or something formally like it" (1977:22). Hardin takes certain assumptions about human behaviour as the starting point of his analysis, presenting an eternal homo oeconomicus overwhelmed by an individual drive to maximize wealth. If the model had begun with the economic rationality of social systems, it would have recognized that "...rational men" do not pursue collective doom; they organize to avoid it" (Sandford, 1983:120).

It is unfortunate that Hardin uses the example of a herdsman for illustration, for anthropological study has revealed that the model does not coincide with actual pastoral behaviour. Horowitz's (1979) study demonstrates that pastoralists in Africa have very complex controls over resource use. Access to pastures is constrained and shared both within groups and between groups by traditional custom and authority.) Access to pastures is also functionally controlled by private ownership of wells. Helland's (1979) remarkable study of water control among the Borana of Kenya and Ethiopia shows how control of access to wells is the basic means of controlling individual behaviour. Furthermore, the "tragedy of the commons" model assumes that forage exhaustion is the only constraint to herd size.

labour" suggests that the major constraint may be labour, not land:

A constraint on herd size is the diminishing returns from unimpeded increase, reflected in such costs as predation, theft, disease, inadequate watering, as the herd expands beyond the herder's capacity to manage them (1979:45).

Depending on the herd composition, between 100 and 200 head is the upper limit that a sole herder can graze effectively (Ibid., pp 44-45).

iv. An Alternative Approach.

While there is little evidence that herds permanently degrade dry rangelands, there is considerable evidence that overgrazing damages pastures temporarily so that forage disappears and animals die of hunger. It is clear that the primary factors causing overgrazing lie beyond the control of pastoralists. Most commonly, overgrazing occurs where extensive land use strategies are restricted, leading to the concentration of animals in one location. High livestock numbers in themselves is not a sufficient precondition.

Most attempts to include social factors in pasture degradation imply that the problems begin with the pastoralists themselves. An alternative explanation of ecological crisis in pastoral areas broadens the scope of analysis beyond the narrow parameters of herds, pastures and

human populations to include factors found in wider political economies (c.f. Blaikie, 1985). Environmental degradation is seen as an expression of marginalization, and of processes that have made pastoralists more vulnerable to natural disasters such as drought.

One of these factors is the alienation of dry season grazing reserves. The extension of settled agriculture and ranching into semi-arid zones has resulted in the loss of vital pastures. Together with restrictions on mobility imposed in development schemes and administrative boundaries, it has led to the confinement of pastoralists to more marginal rangelands. This is rarely recognized in the ecological model, where the problem is based on the quality of vegetational cover, and not its spatial extent. For Pratt and Gwynne,

There are, therefore, two recognizable forms of overstocking. The first arises when the human population is excessive; when every family, regardless of range condition, attempts to keep enough stock to keep itself alive.... The second arises when the pastoralist, reluctant to sell his surplus animals, accumulates more livestock than is needed for subsistence (1977:38).

These remarks are fine for discussing purely ecological problems, but as Hjort (1981a:20) points out, they fail to account for land losses occurring simultaneously with the development of ecological imbalance.

Generally speaking, pastoralists throughout the world

are tending to be more sedentary today than they have been in the past. This is the result of many factors, often involving politics (Johnson, 1978). In many cases of sedentarization, reduced movement has led to the concentration of livestock around human settlements and consequent problems of overgrazing (Darling and Farver, 1972). Range monitoring data on Maasai Group Ranches, for instance, found overgrazing to be a problem that was limited to the areas surrounding newly established permanent homesteads (EARLS/Kenya, 1982).

The loss of labour to other occupations to earn money for cash needs has undermined the viability of a number of subsistence livelihoods. With less manpower available, the ability of pastoralists to organize labour intensive stock migrations is reduced. As a result, they become more vulnerable to drought. The shrinking migration distances due to reduced labour power have two further unhappy effects: on one hand, overgrazing results from increased herd concentrations on pastures near water; on the other, problems of understocking on distant pastures leading to uncontrolled bush growth in the periphery (Dahl, 1979b).

The invasion of new technologies with no social basis in pastoralism can aggravate grazing problems as well. The multitude of boreholes sunk by the international donor

community is one case in point. For the development planner unacquainted with the subtleties of pastoral resource management, the most obvious solution to water scarcity is the digging of wells. These projects had disastrous consequences throughout the pastoral areas of Africa (Horowitz, 1979; Goldschmidt, 1981). Traditionally, herders hold back their herds from around wells until dry season in order to preserve the limited grazing around the wells. Individual or group rights in well ownership allows the herders to limit access and prevent free-for-alls from devouring all the forage in the vicinity. Agreements on range use and well access between groups fulfill the same function. Large public wells break down this pattern by attracting distant herds of different ethnic groups. They change the transhumant orbits of many herders, concentrating large numbers of animals on narrow tracks linking the diesel-powered pumps. For some observers, the overgrazing that has resulted in certain areas

...is proof that pastoral herdsmen, exploiting lands communally, inevitably destroy their own resource. From this perspective, it follows that programs to be established should be fundamentally discrepant from traditional practice. To others, however, who see herdsmen as having been made vulnerable to primarily by interventions imposed from without, what is called for are development programs firmly predicated on understandings of how herdsmen themselves manage their

resources (Horowitz, 1979:50)

v. Is Private Tenure the Answer?

The policy implications of the ecological model are often made explicit by its proponents. Typically, they call for the stabilization of livestock numbers to a point compatible with the carrying capacities of pastures, and the unification of interest in land and livestock, through the introduction of private tenure, "or something formally like it" (e.g. Dasman et al. 1973:92; Pratt and Gwynne, 1977:190; Konczacki, 1978:56,57; FAO, 1980:36,70,75ff; Kenya, 1980:21; Hopcraft, 1981:225-227). However, it seems that private tenure is no panacea to problems of overgrazing. Gilles and Jamtgaard (1982) point out that overgrazing remains a problem on privately managed rangeland in the United States and Australia. In Africa, overgrazing has been worse on the new private ranches in Angola, Botswana, and Kenya than has been the case under traditional communal systems (Cruz de Carvalho, 1974; Odell, 1980; Livingstone, 1976). Gilles and Jamtgaard (1982) have suggested that overgrazing is facilitated by private tenure where short run rates of return on an overstocked commercial ranch may exceed those of a properly managed one in certain situations, or where small land units are insufficient to support a family and

force managers to take more risks.

2.5 KNOWLEDGE AS POWER.

Ecological crisis in Africa... is as much a crisis arising from the nature of environmental science, its organization and the social interests it represents, as it is a crisis of local competence (Richards, 1983:54).

Let us now suspend judgement on the "truth" or "falsity" of the basic assumptions of the ecological model. Rather, what is interesting here are the ways in which knowledge and power are inter-related. Knowledge is linked in a circular relation with the systems of power which produce and sustain it, and to the effects which it induces and which extend it (Foucault, 1980). "Regimes of truth" are at the same time apparatuses of power: the ownership of knowledge allows a given "discursive apparatus" to define problems, accord value to certain types of discourses, and assign power and control over a given institutional field.

Richards (1983) focuses on the disproportionately favoured status of formal academic institutions in the production and ownership of ecological knowledge, and the devaluation of rural people's knowledge and skills. Agencies external to African rural life imagine they are filling a technical vacuum, and ecological crisis is seen as a crisis of ignorance and incompetence. Solutions are imposed on the basis of experience elsewhere, or local knowledge and

techniques are absorbed, translated into "proper science" and improved. In both cases, ownership of both the problem and of the paradigm of explanation and control changes hands.

The ecological model may be seen in this light as an instrument of power used to extend control over pastoralists. It was devised largely by Western development economists and range scientists who appear to have had little knowledge of the goals or rationality of African pastoral production systems. Their methodology seems to have involved an evaluation of indigenous livestock production in terms of modern commercial techniques. Where indigenous production diverges, it is labelled a "traditional custom or practice" which must be "rationalized" if "economically efficient" production is to take place.

Ecological resources and processes can mean different things to different groups, but the social construction of meaning is closely tied up with apparatuses of power. Rangeland resources may be seen by pastoralists as pastoral resources, but dominant social groups may define them as national resources, to be developed in the "national interest". Similarly, ecological problems in pastoral areas is defined alternately as one of overstocking, soil erosion or land shortage (Van Zwanenberg with King, 1975:104).

The ecological model can lead to a basic distrust of indigenous capabilities of managing environmental resources. As a result, a key role is assigned to top-down bureaucratically directed interventions into the pastoral "sector" (Johnson, 1980). Indigenous knowledge of rangeland ecology, acquired over centuries of managing livestock in marginal environments, is ignored in favour of techniques developed elsewhere. Rather than viewing indigenous technology as something to be built on, those influenced by the ecological model tend to lump it under the label of "socio-cultural constraints". Participatory development, where individuals are involved in the decisions that have direct bearings on their life, is impossible under these circumstances. Instead, the bureaucratic arm of the State is extended, coercion and discipline is emphasized, and pastoralists become alienated and apathetic.

While ecological models can usefully serve to illustrate particular aspects of pastoralism, they can have little explanatory power if isolated from the economic, political and social context. The focus on land and not people has resulted in a tendency to confuse environmental degradation with general issues of poverty and political marginalization. As has been stressed in this chapter, the factors that have contributed most significantly to problems

factors that have contributed most significantly to problems of overgrazing lie outside the control of pastoral communities in wider national political economies.

Thus development projects predicated on ecological variables alone usually fail to meet their stated objectives. Such models establish the parameters of project assessment, and rarely come under examination. Once development planners accept the ecological model as the framework for explanation and change, as Galaty observes, "...they can blame the failure of organizational innovations on the irrational propensities of pastoralists to ignore the laws of social causation. If victims they be, the fault is theirs" (1981:286). However, if the tacit aim of such projects is to subordinate pastoralists to dominant national interests, the ecological model can serve as a potent ideology.

2.6 IDEOLOGICAL ENDS SERVED.

For the State, which has a directing role in the process of economic development in African society, the ecological model provides the justification for intervention into the pastoral systems. It is no coincidence that State intervention, which here presents itself under the rubric of "improved range management", also promotes

commercialization through the privatization of rangeland and the means to regulate offtake. The solution to the "imbalances" in pastoral systems is thus no technical matter, but lies in the field of politics. In fact, in some cases these enclosure movements have the earmarks of a capitalist "primitive accumulation", a dispossession of direct producers orchestrated by the State.⁶ The ecological model provides the opportunity for a radical transformation of traditional modes of pastoral production, promoting the establishment of a production system oriented towards urban and export markets.

The immediate beneficiaries of the "rationalization" of livestock production are of course the commercial meat producers. In Kenya (Haldeman, 1971), Botswana (Parson, 1981), and Uganda (Doornbos and Lofchie, 1971), for example, individual ranch development was propounded by and ultimately benefitted a distinct social group. In each case, its members were characterized by the ownership of large commercial herds and significant political power. For this group, progress was represented by the need for fencing to control breeding, the need for capital intensive inputs requiring de jure ownership of ranching operations, and the need to move off increasingly overcrowded land onto land of their own.

incorporation into ideological discourse for several reasons. Most importantly, perhaps, the State is able to create a sense of crisis with all the talk of "irreversible environmental degradation". It represents a seemingly disinterested basis to intervene directly into pastoral systems, circumscribe pastoral resource control, or sell changes in land tenure without having it appear to be a land grab. For commercial cattleowners, this provides the opportunity to clear overcrowded land of subsistence producers in order to make way for extensive forms of capitalist ranching. Furthermore, the concern for the natural environment ensures a sympathetic response from international donors and technical assistance personnel. For the development planner, the ecological model reduces complex problems to a level where solutions can be easily identified. We get what Hjort (1981a) calls a "technical reductionism", characterized by a set of dogmatic answers to complex problems.

Myopic overconcentration on ecological variables comes at the omission of certain factors that have been historically crucial in the determination of the current predicament of pastoralists. For instance, problems of pastoral poverty and resource deprivation could be seen as

the result of a population increasingly marginalized by powerful expanding national societies -- or pastoralists themselves may be blamed for having obsolete cultural values and social organization. The tendency to attribute the causes of current imbalances in pastoral production systems to ecological conditions alone is to avoid complex political, social and economic issues (e.g. "Preservation of the environment should surely take priority over all political, social, and economic considerations" [FAO, 1980:75]). That commercialization would exclude a large proportion of indigenous producers currently practicing pastoralism is conveniently overlooked. As Sandford (1983) reminds us, the "tragedy of the commons" argument was originally formulated by agents of a budding bourgeoisie engaged in "primitive accumulation" in eighteenth century Britain. Writing about the enclosures of the commons in this period, Barrington Moore writes, "...the rural capitalist justified the misery he caused by appealing to the benefits he created for society at the same time he made immense personal gains" (1966:120). Capital accumulation presupposes the existence of surplus labour, but entails misery for the masses scrounging to survive in urban areas.

2.7 CONCLUSION.

Pastoral development theories and practice are strongly influenced by the ecological model outlined in this chapter. It is inevitable that the parameters of this model, i.e. herds, pastures, and human populations, will result in the generation of findings that are narrowly focused as well. Thus work done using such models can only provide limited satisfaction. This is not to say that ecological models are of no value, for ecological approaches are vital in understanding certain aspects of pastoral crisis and change. However, it must be recognized that knowledge produced in specific problematics reflect and sustain certain social interests. As Harvey emphasizes, "the use of a particular scientific method is of necessity founded in ideology" (1974:257). When a model incorporating the contentious population-resources issue is seized upon by powerful social groups, the political consequences can be severe. The ecological model in particular seems to invite interventions effecting drastic change for increasingly vulnerable pastoralists.

NOTES FOR CHAPTER 2

1. For example, C.M. Dobbs, the Nyanza Provincial Commissioner stated in 1914 that "...it might seem as a gross piece of interference when we say that the native must necessarily be restricted in his pastoral

tendencies. To such I distinctly state the best interests of the natives are studied when they are restricted in such inclinations and compelled to take to mixed agriculture. Among all African tribes excessive pastoral proclivities more or less influence nomadic or unsettled conditions in their life." This statement was supported by Governor Belfield, who said "I deprecate in the strongest possible way the suggestion that pernicious pastoral proclivities should be encouraged by grant of any right for grazing purposes. My policy is to discourage such proclivities by every legitimate means, not only because they are productive of nomadic tendencies but because they inculcate in the minds of people a distaste for any settled industry" (cited in van Zwanenberg with King, 1975:93).

2. See the Kajiado District case study in Chapter Three.
3. See van Zwanenberg with King (1975).
4. See the review of African pastoral economic development schemes in Goldschmidt (1981).
5. According to Campbell, the Kajiado District Annual Reports throughout the colonial period suggest that overgrazing was more a recurrent problem consequent upon drought than a continuous constraint on the livestock industry. "It may have been more appropriate in the context of the conditions in which the livestock economy was developing to have identified drought rather than overstocking as the major constraint" (Campbell, 1981:233).
6. The Group Ranch program in Kenya may seem to be an exception, since through communal tenure it attempted to meet a broader base of pastoralists. However, the Group Ranch is a democratic organization and its members may vote to subdivide and sell the land. Galaty (1981a) contends that this is the tacit aim of some planners and Maasai, who seek to transform the land to private commercial production and private tenure. This very real possibility plays no role in the theoretical structure of the organization.
7. David Harvey (1974) argues that Malthus and Ricardo likewise used the population-resources issue for political ends in precisely the same period.

CHAPTER THREE
LAND LOSS AND GROUP RANCHES
IN KAJIADO DISTRICT, KENYA.

3.1 INTRODUCTION.

This chapter presents an analysis of two processes that have fundamentally changed the conditions of production for Maasai pastoralists in Kajiado District. The first is the loss of higher potential grazing areas to other forms of land use. This loss of land has substantially reduced the total livestock capacity of the District, yet the total population of humans who are dependent on livestock has greatly increased over the past two decades. Expansion as an adaptive response is no longer an option for the Maasai, and they must find new strategies to adapt to the deteriorating subsistence base of their economy.

A second important change is the extension of State control over the production process through the Group Ranch program. While the program has failed to bring about a "sound" pattern of land use resembling that of commercial ranching, it has locked Maasai ranch members into a system of commodity production.

3.2 KAJIADO DISTRICT -- BACKGROUND.

Kajiado District comprises 21,105 square kilometers, and is located in the southern portion of Kenya between Nairobi and the Tanzanian border. Vegetation is a mixture of bushlands and grasslands. Forests are rare. Since the actual rainfall in the District seldom exceeds the evaporative potential of the climate, moisture availability is the limiting resource and the primary physical constraint to land use.

Rainfall is marginal throughout the District and subject to wide variations caused by relief. The better watered portions of the District are the highland areas. The inland lakes are the main moisture catchments for East Africa, and most of the moisture is released orographically on the windward side of slopes (Morgan, 1973). The better watered portions of Kajiado are the areas of higher altitude around Ngong and the foot of Mount Kilimanjaro (Loitokitok), which receive up to 750 millimeters annually (ILCA, 1979:7). There are also a number of relatively small, isolated areas which due to the existence of permanent water and fertile soil are potentially more productive than the surrounding rangelands. The overwhelming remainder of the District is of low agricultural potential, receiving an average annual rainfall of between 250 and 750 millimeters. In these drier

lowland areas, convective rainfall is of increased significance. Intense thunderstorms occur which are extremely localized and appear erratically.

Although local relief causes significant variations, two wet seasons a year occur in Kajiado. This bimodal pattern reflects the District's proximity to the equator (between 1 and 3 degrees south) and is associated with the intertropical convergence zone (ITCZ). This is the broad low pressure zone where the north-east and south-east trade winds meet, creating conditions favourable for rainfall. The ITCZ follows the sun's movement with a lag of about one month (Griffiths, 1969). One wet season occurs in the District from March to May and the second occurs from October to December.

Rainfall is unreliable in the drier regions of East Africa, and some stations have recorded maximum annual rainfalls of more than four times the minimum (Griffiths, 1969). Droughts are a recurrent problem. In Kajiado District, droughts are recorded in 1933-35, 1943-46, 1948-49, 1960-61, 1972-76, and 1983-84. In addition, occasional failure of rains has occurred in intervening years (Campbell, 1981).

Pratt and Gwynne (1977) have developed a classification of "ecoclimatic zones" for East Africa. The principle

purpose of ecological zonation is to provide a tool for assessing the suitability of land for various land use alternatives. They are based on moisture indices, which consist of the ratio between annual rainfall and potential evaporation.

Zone I is an afro-alpine climate governed by altitude and not by moisture. It comprises only one per cent of Kenya and is not found in Kajiado District.

Zones II and III are humid and dry sub-humid zones of high agricultural potential. Together, they comprise only 2 per cent of the District.

Semi-arid zone IV is high potential rangeland. It comprises 35 per cent of the District, and is often an area of land use competition between cultivators and herders.

Arid zone V is a low potential rangeland zone that comprises 63 per cent of the District.

Semi-desert zone VI is confined to Kenya's northern rangelands and does not appear in Kajiado.

3.3 MAASAI LAND LOSS.

Kajiado District is populated mainly by Maa-speaking pastoralists known as Maasai. The Maasai are transhumant pastoralists, meaning that they move their herds in cycles in search of dry-season grazing. Their life centers around

the cattle, goats, and sheep that are the basis of their economy. Until the last two decades or so, the Maasai subsisted almost totally on a pastoral diet of milk, blood and meat. This is an ancient adaptation, and the Maasai have even developed specialized genetic traits enabling them to absorb the high cholesterol content of animal fat (Jacobs, 1975:409). The Maasai are divided into "sections" (subtribes). There are eight such sections in Kajiado District, each with its own political/administrative structure. Within these units, rangeland resources are theoretically free for all to use.

The Maasai migrated to the Kenya highlands in the early seventeenth century. For the next two decades, they expanded in all directions, and became one of the most powerful groups in East Africa. At the height of their political and economic power in the early nineteenth century, The Maasai occupied the grasslands in and on both sides of the Rift Valley from central Kenya to central Tanzania, and grazed their livestock from the Indian Ocean to Lake Victoria (Soja, 1968; Sindiga, 1984). The subsequent expansion of more powerful colonial and national societies dramatically reduced the territory available to the Maasai and today they occupy less than two-thirds of their former territory (see Map 3.1).

Map 3.1: Contraction of Maasai Territory: Nineteenth Century and Today.

In Kenya, the Maasai suffered their most serious land losses with the development of the colony. The 1902 Crown Land Ordinance stipulated that "The Commissioner shall not sell or lease any land in the actual occupation of the natives" (cited in Gulliver, 1979:9). It did not distinguish between the actual occupation of land, however, and the utilization of land. Because pastoralists occupy the marginal areas of East Africa, much larger land areas are required to support a population than would be the case in agricultural regions. These lands not only include areas under actual occupation, but also areas that may be used intermittently in seasonal or supra-annual cycles. Dry season grazing reserves play an indispensable role in maintaining pasturage throughout the dry season. To the outsider, some pastoral lands may appear to be unused or unowned. Given the sporadic and unpredictable rainfall in pastoral zones, however, these vast tracts contain drought resources that are vital to pastoral reproduction.

At the time of the European colonization of Kenya, the Maasai were severely weakened by a long drought and the outbreak of a rinderpest epidemic in the 1890s. The disease was apparently introduced into East Africa by Indian cattle brought in by the British and others introduced by the Italians in Abyssinia. The effects of the disease were

catastrophic. Estimates of cattle deaths ran as high as 95 per cent of the total East African herd; human deaths may have reached two-thirds of all Maasai (Kjekshus, 1977). When European settlement got under way in the early 1900s, Maasailand was underpopulated and its inhabitants less resistant to the colonizers than was the case in other regions (Gulliver, 1979).

As well, many advocates of European settlement were hostile to the idea of native land rights. For instance, according to British Commissioner Sir Charles Eliot in 1903,

As a matter of expediency it may sometimes be best to make reserves but as a matter of principle, I cannot admit that wandering tribes have a right to keep other and superior races over large tracts merely because they have acquired the habit of straggling over far more lands than they can utilize (cited in Gulliver, 1979:91).

Belfield, the governor, felt it necessary to "...deprecate in the strongest possible way the suggestion that pernicious pastoral proclivities should be encouraged by the grant of any right for grazing purposes", and recommended the movement of pastoralists into settled industry (van Zwanenberg with King, 1975:93).

The greatest loss of land took place during the "Maasai moves" of 1904 and 1911. In 1904, sections of the Maasai living in the central rift valley agreed to move to the Laikipia plateau to make room for European settlement. In

spite of the stated permanency of this agreement, some 10,000 Maasai with nearly 2 million animals were asked once again to move from the plateau in 1911. The southern reserve was extended into today's Narok and Kajiado Districts in order to accommodate them. In total, of the 11,000 square miles settled by the Europeans in the colonial period, 7,000 consisted of Maasai pastures surrendered in the agreements of 1902 and 1911 (Gulliver, 1979).

While the creation of the Reserve appeared to guarantee the Maasai exclusive rights to it, during the colonial period two other forms of land use began to compete with pastoralism for access to and control over resources, and have continued to do so throughout the period of independence. These are the encroachment of cultivation and the creation of wildlife reserves.

Settlement of Kikuyu and Kipsigis cultivators into Maasailand occurred frequently during the colonial period (Sindiga, 1984). Many of these cultivators emigrated from the highland regions of central Kenya, where land was expropriated for European settlement. Since then there has been a persistent tendency for agriculturalists from the overcrowded highlands to move into the higher potential areas around Ngong and Loitokitok. This process has actually increased since Independence in 1963, and cultivators are

beginning to buy or rent land in the better watered localities of the plains (Ibid.).

The Maasai have always co-existed with wildlife, and consider them to be legitimate land-users in Maasailand. However, the National Parks Ordinance of 1945 allowed for the exclusion of livestock from areas gazetted as national parks in order to conserve wildlife for future tourists. The people of Kajiado District have been affected by the gazetting of three national parks: Nairobi in 1945, Tsavo in 1948, and Amboseli in 1974 (Campbell, 1981). These areas, which comprise 15 per cent of the District, all include grazing and water resources traditionally utilized by the Maasai.

Land adjudication began in Kajiado District in the early 1960s. The purpose of adjudication was to turn common lands into private property to be held by individuals or groups. This included the areas where agriculturalists had settled. The adjudication of these cultivated areas formalized the rights of immigrant farmers to the land. Furthermore, politically influential Maasai were able to acquire individual holdings through the adjudication process. These Maasai either became individual ranchers or sold their holdings to agriculturalists. In either case, land was effectively removed from pastoral use (Campbell,

1981; Sindiga, 1984).

The total area lost to the Maasai has not been quantified. It is clear, however, that it is a large area which includes the highest potential land in the highlands and around the lakes and rivers of the central and southern rift valley. Its loss has seriously undermined the ability of the rest of the land to sustain Maasai pastoralists.

3.4 POPULATION AND RESOURCES IN KAJIADO DISTRICT.

In a 1979 paper, David Campbell attempts to examine the relationship between population growth and pastoral resources in Kajiado District. Using data from the 1969 Kenya Population Census, he projects the population growth in order to assess the ability of the environment to support the growing population. The Maasai population is given in the census as 52,010.¹ Assuming a rate of increase of 2.2 per cent per annum, Campbell predicts the Maasai population in the District would reach 67,803 in 1980, 84,286 in 1990, and 104,777 in 2000 (1979:7). After examining available grazing resources, he concludes that Kajiado District "...is entering a period during which the subsistence demands of a growing population will outstrip the District's capacity to provide" (Ibid. p.21).

The actual 1979 population figures for Kajiado District

became available in 1981. They show that the Maasai population growth has exceeded Campbell's estimate for 1980 by nearly 30 per cent, as the 1979 Kenya population census reports 93,560 Maasai in the District (Kenya, 1981). This is an alarming figure, when one considers Campbell's concerns about the ability of the land to sustain Maasai pastoralists on the basis of the earlier underestimated figures. The total population (including non-Maasai) of the District in 1979 is 149,005 -- an increase of 73.5 per cent from the 1969 figure at a growth rate of 5.66 per cent per annum. This is a very high growth rate, and can be partially explained by in-migration of cultivators from overcrowded zones of central Kenya. Campbell (1978) has found that a land shortage already exists in zones II and III among cultivators, and the expansion of the area under crops is taking place into the drier zone IV area. This occupation of better watered areas directly reduces the dry season grazing resources available to pastoralists. Thus, as well as high rates of Maasai population growth, there is also increasing resource competition coming from even faster growing non-pastoral populations.

Campbell's attempt to quantify the relation between the increasing subsistence demands of the growing population of Kajiado District and the capacity of the environment to meet

these demands should be updated in light of the new census data. Setting aside earlier caveats about reducing the crisis of pastoralism to an imbalance of herds, population and pasture for the moment, what follows is an attempt to calculate the theoretical livestock and human carrying capacities of Kajiado.²

Table 3.1 shows the annual livestock carrying capacity of Kajiado District by ecozone in Standard Stock Units (SSU). One SSU equals 450 kilograms liveweight, or about 2 zebu cows in Maasailand (Pratt and Gwynne, 1977:279).

Table 3.1 Annual Livestock Carrying Capacity by Ecozone in Standard Stock Units (Kajiado District).

Ecozone	Total Ha. (a)	% of land in the Dt.	Hectares required /SSU (b)	Maximum SSU
II	22,050	1	0.8	27,563
III	13,900	1	1.6	8,688
IV	783,072	35	4.0	195,768
V	1,390,578	63	12.0	115,882
Total	2,209,600	100		347,901

Source: After, (a) Campbell, 1979:6; (b) Pratt and Gwynne, 1977:43.

Although they comprise 12 per cent of the District's annual livestock carrying capacity, zones II and III will hereafter be left out of the charts. The two zones make up less than 2 per cent of the District, the better portions of which have been appropriated by agriculturalists and are unavailable

for pastoral use. When zones II and III are left out of the reckoning, the annual livestock carrying capacity drops to 311,650 SSU.

Table 3.2 calculates the theoretical human carrying capacity under subsistence pastoralism for zones IV and V, using the area figures given in Table 3.1.

Table 3.2 Annual Maximum Human Population Densities for Subsistence Pastoralists, Zones IV and V (Kajiado District).

(a) Ecozones	IV	V
(b) Ha. required per SSU	4.0	12.0
(c) SSU required to support one head of population	3.5	4.0
(d) Ha. required per head of population (b x c)	14.0	48.0
(e) Maximum population supportable	55,934	28,970
(f) Maximum population, both zones	84,904	

Source: (b), (c), (d), after Pratt and Gwynne, 1977:43.

While annual carrying capacities are commonly used (c.f. Pratt and Gwynne, 1977; Evangelou, 1984); Campbell (1979) argues that they are an inadequate measure of the population that can be supported by livestock in an area on an annual basis. They fail to portray the most important aspect of semi-arid grazing environments, namely, the

seasonal differences in the availability of forage and water. The number of livestock that can be carried in dry season is a critical constraint to livestock population growth. In order to overcome this, a measure of seasonal livestock capacity is used (Table 3.3).

Table 3.3 Seasonal Livestock Capacity by Ecozone in Standard Stock Units (Kajiado District).

(a) Ecozone	IV	V
(b) Ha. required per SSU, wet season	2.5	6.0
(c) Ha. required per SSU, dry season	5.5	18.0
(d) Ha. in Kajiado Dt.	783,072	1,390,578
(e) Wet season capacity, SSU (d/b)	313,228	231,763
(f) Dry season capacity, SSU (d/c)	142,376	77,254
(g) Total dry season capacity, SSU		219,630

Source: (b), (c), (d), after Campbell, 1979:6.

The total dry season livestock capacity for zones IV and V, 219,630 SSU, is significantly less than the annual figure given in Table 3.1. If zones II and III are added to the reckoning, the total dry season capacity increases to 267,963 SSU. Using the dry season "hectare per livestock unit" figure, a different human population capacity is reached as well (Table 3.4)

Table 3.4 Dry Season Maximum Human Population Densities for Subsistence Pastoralists, Zones IV and V (Kajiado District).

(a) Ecozone	IV	V
(b) Ha. required per SSU, dry season	5.5	18.0
(c) SSU required to support one head of population	3.5	4.0
(d) Ha. required per head of population, dry season (b x c)	19.3	72.0
(e) Maximum population supportable	40,679	19,314
(f) Maximum dry season population, zones IV & V	59,993	

Source: After (b) Campbell, 1979:6; (c) Pratt and Gwynne, 1977:43.

When the theoretical carrying capacities are compared with actual Maasai population in Kajiado District, it is immediately apparent that a very difficult situation exists for the pastoral economy. At 3.5 SSU per person, 93,560 pastoralists would require 327,460 SSU for subsistence. At 4.0 SSU per person, the figure increases to 374,240 SSU. The dry season livestock capacities for zones IV and V was found to be 219,630 SSU. When zones II and III are included, which is unrealistic, the increased livestock capacity of 267,690 SSU still falls short of Maasai requirements. Even the annual livestock capacity for zones IV and V at 311,650 is insufficient. A comparison of the theoretical maximum human population densities with the actual Maasai population

confirms that carrying capacities have been exceeded. 93,560 Maasai pastoralists exceed the annual figure for zones IV and V by 9 per cent, and the dry season limit by 36 per cent. It is important to recognize that the theoretical capacities are maximum figures, as Pratt and Gwynne note:

These figures presume that all land is accessible and productive; if actual population density under subsistence pastoralism ever approaches these figures, overgrazing is indicated (1977:43)

Estimates of actual livestock populations should be recognized as rough approximations. Livestock numbers are subject to rapid cycles of growth and decline, and livestock population estimates are notoriously inaccurate. Between 1947 and 1977, the cattle population of Kajiado District is estimated to have varied from a low of 200,000 in 1962 to a high of 800,000 in 1973 (Meadows and White, 1979:25). The Kenya, Central Bureau of Statistics, 1979 Census, set the livestock population for the District at 500,000 to 650,000 cattle and 701,000 smallstock. For smallstock, this is a four-fold increase from 168,000 in 1968; that smallstock have become more important to the Maasai pastoral economy is a generally recognized phenomenon (de Leeuw and Peacock, 1982; Njoka, 1983). Wildlife is a major competitor for grazing resources as well. Protected by a national ban on game hunting since 1977, wildlife comprises 22 per cent of

the total herbivore biomass in the District (Croze, 1978). Since the 1983-84 drought, the population of all herbivores, domestic livestock included, has declined dramatically.

Livestock numbers have continued to be subject to the traditional pattern of "boom and bust" and frequently exceed the theoretical carrying capacity of Kajiado District. Meanwhile, from 1962 to 1979, the District has experienced a 117 per cent population increase, while the Maasai population has increased 76 per cent from 53,219 to 93,560. Dahl and Hjort (1976) have calculated a minimum herd size of 13 cattle per person. It takes into account dry season security and assumes an ideal age-sex structure in the herd and total subsistence on animal products. Taking the upper cattle population of 650,000, the Maasai were left with a cattle to human ratio of 6.9 cattle per person in 1979. Assuming the same cattle population, the figure for 53,219 Maasai in 1962 would be 12.2 cattle per person. These grim theoretical calculations are crude indicators used here for illustrative purposes only, and cannot take into account the variety of subsistence strategies available to the Maasai. Clearly, however, while cattle to human ratios have varied through periods of "boom and bust", on the whole there has been rapid decline.

3.5 THE GROUP RANCH PROGRAM.

The most important development "package" for Maasai pastoralists in Kajiado is the Group Ranch program. According to Oxby,

A group ranch... is a demarcated area of rangeland, to which a group of pastoralists, who graze their individually owned cattle on it, have official land rights (1982:12).

In its origins, however, the Group Ranches in Kenya were conceived as more than a simple change in legal tenure, but as a piece of social engineering aimed to transform subsistence pastoralists into commercially oriented producers (Coldham, 1979:116). They called for major changes in Maasai social organization and livestock management, including:

- adjudication of land into communally owned "ranches";
- the registration of permanent members of each ranch (who were thus to be excluded from other ranches);
- the provision of infrastructural development (especially water and dips) under the project to increase carrying capacity. This was to be done through AFC [Agricultural Finance Corporation] loans, necessitating a collective debt and enhancing group ranch identity;
- the election of a group ranch committee responsible for management decisions which would include: (a) overseeing infrastructural development and loan repayment; (b) maintenance of boundary integrity; (c) grazing rotation, probably rotational; (d) enforcing grazing quotas assigned to individual members (including adjustment of stocking levels to fluctuating climatic conditions) (EARLS/Kenya, 1982:6).

For the Government of Kenya, there were two basic rationales for the program. The first, stressed by Davis (1971), is the ecological rationale, which points to the apparent deterioration of rangelands under forms of common property ownership. Under the regime of common property,

the cattle owner has no incentive to make long term investments in the rangeland either by reducing the size of the individual herd or more direct investments because he has no assurance of a return on that investment. It is usually considered that by assigning definite property rights to specific individuals or groups the consequences of misuse of rangeland or returns to investments both of which affect future productivity are made specific to the holders of those property rights (ibid. p 23).

The second rationale is the economic rationale. Under the Kenya Livestock Development Project (KLDP), Group Ranches were to become the primary organizational form through which Maasai rangeland would come into commercial production. KLDP was a comprehensive effort to increase beef production through the stratification of the industry into breeding, store and fattening areas (von Kaufmann, 1976). As part of this program, the Group Ranches were to be provided with fattening steers from the AEC. Under the traditional land tenure system, credit could not be granted because of lack of collateral. By providing pastoralists with legal rights to rangeland, credit was made available for both steer loans and for infrastructural development.

Furthermore, the Group Ranches were a compromise

solution to the dilemma of whether to carve up Kajiado into commercial ranches or maintain pastoralism as a viable form of land use. The Government of Kenya was probably aware of the social and political consequences of dispossessing the majority of the Maasai in the District in order to make way for extensive, individualized ranches. Through Group Ranch development, the State hoped to promote commercialization while meeting the needs of a broader base of pastoralists.

Although pilot ranches had been initiated as early as 1964, Group Ranch adjudication began earnest in 1968 with the Kenya Livestock Development Project (KLDP), and the drafting of the Land (Group Representatives) Act. Maasai pastoralists have generally been receptive to the Group Ranch concept. Hedlund stresses that the 1960-61 drought which struck Kajiado had "...made it clear to the Maasai that they had to accept a new mode of life to prevent a similar occurrence" (1971:3). As well, the desire for development inputs such as dips and new water sources seemed to be quite high. However, Galaty (1980) suggests that the real significance of the Group Ranch to the Maasai does not lie in their enthusiasm for economic development and "proper" range management; rather this significance lies primarily at the political level in affirming Maasai

ownership of rangeland and increasing their security in a country concerned with the maximization of national resources. The high potential dry season pasture and water sources which play an indispensable role in pastoral reproduction were precisely the areas for which competition for resources with outsiders was highest. The re-thinking of national priorities at Independence led the Maasai to fear that the Kenyan government would not respect the Maasai Reserve established by the colonial authorities. Lack of sufficient land for Kikuyu cultivators was a central point in agitation in the decade before Independence, and Maasai mistrust of the government was heightened by the dominance of educated Kikuyu in the post-colonial State. Furthermore, powerful Maasai were being granted individual ranches by the Kajiado County Council. By 1965, 22,680 hectares out of the total 326,430 in the Kaputiei section had been divided amongst 28 families (Hedlund, 1971:3). Fear of continued land grabbing may have induced the Maasai to accept the land security afforded to them by the Group Ranches.

1. Stock and Grazing Limitation.

The process of land adjudication and registration of members is almost complete in Kajiado. By July, 1981, 43 Group Ranches were registered totalling 11,896 square

2

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

kilometers (White and Meadows, 1981:3). The Group Ranches range in size from 4,100 to 135,000 hectares, with from 30 to 932 registered members (heads of households who may or may not live on ranches). Individual ranches have continued to be registered as well, and by 1981 there were 300 covering 1,917 square kilometers.

It is not clear how the boundaries of the Group Ranches were established. In order to be ecologically viable, the ranches should encompass enough environmental diversity to meet the seasonal grazing needs of livestock. Haldeman (1971) raised doubts concerning this matter, and in the early 1970s observed that even the most ecologically viable pilot scheme, the Poka Group Ranch, had insufficient resources to maintain herds in bad years. The traditional practice of seasonal movements in search of water and pasture both inside and across ranch boundaries appears to be continuing, although Grandin (1981) reports that by the end of the 1970s such movement had lessened considerably. Group Ranchers do understand and appreciate the assignment of land title to them, but "...distinguish between landownership on one hand, and grazing needs and rights on the other" (Bennett, 1984:115). The general pattern has been that when the need arises, adjudicated boundaries are ignored and traditional practices of reciprocal obligations

to those from other areas reassert themselves. This subverts the fundamental logic of each group restricting its livestock numbers to the carrying capacity of its own ranch (Hopcraft, 1981).

Once a Group Ranch is established, its carrying capacity is estimated and stock quotas are allocated to individual members. It is assumed that the goal of improved range management will be met if members limit their stock accordingly. As Helland (1979) points out however, there are a number of thorny problems involved in these allocations. There are great differences in stock wealth on Group Ranches. The wealthier members tended to favour a system where quotas are allocated on a proportional basis according to stock wealth at the time of incorporation. This would have the effect of freezing the distribution of wealth. Poorer members feel that stock quotas should be allocated equally to all members, forcing the wealthier members to destock. Planners eventually reached a compromise solution, where each member is allocated a quota at a minimum subsistence level, and extra allocations are given to wealthier households. Some members would not have enough stock to fill their quota, and their unused capacity was meant to be filled by AFC steers. Wealthy members still should destock, but it has proved to be impossible to induce

them to do so. Management committees lack the necessary authority to enforce decisions over matters as important as household livestock wealth. Furthermore, management committees tend to be dominated by wealthy individuals who are understandably reluctant to administer the culling of excess stock (Ibid.). Throughout the District, the Maasai have refused to comply with the stock quotas, and the government has been unable to destock the ranches.

ii. Development and Indebtedness.

The extension of commodity relations to Maasai on Group Ranches is ideally fostered through two types of loans: working capital loans, which aim to provide money for the purchase of fattening steers; and development capital loans, for the purchase of such items as water points, dipping facilities, and breeding stock. A Group Ranch is required to offer its land as collateral for these loans, although everyone seems aware that foreclosure and the selling of a group's land is a political impossibility (Helland, 1979).

Expensive, commoditized means of production were encouraged through the development loans. Water pumps require the purchase of diesel fuel for their functioning; dipping facilities require the purchase of acaricide before ticks can be controlled; cross-bred stock become dependent

on these facilities, and in addition require expensive veterinary drugs and vaccines. All of these are provided on loan and the process of constant indebtedness to the AFC becomes established.³

Grandin (1981) has described in detail some of the problems with debt on Group Ranches. Debt was originally designed by the AFC to be proportional to stock holdings so that large herdowners would have a greater share of the ranch debt. Loan steers were to be allocated to the poorer members who would then receive the profit from the steers on a proportional basis. However, the AFC has been slow in updating chargeable stock units, while the herd sizes of many members have changed radically over time. Some members would thus pay for more stock than they own, while others pay for less. The pattern on most Group Ranches has been that the profits from loans given to the Group Ranch as an entity to purchase fattening steers are now used to pay off ever accumulating ranch debts. This sidesteps the equity issue, but facilitates repayment.

The AFC is given very broad responsibility regarding the purchase, management, and sale of fattening steers. Planners aimed at providing 200 steers per annum per 35,000 acre ranch. In practice, however, the distribution of steers has been very skewed among Group Ranches. Originally steers

were allocated and given to poorer members to herd. However, the AFC felt that there were problems with sales without its permission and subsequently insisted that the steers be herded together. The AFC decides the rate of profit by deducting the amount of the steer loan, and if the group has any outstanding debts, it may decide to deduct these as well. Some wealthy members oppose steer loans. If there is a drought and the steers die, they will have the greatest proportion of the debt; yet if there is a profit from the steers, they receive none. Others welcome the loans, especially on ranches with large debts. For them, the profits from the loans are a way of paying off existing debts; thus those members with the largest debt burden benefit the most (Ibid.).

3.6 THE SIGNIFICANCE OF GROUP RANCHES.

The significance of the Group Ranch program lies at two levels. On the political level, the program provided the Maasai with rights of tenure. The granting to members of legal rights to the rangeland they use on a semi-permanent basis is an essential starting point for a sound pastoral development policy. For this reason, the Kenyan system is superior to the Tanzanian or Botswanan arrangements, where pastoralists have only limited and revocable rights to

customary rangelands, or to other countries where they have no recognized land rights at all (Oxby, 1982). Group tenure has not achieved its initial objective of "...encouraging the pastoralists' responsibility for the land they use, in the hope that they will exploit it in an ecologically sound way" (Ibid., p 15), if by "ecological soundness" is meant stock limitation and restricted movement of herds. The basic ecological dynamics of wide spatial movement in search of forage and water and the "boom and bust" cycles of herd accumulation remain in force in Maasailand (EARLS/Kenya, 1982).

On the economic level, the Group Ranch program has drawn pastoralists further into commodity relations. It has provided the State with a mechanism for encouraging expensive, commoditized means of production, and a means of rationalizing production for national and international markets. Development capital loans have encouraged the development of such items as dips and water points, but have also locked producers into fattening AFC steers in order to pay for these loans. The livestock on Group Ranches are divided into two categories: those belonging to individuals and those belonging to the group and managed under AFC supervision. The growth of this latter herd has led to a change in the type of livestock kept on ranches, diverting

pastoralists away from production for their own needs and towards production for the market. Other attempts to supervise pastoral production, such as the the imposition of grazing quotas, have been successfully resisted by the Maasai.

NOTES FOR CHAPTER 3

1. All human population figures given in this section are given as Adult Equivalents (AE). 1 AE equals .66 children. The overwhelming majority of Maasai in the District are pastoralists.
2. This section is inspired by a similar exercise undertaken in more detail in Holland (1986).
3. The rate of functioning of AFC-financed infrastructure is very low. Out of the the total number of dips and water points financed by the AFC in Kaputiei under Phase I of KLDP, only 50 per cent of the dips and 39 per cent of the water points were still functioning five years later in 1981 (Grandin, 1981:12).
4. The dissatisfaction with the AFC over these steer loans was expressed by one committee member: "I have no words to express my regrets and the disadvantages about loan money. During the drought, AFC used the money that was supposed to be for steers to pay back our interest. These loans have made us poor. The planning by the government was not good. Even rinderpest is better than these loans" (cited in Grandin, 1981:37).

CHAPTER FOUR

PASTORALISM AND COMMODITY RELATIONS.

4.1 INTRODUCTION

This chapter examines the extent to which the pastoral Maasai of Kajiado District are involved in commodity relations. It is argued that this involvement is considerable and, in fact, has become a necessary condition for the reproduction of Maasai households. The Maasai can therefore no longer be considered outside of the Kenyan class structure as a whole, as their social conditions of existence are now reproduced by the total system of social relations.

This study will focus on Maasai producers on Group Ranches, although some information on individual ranches will be presented for comparative purposes. Relevant, up-to-date data will be culled from two basic sources. One major source is White and Meadows' (1981) research carried out for the Kenya Ministry of Livestock. Its objective was to examine how Group and individual ranch development has changed the pastoral production system and affected living standards for the Maasai in Kajiado. A major input to the study was a twelve month income and expenditure survey covering 60 pastoral households on three developed Group

Ranches (having received development loans -- Poka, Olkarkar and Kiboko) and two undeveloped Group Ranches (Lolongoswa, Elangata Wuas).¹

The second major source is the work of the International Livestock Center for Africa (ILCA) team in Kenya. At the time of this writing, ILCA is completing a major interdisciplinary study of three Group Ranches in Kajiado (Olkarkar, Merueshi, and Mbirikani).² The focus is on livestock production, its constraints and possibilities (See Map 4.1).

There are two caveats that should be mentioned before analysis begins. Firstly, there is a paucity of quantitative data on Maasai economics which predates the studies mentioned above. Therefore, it is difficult to examine processes that occur over time, or to evaluate project (Group Ranch or KLDP) impacts. Time-depth comparisons will of necessity be speculative. Second, generalizations over time or space are particularly hazardous in semi-arid regions such as Kajiado, where environmental variability is great and has immediate effects on livestock production parameters. Study periods for authors referred to above covered both good and poor rainfall conditions. No generalizations can be made about the distribution of rainfall throughout the District.

Map 4.1: Kajiado District: Group Ranches Mentioned in Text.

4.2 PASTORALISM AND SIMPLE COMMODITY PRODUCTION.

Classical analyses of the development of capitalism in agriculture suggested that the agrarian class structure would tend to polarize. Small producers would disappear, to be replaced by an agrarian bourgeoisie and rural proletariat (Lenin, 1960; Djurfeldt, 1982). However, this has not occurred on a large scale and a typical feature of the agrarian scene in Western industrial countries is the simple commodity producer.

A commodity is the form that products take when production is organized through exchange. It has the twofold character of being both a use-value and an exchange value. The characteristic feature of a commodity is that its exchange value achieves an independent social existence which is separate from its material being as a use-value. (Marx, 1977).

Simple commodity producers possess some of their means of production. Their needs of simple reproduction are satisfied, at least in part, through commodity relations. Commodities are produced as means of exchange to acquire items of necessary consumption. This is characterized by the circuit C-M-C: the transformation of commodities into money and the change of money back again into commodities. The

concern of simple commodity producers with the needs of simple reproduction through the acquisition of use-values distinguishes them from capitalist commodity producers. They sell (C-M) in order to buy (M-C), unlike the capitalist, who buys in order to sell dearer (M-C-M').

Simple commodity producers in agriculture have proved to be remarkably resilient in the face of large scale agrarian capitalism. They have struggled to maintain control over their conditions of labour and have responded to capitalist competition by putting in more family labour and intensifying land use. Nevertheless, these producers are dependent on the circuit of capital for the realization of the value of the commodities produced and to obtain certain means and conditions of production and reproduction. Capital thus exercises substantial control over what is produced, and may appropriate so much of the produce that the producers are left with a bare subsistence wage.

It would seem that livestock-poor pastoralists have a clear motive to avoid commercialization. As Behnke points out,

Subsistence pastoralism is a frugal form of animal exploitation where there is an abundance of labour, an abundance of people to feed, and a short supply of animals (1983:10).

Intensifying land use or labour is not an option, since pastoralism already entails intensive exploitation of land,

labour and animals.

For several decades in Kenya, pastoralists have sold livestock to meet cash needs (taxes, school fees, etc.). The majority of cattle that have found their way to market have been young males, old females with low reproduction, and old bulls whose services have become less efficient (Dahl and Hjort, 1976:167-168). Most are old cattle that have outlived their productive careers and are far beyond the optimal age for slaughter (Quam, 1978). Dahl and Hjort (1976:180) estimate that rarely more than 8 per cent of a herd really be considered "surplus" to subsistence needs without exposing the household to excess risks in the event of drought. Livestock-poor pastoralists are very limited in their ability to increase marketed offtake beyond this amount. Pastoralism is an ecologically efficient production system, supporting a maximum amount of people directly on the produce of herds. Unless the family herd is of large enough size, it is difficult for the herdowner to commercialize without cutting into the subsistence base of the household. "Herdowners whose herds are oriented toward production for the market out of necessity must consume from the market" (Galaty, 1981c:8). Livestock numbers must be sufficient to provide enough marketed surplus to meet household needs without cutting into the reproductive

capacity of the herd. Otherwise, small producers may find themselves selling off their breeding stock simply to feed the family (Behnke, 1984).

Where producers are reluctant to commercialize, the establishment of commodity relations may occur with the disruption of the pastoral reproduction cycle (Bernstein, 1982). The autonomy of the process of production of such households is disrupted when they come to require cash or when they need to produce for sale in order to purchase items that are required for their survival. The processes which effected this disruption in Kajiado District are outlined in Chapter Three of this thesis. Loss of vital grazing reserves and a rapidly growing population in the District have resulted in a net decline in cattle to human ratios. This has undermined the subsistence base of the pastoral economy. The Maasai have responded (a) through the substitution, in the sphere of necessary consumption, of purchased agricultural foodstuffs for items that were previously consumed by the household or acquired through simple exchange; and (b) through the diversion of products to the market that were previously consumed by the household, and the diversification of production to increase the supply of commodities. This, in turn, has made households dependent on the wider economy for their

reproduction.

4.3 DIETARY CHANGE

The Maasai are increasingly substituting agricultural commodities, and especially maize, into the pastoral reproduction cycle for items that were previously produced by herds or acquired through simple exchange. There is no evidence that pastoralists in East Africa were ever able to subsist entirely on the products of their herds. Fluctuations in herd size and milk supply as a consequence of environmental variability commonly results in situations where the family herd is incapable of supporting household members. Where rainfall permits, pastoralists may take up cultivation to make up for this deficit. Such cultivating pastoralists in Kenya have included the Nandi, Kipsigis, Kamba, Njemps and Pokot. "Pure" pastoralists will trade with sedentary agriculturalists for vegetable foods, although among the Maasai the need for such trade was minimal. In 1963, Jacobs reported that agricultural products constituted no more than 15 per cent of the Maasai diet (1963:25).

The simple exchange of livestock for agricultural goods was only possible insofar as the modes of growth in agricultural and pastoral economies were complementary. Even among agriculturalists, livestock has traditionally had a

high social value (Herskovits, 1926). As well as having multifarious use-values, livestock served as a measure of wealth and a medium of exchange. In agricultural societies where land was not scarce, economic growth may only be possible through the conversion of surplus. In nineteenth century East Africa, the way of effecting this conversion was to establish relations with a pastoral group and thereby gain access to stock (Waller, 1985).

Throughout most of Kenya by the mid-twentieth century, however, livestock production had been subordinated to agricultural production; agricultural production itself had become increasingly a form of commodity production in which a proportion of both input and output was bought and sold on the market (Kitching, 1980). With the monetarization of exchange relationships, livestock lost its role as a means of exchange and a measure of wealth and became simply one of the widened range of commodities which exchanged through money. In local trade relations between pastoralists and agriculturalists, there has been a shift from barter to cash exchange. The products exchanged thus acquire a value-form independent of their own use-value, the circulation of which develops a whole network of social relations entirely beyond the control of actors (Marx, 1977). For instance, much of the agricultural surplus earlier bartered with pastoralists

is now sold on the national and international market. The regional integration into these markets has caused a re-orientation of agricultural production in farming areas from subsistence crops to cash crops such as cotton, coffee or tobacco (Hjort, 1981b). The effect has been a worsening of terms of trade for pastoralists.

Today, as a result of falling cattle to human ratios in Kajiado District, the Maasai can no longer rely on the produce of their herds to the same extent. White and Meadows present data on the percentage calorific composition of diet for Group Ranch survey households (Table 4.1).

Table 4.1 Percentage Calorific Composition of Diet for Group Ranch Survey Households.

Food Item	Poka	Olkarkar	Kiboko	Elangata Wuas	Lolong- oswa
Milk	64	72	68	62	51
Maize	21	18	19	18	27
Sugar	5	6	6	5	7
Meat	5	4	5	9	9
Other	5	--	2	6	6

Source: After Meadows and White, 1981:120.

These figures are comparable to Doherty's (1979) findings in Narok District. After an intensive study of milk production at one boma³ at Rotian Olmakongo Group Ranch, she found that the boma's combined herds can supply 82 per cent

of the group's subsistence in the wet season and 21 per cent in the dry season. On average, then, the herds on Doherty's sample boma can provide only 51 per cent of the group's dietary needs (Ibid. p 24). Milk remains the staple of the Maasai diet, but agricultural products such as maize now make a significant contribution. Other foods such as rice, potatoes and beans are of minor importance to the diet in terms of calorific value, although beans are increasingly being cultivated by Maasai in Kajiado. The Maasai are not big meat eaters, and the proportion of meat consumed over White and Meadows' study period was swelled by a number of celebrations.

Milk yields often drop in dry season by as much as 65 per cent from their wet season peak (Dahl and Hjort, 1976). Table 4.2 indicates the degree of variability in per capita milk supply for four seasons on Olkarkar. Milk supply varies with the amount of rainfall and the number of lactating cows in a household herd (which varies by year and season). The data are classified according to ILCA wealth stratification criteria based on a ratio of people to livestock. Stratum I producers have under five livestock units per capita, whereas stratum II households have from five to thirteen and stratum III households have more than thirteen livestock units per capita.

Table 4.2 Per Capita Seasonal Milk Supply per Day by Producer Level on OlKarkar Group Ranch (litres).

Season	WET	WET	DRY	WET
Months	Nov-Jan	Apr-June	Jul-Sept	Nov-Jan
Year	81/82	82	82	82/83
Rains	Low	Low	None	High
No. of Lactating Cows	Low	Low	Medium	Low
STRATUM				
I	0.5	1.1	0.8	0.9
II	0.9	1.5	1.0	1.2
III	1.5	1.9	1.1	1.7
Mean	0.9	1.5	1.0	1.3

Source: ILCA, 1984:80.

Maasai normally target a milk offtake of between 1 and 1.5 litres per capita per day (ILCA, 1984). ILCA data suggest that the lower strata producers are not extracting this minimum amount. These seasonal fluctuations in milk supply directly translate into major seasonal changes in diet and in cash income requirements (Table 4.3). While maize is consumed throughout the year, its primary importance is as a dry season supplement, approaching half of the calorific content of Group Ranch survey households from August to November. This is corroborated by data on monthly cash expenditures on food and drink, which double in dry season (White and Meadows, 1981:123). The degree of dependence on maize is also related to wealth (Table 4.4).

Table 4.3 Seasonal Dependence on Maize for Group Ranch Survey Households in Daily Kilocalories per Adult Equivalent (August 1980-July 1981).

Season	Poka	Olkarkar	Kiboko	Elangata Wuas	Lolong- oswa
a) Aug-Nov	720	1,125	703	784	56
b) Dec-Mar	689	352	273	727	44
c) Apr-Jul	265	26	78	525	36
Annual Average	558	501	352	678	64

Source: White and Meadows, 1981:121.

- (a) End of long dry season and following poor long rains.
- (b) Poor short rains followed by short dry season.
- (c) Good long rains followed by beginning of long dry season.

Table 4.4 Dependence on Maize by Wealth of Group Ranch Survey Households (Daily Kilocalories per Adult Equivalent from Maize).

Wealth	Poka	Olkarkar	Kiboko	Elangata Wuas	Lolong- oswa
Rich	550	501	230	554	592
Average	493	490	520	1,032	459
Poor	648	571	364	1,323	670

Source: White and Meadows, 1981:123.

Generally speaking, households with fewer livestock appear to be more dependent on maize for their daily calorific intake than households with larger livestock holdings.

Given that the Maasai dependence on milk has been drastically reduced, in some cases to almost 50 per cent of

total calorific intake, it is interesting to note Pratt and Gwynne's claim that "If half the milk ration is replaced by grain, then half the number of breeding age females are required and the land requirement per family is halved" (1977:39). This is the process that seems to be occurring in Kajiado due to land loss, expanding populations and falling cattle to human ratios. However, Doherty (1979:25) takes exception to Pratt and Gwynne's contention, "Reduce the dependence on the milk diet and the battle is at least partially won" (1977:39), since the "battle" that many households are fighting is a losing one:

The sale of cattle and dietary changes can not be interpreted as a sign of modernity. To the contrary, they are the result of increasing scarcity and clearly replace a high protein diet with a less nutritious cereal grain diet (Doherty, 1979:23).

4.4 DIVERTING AND DIVERSIFYING PRODUCTION.

The purchase of foodstuffs is financed through both diverting production from home consumption to the market, and diversifying production to increase cash incomes.

Although data are scanty, it has become clear that throughout the 1960s and 1970s, the Maasai have become increasingly involved in cash sales. In an attempt to explore this further, Meadows and White (1979) have examined the major determinants of commercial offtake rates in

Kajiado District. Firstly, they found that the availability of grown steers is a major limitation to sales. An 8 to 10 per cent net sales offtake is possible where all culled cows and three to four-year old steers are sold. During the 1960s, sales were influenced heavily by the availability of steers. From 1968 to 1972, commercial sales averaged 3 per cent of the total Kajiado cattle population. Using a hypothetical herd growth model, Meadows and White (1979:15) estimate that 84 per cent of males of at least three years old were being sold. Throughout the rest of the 1970s, however, the Maasai were selling increasing numbers of younger steers and older cows, since sales were appreciably higher than the number of mature steers available.

Second, a negative correlation was found between annual rainfall and the level of cattle sales. This indicates that when range conditions improve, the supply of livestock to markets decline. Third, an increase in cash demands is a major determinant of sales. These increasing demands are attributed by Meadows and White to the changing diet of the Maasai, from a primarily milk-based diet to one that more heavily relies on grain.

One determinant that seems to have been overlooked is the effect of livestock prices on cattle sales. Low (1979) argues that there still exists a pastoral "negative supply

response to price". Market presentations will decline as price increases, since the Maasai only sell to meet a target cash income. Waller (1979), on the other hand, maintains that attractive producer prices would encourage Maasai to participate more in commercial transactions. Unfortunately, no data are available which are capable of resolving this important issue.

Another related issue is the extent to which sales are correlated with the ability of the herd to produce milk for subsistence. Meadows and White (1979:22), using imprecise data on household milk supplies, deny that they have any obvious impact on sales, but still point to the Maasai need to purchase grain. Other studies have confirmed the negative correlation between rainfall and sales, and suggest that it is indicative of the inability of herds to supply adequate milk in dry periods (Grandin and Bekure, 1982:16). Differences in wealth should be considered as well. On Olkarkar, the mean monetary value per head of cattle sold is 30 per cent less than that obtained by wealthier households. Sales of smallstock exhibit a similar trend (Table 4.5). This suggests that poorer households are forced to sell their livestock at a much earlier age in order to meet their subsistence requirements (Ibid. p 14).

Table 4.5 Mean Value of Livestock Sales per Head by Stratum on Two Group Ranches (Kenyan Shillings) July '81-June '82.

	OLKARKAR			MBIRIKANI		
	I	II	III	I	II	III
Cattle	667	874	971	860	815	927
Smallstock	120	149	168	218	188	197

Source: After Grandin and Bekure, 1981:13.

Table 4.6 presents data on the mean percentage offtakes from Maasai herds and flocks on two Group Ranches. An offtake rate refers to the proportion of animals that permanently leave the herd. It is considered to include only voluntary transactions, such as sales, exchanges, gifts, and slaughter and excludes "accidental" deaths, theft, or other losses. These figures are gross offtakes, since they do not consider the animals which enter the herd through exchange, gifts, or purchase. One important point to note is that both the total offtake rate and the sales offtake rate are negatively correlated with wealth. This finding is corroborated with the observations of Bille and Anderson (1980), White and Meadows (1981) and Evangelou (1984). It suggests that poorer households are forced into the market to purchase subsistence goods. White and Meadows (1981:34) report that a large proportion of sales by poorer households are heifers and immature males, sold to raise cash, and are

Table 4.6 Annual Mean Offtake Rate by Wealth Stratum Related to Type of Transaction on Two Group Ranches, 1981-1982 (a).

Species/ Stratum		Total Offtake	Sales	Exchange	Gift	Slaughter
OLKARKAR						
Cattle	I	20	17.0	0.8	2.2	--
	II	16	13.0	0.5	1.6	0.8
	III	7	5.0	0.6	0.7	0.6
Sheep	I	23	10.0	3.0	4.0	6.0
	II	17	6.0	1.0	5.0	5.0
	III	6	1.4	0.5	1.6	2.5
Goats	I	15	9.9	2.4	0.6	2.1
	II	15	7.8	2.7	2.2	2.4
	III	9	3.6	1.7	1.9	1.7
Total	I	100	79.0	6.0	11.0	4.0
(b)	II	100	72.0	5.0	14.0	9.0
	III	100	69.0	10.0	12.0	10.0
MBIRIKANI						
Cattle	I	23	14.7	3.2	5.0	--
	II	14	10.0	1.7	2.0	0.4
	III	16	10.6	2.6	2.9	--
Sheep	I	26	--	3.6	4.4	17.9
	II	12	0.7	1.7	2.3	7.3
	III	8	--	2.0	1.0	5.0
Goats	I	35	8.7	7.7	3.9	15.0
	II	15	2.5	2.1	2.4	8.0
	III	16	1.8	3.4	2.9	8.2
Total	I	100	55.0	15.0	21.0	10.0
(b)	II	100	59.0	12.0	15.0	14.0
	III	100	56.0	17.0	18.0	10.0

Source: After Grandin and Bekure, 1982:11

(a) Except for "Total" figures, all figures are expressed as the percentages of the total herd or flock.

(b) These figures break down the total offtake rate into type of transaction (total offtake = 100%).

often purchased by wealthier households in order to build up herds. The pattern for many exchanges is similar (Grandin and Bekure, 1982:20). Adult male animals are worth more than immature females, and poorer households often exchange heifers for adult males. Wealthy producers know that heifers are relatively hard to come by and that they are acquiring the animal's future productive and reproductive capacity. The other party to the exchange acquires an animal of greater cash value to fulfill an immediate cash need, but at the loss of future productivity.

Sales are clearly the most important means of offtake on both ranches. Exchanges only account for about 20 per cent of animals leaving the survey cattle herds. Slaughter of cattle is particularly rare, usually occurring only at major ceremonies. Slaughter is a far more important means of offtake for smallstock.

Of the two ranches, Olkarkar has a higher level of marketing activity. 73 per cent of offtake from Olkarkar herds and flocks is sales offtake, compared with 57 per cent on Mbirikani. This may be partially explained by Olkarkar's proximity to markets in Simba town, along the Nairobi - Mombasa highway. As well, as a developed Group Ranch which has received development loans from the AFC, the members of Olkarkar are probably more dependent on cash. There is a

correspondingly higher level of non-commercial modes of offtake on Mbirikani. This is most evident when comparing the importance of various modes of smallstock offtake on the two ranches. "Most strikingly, the importance of slaughter in smallstock offtake in Olkarkar is less than half that in Mbirikani, while the importance of sale in smallstock offtake in Olkarkar is four times that in Mbirikani" (Ibid. p.12).

Table 4.7 presents data on sources of cash income for White and Meadows' Group Ranch survey households.

Table 4.7 Percentage Cash Income by Source on Five Group Ranches.

Source	Poka	Olkarkar	Kiboko	Elangata Wuas.	Lolong- oswa
CATTLE					
Rich	57	89	96	98	97
Average	47	87	76	96	95
Poor	52	75	75	87	75
SMALLSTOCK					
Rich	3	6	1	1	3
Average	7	4	13	3	5
Poor	6	15	6	5	26
MILK					
Rich	8	5	1	--	--
Average	16	7	3	--	--
Poor	36	2	3	--	--
OTHER					
Rich	32	--	2	1	--
Average	30	2	8	1	--
Poor	6	8	16	8	--

Source: White and Meadows, 1981:107,108,109,110,111.

i. Cattle.

The first point to note is that cattle sales are the most important source of cash income for all the survey households. Furthermore, wealthier households generally earn a larger proportion of their cash income from cattle sales than poorer households. An examination of cattle herd structures will provide some indication as to whether these producers are actually orienting production toward the market.

After a number of recent analyses of East African herd structures, there is substantial agreement that the Maasai "...are still not running commercial beef herds" (King et al., 1982:27) and that "...their herd and flock structures fundamentally imply non-commercial objectives" (Evangelou, 1984:136; see also White and Meadows, 1981:21-23; Dyson-Hudson and Dyson-Hudson, 1982).

King et al. (1982) provide recent figures on herd structures for survey households on Olkarkar, Merueshi and Mbirikani Group Ranches, categorized into wealth strata (Table 4.8). Although each researcher has his/her own method of classifying data, in general, King et al.'s figures are compatible with those cited by White and Meadows (1981) and Dyson-Hudson and Dyson-Hudson (1982). It is clear from the high proportion of females in all strata that the Maasai

herds sampled are oriented primarily toward milk production.

Table 4.8 Cattle Herd Structures on Three Group Ranches by Stratum expressed as a Percent of Total Herd.

	I	II	III	All
Cows	40.6	34.8	35.8	36.1
Heifers	18.4	23.5	19.9	20.5
Calves	10.7	10.8	9.3	9.8
Total Female	69.8	69.1	65.0	66.4
Bulls	5.7	6.3	5.0	5.3
Steers	16.1	14.2	23.1	20.6
Calves	8.4	10.4	6.9	7.8
Total Male	30.2	30.9	35.0	33.7

Source: After King et al. 1982:16.

However, it is interesting to note that wealthier households have proportionately more males than poorer households (35 per cent to 30.2 per cent respectively). King et al.'s data can be subdivided further to show the proportion of herds that are mature and immature steers (Table 4.9).

Table 4.9 Proportion of Immature and Mature Males in Cattle Herd by Stratum (Three Group Ranches).

Stratum	Immature	Mature
I	4.2%	0.5%
II	4.2	3.0
III	10.0	1.9

Source: After King et al., 1982:16.

The high proportion of males in large herds, particularly

immature males that may be sold at maturity, indicates that wealthy herdowners may actually be diversifying production in order to increase the number of steers available for sale and slaughter. Maasai normally do not retain steers beyond their finishing weight of 300 kilograms. The high proportion of immature males suggests that large herdowners are manipulating their herds to increase the availability of steers. Large numbers of females are still important to this stratum, primarily to maximize the potential for recovery and herd growth after a drought (Meadows and White, 1981:22). A high proportion of females is of lesser importance since the absolute number of females is still high, and the wealthy are able to purchase more alternative foodstuffs. Smaller producers, on the other hand, must maintain a higher proportion of lactating cows since it is all they have to live on. Because they have cash flow problems, most males are sold before they reach maturity.

ii Smallstock.

While wealthier herdowners are attempting to increase the availability of steers, smaller producers are diversifying production by concentrating on flock growth and sales (Table 4.7). Table 4.10 shows that smallstock are of increased importance to less wealthy households.

Table 4.10 Cattle to Smallstock Ratios by Wealth Cohort for Group Ranch Survey Households.

	Poka	Kiboko	Olkarkar	Elangata Wuas	Lolong- oswa
Rich	1.2	1.6	2.0	2.8	2.6
Average	.4	1.3	.8	1.8	.8
Poor	.5	.7	1.1	.6	.5

Source: After White and Meadows, 1981, Appendix Table 3.

While smallstock have always been important to the production of poorer producers, Grandin (1981) has found that this reliance has increased on all Group Ranches in recent years, particularly on the ranches of northern and central Kajiado District. Furthermore, as suggested by Table 4.6, smallstock sales are of differential importance to producers of different wealth ranks. For small producers on Olkarkar, for example, 43 per cent of their offtake of smallstock was sales offtake, while for large producers the figure was only 26 per cent. Thus the ILCA team (1984) speaks of a "smallstock strategy", in which poorer producers actively manipulate their flocks, selling them to provide for household cash needs.

iii. Milk.

Milk sales are an important source of cash income on

Poka, which is close to the major marketing center of Emali (Table 4.7). The poor on Poka sell more milk than rich households both in relative and absolute terms (White and Meadows, 1981). This suggests that where there is a market, the poor will attempt to convert milk into maize. Maize is of higher calorific value relative to price than milk.

iv. Other Sources of Income.

Opportunity for household members to earn money outside of the pastoral economy are limited, unless they are educated. Among the educated of White and Meadows' survey household heads, one was a ranch manager, another was a councillor, and a third was a clerk. Three household heads found casual employment for part of the year as night watchmen in towns. Small scale entrepreneurial activities included the trading of hides and skins, a once-a-week taxi service at the Emali market, and home made beer brewing. Cash remittances from relatives in salaried employment were also common.

In Narok District; Doherty (1979) reports that charcoal burning, timber cutting, and leasing land for wheat growing are important sources of cash income for Group Ranch households. However, Kajiado District is not ecologically favoured for such activities. Cattle trekking and herding

the cattle of other Maasai for wages are other options for Maasai of need of cash.

v. Shambas.

Shambas are small cultivated plots adjacent to bomas. They have become a common sight throughout Maasailand. Njoka (1978) found that over half of his Kaputiei sample had tried cultivation by 1977, and that more households had started cultivation between 1976-1977 than the combined total of all previous years. A small proportion of the crops are marketed, while the greater part go toward subsidizing household consumption so that a larger proportion of the herd may be sold.

4.5 COMMODITIZATION OF THE FACTORS OF PRODUCTION.

In traditional pastoralism, the reproduction of the household production unit depended on the wider community as a means of distributing labour, livestock, and grazing resources. Simple commodity production presupposes that means of production are commodities, and production for sale by producers who own their main means of production. There is no doubt that traditional means of distributing means of production are still important in Kajiado District. However, many Maasai are finding their access to these means is

limited by their ability to pay for them.

i. Livestock.

In traditional Maasai society, livestock are the focus of a cluster of rights and responsibilities. Different household members are allocated responsibilities for the care of animals and the rights to the use-values produced. Various manifestations of reciprocity and redistribution serve to circulate livestock throughout the community.

Today, the market has become a major gauge of production decisions in Kajiado District. Herdowners faced with increasing livestock scarcity must decide whether the subsistence needs of the household can best be met through direct consumption of animals or animal products or, through their sale. Thus a household may "buy" from its own production instead of selling produce for an amount of money that could be exchanged for equivalent goods (Chevalier, 1983). Surplus animals are disposed of through the market rather than reinvested in community social relations.

Since offtake rates are often too high to permit natural herd growth, up to a quarter of cash incomes must go toward the purchase of livestock (Grandin and Bekure, 1982). Doherty (1979) reports that poorer Maasai will attempt to replace this offtake through the purchase of heifers to

rebuild their herd.

Livestock-associated expenditures also represent a significant cash outlay for Maasai households (White and Meadows, 1981:86). Water points and dipping facilities developed with the Group Ranch program respectively require the purchase of diesel and acaricide. Vaccines, drugs, and mineral supplements are also used extensively on Group Ranches, especially where upgrading of stock with Sahiwal bulls from India has taken place (Ibid., p 24).

ii. Labour.

Labour in Maasailand is slowly becoming a commodity. Households are beginning to hire labour to help in crop production and animal management (ILCA, 1984). Part of the reason for this is the loss of household labour that has taken place with the increase of formal education among Maasai children.

iii. Land.

In Kajiado District, land is now considered by Maasai to be a commodity. Traditionally, membership in a tribal section entitled one to use the land of that section. The alienation of Maasai land to individual ranchers and other forms of land use has made pastoralists aware that land is a

scarce resource subject to individual ownership. While pastures remain in communal hands, the Group Ranch program reinforced the notion of land ownership and its implications. As well, one of the major purposes of Group Ranch adjudication was to allow land to be used as collateral for AFC credit. This carried with it the threat that Group Ranch land may be appropriated and sold should the members default. The clearest indication of Maasai awareness of land as commodity is the pressure for subdivision of Group Ranches into individual holdings (Grandin, 1985).

The Maasai favour subdivision for two reasons. On one hand, there is frustration with the Group Ranch organizational structure. The Group Ranch represented a new social and economic formation for the Maasai, and it has not captured their full allegiance. Decision making in such areas as AFC loans and stock quotas has set individual and group interests in opposition and often has inhibited ranch development (Doherty, 1979).

On the other hand, Group Ranches have not completely prevented the alienation of Maasai communal lands. Politically astute Maasai have continued to gain individual holdings with government support. Given the uncertainties about the future of Group Ranches, individual Maasai want to

ensure that they are not the ones to be left without land.

There are several indications that the Maasai in Kajiado are anticipating subdivision.

-- There is a tradition among the Maasai of private control of water points. Recently, there has been a spate of construction of private water connections along the 100 kilometer long Sultan Hamud-Loitokitok water pipeline. Through the construction of such connections, various Maasai wish to establish claims to the areas around the connections. By 1984, there were 19 private water connections on the Mbirikani Group Ranch alone, the majority built within the previous two years (Grandin, 1985:12).

-- Bomas are the basic residential unit among the Maasai, consisting of several families who group together to share labour and resources. Between the 1950s and the 1970s, the mean boma size in Kaputiei fell from 6.2 families to 2.7 families (Njoka, 1978). Grandin (1981:52) links decreased boma size to the subdivision issue, claiming that many Maasai families wish to split apart from others in order to establish individual claims to particular areas.

--Traditionally, herdowners could establish an area close to their boma as a restricted calf pasture where trespass was forbidden. Recently, herdowners have used this tradition to claim an excessively large calf pasture in order to

establish firm rights to the land (Ibid., p 52)

-- When adjudicating traditional lands in Kenya, the government tended to give rights to land to those who have improved it in some way. Many Maasai have been building permanent structures such as houses on Group Ranches in order to establish a claim to an area. According to Njoka's (1978) survey, 65 out of 395 bomas had permanent structures, primarily houses, by 1978. 80 per cent of these structures had been built within the previous seven years. Most bomas with permanent houses have only one such house, and the bulk of the population remain in traditional huts (Grandin, 1981:54).

-- Another form of land improvement is the cultivation of shambas, small agricultural fields adjacent to bomas. Over half of Njoka's (1978) Kaputiei sample had tried cultivation by 1977, with more families starting since 1976-1977 than the combined total of all previous years. Since most land is not well watered, farming may be marginal in terms of food production, but can have a significant impact on later land tenure.

4.6 SOCIAL DIFFERENTIATION.

As Bernstein (1982) explains, there are two approaches one may take when examining the stratification of rural

producers. One approach is based on differences in the levels of accumulation and consumption, "...which in itself is unable to indicate socially significant differences at the level of production" (Ibid., p 169). More often than not, these indicators are based on random differences in demography, luck or skill. Differentiation in the Marxist sense is a consequence of the transformative effects of capitalism, and the development of differential access to productive resources (Lenin, 1960).

Lenin put forward a tripartite scheme of peasant differentiation. The "rural bourgeoisie", which has accumulated sufficiently to re-invest in the factors of production and maintain a cycle of expanded reproduction; the "poor" peasantry, which is unable to reproduce itself through household production and must sell its labour power on a regular basis; and the "middle" peasantry, which is able to reproduce itself through household labour and is distinguished by the least development of commodity production. This classification provides a rough framework to keep in mind when considering the process of pastoral differentiation occurring in Kajiado District.

i. Individual Ranchers.

From the beginning, individual ranches went to a

"...newly created, distinct social and economic class" whose members were relatively wealthy, well educated, and politically influential (Hedlund, 1971:16). The members of this class used their influence to to carve out a superior resource base for themselves. In 1981, there were 300 individual ranches in Kajiado District (White and Meadows, 1981:3). Their size is typically around 700 hectares each (Ibid., p 14). If the ranching areas of Kajiado were divided into equal shares for all Maasai households, they would each received a ranch of only 210 hectares. Furthermore, individual ranches tend to be situated in the higher potential zones of the District.

Individual ranchers have used this resource base to draw resources from both the modern sector and the surrounding pastoral areas. They regularly utilize grazing on neighbouring Group Ranches, yet do not reciprocate by allowing Group Ranch members to use the individual ranch resources (Galaty, 1981b; White and Meadows, 1981; Evangelou, 1984).⁶ With access to this expanded resource base, they are able to accumulate more livestock than would be possible within the confines of their own ranch boundaries.

From the modern sector, the ranchers' individual holdings give them easy access to AFC loans. The importance

of AFC-finances steers to the individual ranchers' operation is evident from Table 4.11.

Table 4.11 Cattle Herd Structures as a Percent of Total Herd (23 Individual Ranches).

	Female	Male	Calves
Including bought-in steers	44%	43%	13%
Excluding bought-in steers	60	22	18

Source: After White and Meadows, 1981:23.

Up to 52 per cent of sales on the sample individual ranches between August, 1980 and July, 1981 were bought-in steers. Upon sale, these steers bring in a price between 15 and 33 per cent higher than cattle from domestic herds (White and Meadows, 1981:36).

Evangelou notes that there are significant differences in investment and orientation among his Kajiado individual ranch survey households. However, many have accumulated sufficiently to invest in improved breeds, expensive infrastructure, fencing, and disease control (1984:159-172). Furthermore, individual ranchers utilize more diverse income-earning opportunities. Over half of White and Meadows' survey individual ranchers drew salaries from outside the livestock sector and relied on hired managers and labour. Like the Russian "kulak", individual

ranchers are truly "big men". They are politically astute centers of influence in Maasai society, and are looked upon as patrons by other Maasai (Galaty, 1981c).

ii. Group Ranchers.

As ILCA data indicates, there is considerable concentration of wealth on Group Ranches (Table 4.12).

Table 4.12 Concentration of Livestock Holdings by Household on Two Group Ranches.

		Percent of Stock Units Owned by:	
		Merueshi	Olkarkar
Richest	5%	27%	21%
"	10	47	37
"	25	70	68
"	50	78	85
Poorest	25%	3	3

Source: Grandin, 1981:24.

An important issue is the extent to which livestock holdings are "fluid" or "frozen". Grandin (1981) has compared the stock units owned per member in 1970 on two Group Ranches with the figures for the same members in 1980. Twenty-four members of Merueshi and nineteen members of Olkarkar were identified. The figure yielded is the current holdings expressed as a percentage of former holdings, adjusted to account for the overall increase in stock

numbers. This proportion varies from 16 to 322 per cent on Merueshi, and from 4 to 278 per cent on Olkarkar. This confirms that downward and upward mobility still occurs to a great extent among Maasai households. Households are classified into three wealth cohorts. While some households in the middle and upper third had smaller herds in 1980 than they did ten years earlier, others have gained significantly. The figures also suggest the impoverishment of the poorest third, all of whom had proportionately fewer stock units in 1980 than they did in 1970 (Ibid. pp 25-26). A dynamic and fluid stratification system is usually attributed to traditional Maasai society, but Grandin's figures suggest that this was perhaps more so in the past than it is today, and that a more permanent stratification system has been established.

Large herdowners on Group Ranches have been able to adapt to new conditions of production in a unique fashion. They are able to reproduce themselves largely on the produce of the family herd, as evident in the lower offtake rates for this upper stratum. In order to meet cash needs, these wealthier herdowners have developed a unique innovation: a small steer herd parallel to their milch herd reserved for sales. This appears in herd structure statistics as a relatively high proportion of males.

For smaller herdowners, keeping a parallel beef herd is not an option. The inability of this stratum to subsist directly on the produce of their herds is evident in their exceptionally high offtake rates. Household production suffers as a result of high sales offtakes. Milk supplies dwindle as these households sell off stock to meet cash needs, to the detriment of the health of calves and the future growth and productivity of the herd. Very little is known about how this stratum is making a living, but many have resisted proletarianization thus far. Some, who have no wage employment, are selling most of their stock to wealthier ranchers, which may lead to stocklessness and eventual disenfranchisement from the pastoral economy (Gutto, 1981). Traditional forms of reciprocity still thrive in Maasailand, and many destitute pastoralists are undoubtedly being supported by others or have taken on labour as herders (not necessarily in exchange for cash). Some have diversified their activities and are dependent on remittances, casual wage-labour, beer brewing, charcoal burning or cultivation. Others have concentrated on the production of smallstock for sale. Within the Group Ranch structure, many have retained their rights to communal pasture and resisted total dispossession from the pastoral economy.

In conclusion, there is nothing inevitable about the differentiation process. The rural class structure in the rangelands will not necessarily polarize, but could develop into a "family farm" system of enterprise. This is an area where "rural development" strategies may make a crucial difference. Evangelou, for instance, advocates that interventions take a "selective focus" on those producers who are already "...charting a commercially oriented development path" (1984:259). Others seem to suggest a strategy that is more in line with the current objectives of pastoral producers (c.f. Kenya, 1983). This debate will be considered more closely in the final chapter of this thesis.

4.7 THE STATE AND THE EXTENSION OF COMMODITY RELATIONS.

ILCA (1984:90) has analyzed the utilization of livestock output for producer samples on Olkarkar Group Ranch over one year. It found that in the aggregate, 24 per cent of total annual output (in terms of value) consisted of the sale of livestock and livestock products to finance household personal and productive consumption. 31 per cent of output was consumed in the form of milk and meat, and the remaining 45 per cent was reinvested into herd growth. These figures suggest that production is utilized primarily for its subsistence value, and households are only secondarily

involved in commodity relations. However, it does not imply that the Maasai can withdraw from these relations. Rather, commodities have been incorporated into the household reproduction cycle as an economic necessity.

Some of the State forms of capital in Kenya will now be made explicit. The State in Kenya is central to the process of economic development, a phenomenon that is related both to its role as source of accumulation for a budding indigenous bourgeoisie (which includes State officials, politicians, and their kin) and its ability to invest at a scale that is beyond the means of indigenous social groups (Alavi, 1972; Leys, 1978). As part of this role, the State takes on some of the functions of finance capital and seeks to promote the development of commodity relations through the provision of production inputs and credit. In addition, the State has also taken on some of the functions of merchant capital:

The State in Kenya stands at the focal point of a network of exchanges between commodities and money which link together producers and consumers within Kenya and the Kenyan sub-system of world capitalism to that world system (Kitching, 1980:413).

State marketing boards purchase a large proportion of the commodities that are produced in rural areas, and sell them at a price mark-up to urban consumers or to private export firms. They buy in order to sell, and these agencies cover

the costs and make a profit out of the difference between the price they pay to producers and the price at which they sell. The earnings made in this fashion go to recover recurrent costs, to finance investment in transport, processing and storage facilities, and go into central government revenues (Ibid.).

In the rural areas of Kenya, a large part of production still takes place without need for money to purchase either means of production or articles of necessary consumption. This places a block in the way of the State as an agency of capital accumulation. However, once commodity relations and the acquisition of a cash income become necessary for the reproduction of the rural production unit, the supply of commodities can be increased or maintained by agencies of the State through a mechanism termed the simple reproduction "squeeze" (Bernstein, 1982).

For example, falling prices are experienced by a household as a deterioration of the terms of exchange of the commodities it produces relative to those it needs for simple reproduction, which means a reduction of levels of consumption or an intensification of commodity production, or both simultaneously. Furthermore, rural development schemes operate to incorporate producers further into commodity relations by encouraging more expensive means of

production and concomitant indebtedness, and attempt to standardize and rationalize production of commodities for domestic and international markets (Ibid.). The simple reproduction squeeze thus locks producers into commodity relations without capital incurring any of the costs of management and supervision of the production process.

It is possible to recognize this phenomenon occurring among the Kajiado Maasai. On one hand, Maasai households are being "squeezed" by artificially low meat prices. The concern for politically important groups in urban areas governs the national goals for production in the rangelands of Kenya, especially the production of cheap meat. While price structures are biased in favour of urban workers, there are far more numerous rural poor who are also low income producers, and as such do not benefit from low producer prices. While prices at local livestock markets are not directly administered, they are influenced by controls at subsequent links in the marketing chain, as well as prices paid to producers by the Kenya Meat Commission (KMC). The latter set of prices is fixed by the Ministry of Agriculture, and can be considered as national floor prices (Evangelou, 1984:54). At the wholesale and retail level, prices are closely controlled by the Price Control Act. Throughout the 1970s, Kenya's wholesale beef prices declined

to levels far below world price levels (Ibid., p 57). Over the same period, the relative price of beef compared with a basket of other food items fell by some 24 per cent (UNDP/FAO, 1979). In particular, recent dramatic increases in maize prices in East Africa have left pastoralists with a net decrease in livestock to grain exchange ratios (Hjort, 1981b).

On the other hand, the Group Ranch program and KLDP have encouraged indebtedness through the imposition of more expensive production inputs. Certainly, the development of an organization responsible for loans and their repayment was a central rationale of the Group Ranch program. The level of indebtedness is now very high for some individual members. On Olkarkar, for example, the debt per member in 1980 was approximately Kshs. 19,000. This is almost five times the commercial cash income of poor producers, and two and a half times that of average producers (Grandin, 1985:6). Development loans are allocated primarily to finance water points and dips, inputs that before the program were often provided free of charge by the Government of Kenya. Such inputs are seen as necessary by planners to increase the carrying capacity of ranches and maintain healthy animals to pass the stringent quarantine regulations. However, their rate of functioning has been

very low and they require constant expenditure to keep them in operation. Furthermore, the upgraded cattle which are less well adapted to the Kajiado environment than traditional stock have become dependent on such infrastructure (as well as expensive drugs and vaccines). The debts incurred from infrastructural development are now being repayed with profits from steer loans. The AFC supervises steer purchase, management and sale. Upon calculating the profits from these steers, the AFC ensures that the greater portion goes toward paying loan interest and leaves little cash for producers (Grandin, 1981:33). The AFC steer issue is thus one example of how indebtedness has locked Maasai into producing commodities. Another example is provided by the stock quota and destocking issue on Group Ranches. Project implementers tended to stress the positive aspects of Group Ranches to the Maasai, such as water development and dips. They did not emphasize the imposition of grazing quotas and the possibility that some members would have to sell off their excess stock (Grandin, 1985:5). The grazing quota component demonstrates the way in which the program attempted to supervise livestock management and provide means to regulate offtake. Group Ranch members, however, have struggled to retain control over such conditions and have everywhere resisted the quotas.

4.8 CONCLUSION.

By all theoretical and statistical indicators, it is apparent that the pastoral economy of the Maasai is under considerable stress. Loss of vital dry season grazing and expanding populations in Kajiado District has resulted in a net decline in cattle to human ratios over the past two decades. On one hand, the Maasai are responding to this decline by purchasing agricultural foods and inputs to subsidize the pastoral economy. On the other, this consumption is financed by diverting production toward the market and diversifying production to increase cash incomes. Perhaps this strategy can best be described as the substitution of production of commodities for use-values where possible, and the substitution of consumption of commodities when necessary. In a sense, pastoralists are caught in a dilemma. Orientation toward commodity production, particularly beef production, comes at the expense of subsistence production. The Maasai are commercializing while attempting to maintain the subsistence basis of their economy. Although the greater proportion of production is oriented toward the subsistence component of the economy, this does not imply that Maasai producers can withdraw from commodity production; rather the incorporation

of commodities into the reproduction cycle is an economic necessity.

This process of commoditization fundamentally alters the conditions of production of the household enterprise. As simple commodity producers, they are directly dependent on the wider economy for the purchase of necessary items of personal and productive consumption and for the sale of their produce. Some pastoralists may accumulate sufficiently to convert their assets into capital and initiate a cycle of expanded reproduction. Others may fail to make ends meet and be forced out of pastoralism. Those in between will remain vulnerable to the vagaries of the wider economy and the interventions of the State.

NOTES FOR CHAPTER 4

1. For White and Meadows' study, twelve households were chosen on each of the five Group Ranches. Of these twelve, four were selected which had substantial livestock wealth, four had moderate livestock holdings, and four had very little livestock wealth.
2. ILCA sample households were selected randomly from the three Group Ranches, and were subsequently stratified according to per capita livestock holdings (Livestock Equivalents per Active Adult Male Equivalent -- LE/AAME). The distribution of households worked out as follows (ILCA, 1984:7):

Stratum	LE/AAME	Olkarkar	Merqueshi	Mbirikani	Total
I	0-4.9	7	6	8	21
II	5-12.9	10	9	6	25
III	13 +	7	6	16	23
TOTAL	--	24	21	24	69

3. A boma is the basic residential unit among the Maasai, consisting of several households that group together to share labour and resources.
4. One Livestock Unit equals 250 kilograms liveweight, or one mature zebu cow. Table 4.11 shows the actual distribution of livestock wealth on two Group Ranches.
5. Legislation is now in place to facilitate subdivision of Group Ranches (Kenya, 1983). Before subdivision can occur, there are several outstanding issues that must be cleared away. Firstly, Group Ranches cannot subdivide as long as they have an outstanding debt to the AFC. For some Group Ranches with high levels of indebtedness, this problem seems almost insurmountable. Second, there has been major disputes over whether or not the young men should be registered before subdivision or be left to share their father's portion. Third, it is uncertain where ownership of Group Ranch infrastructure will lie after subdivision. Possibilities include ownership by the government, or privately by a group or individual. (Grandin, 1985:6-7).
6. According to Evangelou's study, 8 out of 9 individual ranchers utilized off-ranch grazing in 1981, mostly on neighbouring Group Ranches.

CHAPTER FIVE
CONCLUSION: SOME ALTERNATIVES
FOR PASTORAL DEVELOPMENT.

5.1 SUMMARY.

A basic theoretical supposition of this thesis is that the relationship of social and ecological systems are conceived in terms of articulation. One cannot be reduced to the other, but they exercise some degree of mutual determination. "Development" is conceived as a historically and socially specific process involving fundamental social changes in the relations between rural producers and the systems of circulation or distribution of their conditions of production.

The changing relationship between livestock, pastures and people in Kajiado District is examined in Chapter Three. It is evident from the theoretical and statistical figures derived from this exercise that a purely livestock based subsistence is not possible for the whole of the Maasai of the District. This destruction of the pastoral "natural economy", however, can not be separated from the power of the dominant social groups in Kenya, and their role in alienating and appropriating higher potential rangeland for other forms of land use. Attempts to separate ecological

parameters from this social and historical context in development discourses are not only narrowly focused, but serve as disguises for complex political issues. Ultimately, knowledge generated within ecological models may be turned against pastoralists (a case of "blaming the victim") and used to justify their subordination to the national State (e.g. the Group Ranch program).

For the Maasai, land loss and growing human populations in Kajiado are of immediate concern because the land can now support fewer livestock than the pastoral population is able to subsist on. The Maasai are adapting to the deterioration of their pastoral economy by consuming more agricultural foodstuffs and selling more of their livestock and livestock products. Ecological change has thus effected definite social changes; but these social changes cannot be reduced to ecological change. Instead, the complex articulation of ecological and social relations must be examined. In particular, there are several social agencies at work which have changed the conditions of production for Maasai producers.

As producers and consumers of commodities, Maasai households^o are involved in a whole network of social relations. State forms of merchant capital provide the conditions of these producers insertion into a social

division of labour. This leaves the conditions of realization of the commodities produced entirely beyond the control of producers. They require access to a wider commoditized economy to purchase items of personal and productive consumption that were previously produced locally or acquired through simple exchange.

Moreover, the Maasai have lost a degree of effective control over the production process with the Group Ranch program. Through the provision of AFC fattening steers, to finance the indebtedness engendered by the program, the State provides both certain means of production and monopolizes the conditions of realization of the products. The Group Ranch program has thus provided the State with a mechanism for encouraging expensive, commoditized means of production, locking Maasai into producing commodities for national and international markets. The Maasai are thus in a sense becoming workers for the State, although this process has stopped short of full proletarianization in that the separation of the household and the means of production is not complete.

There have been limited technical changes in the production process as well. These include changes in herd structure, in species composition, and increasing utilization of veterinary items, dips, water points, and

breeding stock. Nevertheless, the basic ecological dynamics of pastoralism remain.

As Asad (1979) suggests, the point is not that pastoralists "interact" at different levels with other populations, but that their social conditions of existence are reproduced by the total system of social relations of a national social formation. The primary social agency that has provided the conditions for pastoralists insertion into a national social formation has been the various apparatuses of the Kenyan State. Since it is the State that has a significant capacity to control the functioning of the means of pastoral production, it is this State that Maasai pastoralists face as a subordinate economic class.

Such are the contemporary conditions of production for Maasai pastoralists in Kajiado District. Maasai households are faced, on hand, with reduced livestock holdings on which to subsist, and on the other, the demands of a State which is primarily concerned with the extension of commodity relations into their District. Given these changed conditions of production, what are some of the alternatives for rural development among Maasai pastoralists?

5.2 PASTORALISM OR RANCHING?

The Government of Kenya's most recent Sessional Paper

stresses the relationship between economic growth and population growth (Kenya, 1986). To provide rising incomes for a rapidly growing population (and Kenya's population is the world's fastest growing), it is seen as necessary to expand the country's productive capacity faster than its population growth. In the document, the primary goal of renewed economic growth is considered alongside four other major national objectives including greater employment creation; provision of basic needs; food security; and improved rural-urban balance. It should be noted that such "growth with equity" models in practice, usually involve trade-offs, although these trade-offs are not emphasized in the Sessional Paper (c.f. Hicks, 1980). The goal of renewed economic growth is in many ways incompatible with the latter considerations. For instance, food security implies an emphasis on domestic food crops at the expense of exportable cash crops. A concern with basic needs shifts expenditures away from outlays on more immediately productive activities. One may question an approach to meeting the needs of an expanding population which stresses economic growth as a paradigmatic concern, yet this is precisely the view taken in the Sessional Paper and reflected in Kenya's National Livestock Development Policy (Kenya, 1980).

Evangelou, working within a similar problematic,

reduces the goals of livestock development in Maasailand to a single objective: "...expansion of the nation's meat supply in the hope of keeping pace with an inexorably rising demand" (1984:12). He claims that commercial offtakes are as high as can be expected given the "pastoral mode of production", and that technical progress is impossible without an effective institutional framework. Therefore, this objective can only be met through the transformation of pastoralism into a commercial system more in line with modern beef ranching (Ibid., pp 254-256). According to Evangelou, development interventions should take a "selective focus", centralizing land and credit in the hands of those producers capable of "...charting a commercially oriented development path" (Ibid., p 259). The grim alternative of continued reliance on pastoralism is further reductions in cattle to people ratios, accompanied by falling rates and per capita consumption of milk and meat, increased environmental stress, and increased migrations of destitute pastoralists (Ibid., pp 256-258).

While livestock development faces many problems in Kenya today, it is not clear that they will be solved by the alternative of commercial ranching. Firstly, Evangelou uses the quantity of animals marketed for their meat as the only measure of the value of pastoral production systems. In so

doing, his argument reflects the State's prime concern with providing meat for expanding (and potentially politically volatile) urban populations regardless of the costs of doing so for the welfare of the pastoral population. As Sandford (1983), argues such a view ignores the production of live animal products which are the specialty of pastoralists. These products are used to support the human populations which are directly dependent on the animals. Marketed offtake thus represents only a small proportion of the total production of the herds.

Second, Evangelou assumes that commercial systems have higher overall levels of productivity than pastoralism. If the value of what is produced is judged according to its ability to feed humans, however, the reverse is actually a more accurate conception. Pastoralism can maintain high absolute levels of offtake of consumable products through its strategy of intensive exploitation of herds and pastures. By stocking a range heavily and "tracking" the changing annual primary production closely, pastoralists can maintain a high overall level of offtake per unit of area. Pastures are grazed heavily, but because of the pastoralists' mobility, pressure is relieved before they are seriously damaged. Without the flexibility of movement that is afforded to the pastoralist, the rancher must operate

within a margin of safety, and can keep no more animals in good years than could be carried in ¹ bad years.

Furthermore, as a milk production oriented strategy, a much higher human density per livestock unit can be supported by dependence on milk products than can be supported by meat production. The efficiency of nitrogen production from pasture to produce on an annual basis has been calculated at 38 per cent for milk and 6 per cent for meat (Spedding, 1971). Dyson-Hudson and Dyson-Hudson (1982) estimate that in terms of kilocalories of human food per unit of land, a beef production system would not feed the population of Turkana District, Kenya, that is currently being supported by pastoralism. Pastoralism thus represents the more intensive form of exploitation of livestock and rangelands, and the switch to ranching would not represent a net gain in the amount of food energy available to humans.

Third, ranching becomes profitable by substituting capital for labour and through the centralization of land and credit. On one hand, this means that commercial ranching supports fewer workers per unit of land. According to Western (1982), the number of workers plus dependents per unit of land on a ranch is typically less than 15 per cent of the number supported in pastoral areas of comparable Kenyan rangelands. On the other, commercial ranches require

expensive inputs. These inputs include expenditures on ranch infrastructure such as fencing, as well as a massive complex of processing, packing and transportation facilities. Furthermore, Ward et al. (1980) point to the huge amounts of fossil fuels consumed in the process of modern beef production. In a Third World country with chronic shortages of financial and managerial resources, it is doubtful that the level of investment could be high enough to ensure profitability.

To point to the success of commercial ranching in America and Australia would be misleading in this context, for it would ignore a central problem of rangeland development in Africa: namely, large populations of indigenous pastoral producers. To replace pastoralism with commercial ranching would eliminate a viable form of productive employment for these people, who would likely join the ranks of the urban and rural poor. The fullest and richest contribution that pastoralists can make to national development may be as pastoralists. They can contribute little seeking out a living in a modern industrial society that has little use for their special skills. Pastoralists have proved to be admirable managers of arid and semi-arid areas. They are able to sustain large populations on the land without expensive inputs, and have done so for a couple

of millenia without eroding the environmental base. As stressed in a recent World Bank policy paper, "...the preservation of [tribal] groups is a significant economic opportunity for the nation, not a luxury" (1982:15), for scientists may learn a great deal from pastoralists' intimate knowledge of the marginal ecosystems they inhabit.

Furthermore, pastoralists are making significant contributions to Kenya's national meat supply. Two-thirds of the beef consumed in Nairobi, as well as most of the capital's mutton and goat meat, comes from Maasailand (UNDP/FAO, 1980). Although it is sometimes remarked that this contribution could be much higher, it must be pointed out that pastoralism is sustaining large populations at the same time as it is exporting meat.

It is difficult to envisage how the Government of Kenya's equity goals of employment creation, provision of basic needs, food security, improved rural-urban balance, or even its major goal of renewed economic growth, can be met with a policy of replacing pastoralism with commercial ranching on the rangelands.

The argument that insists that pastoralism should remain a viable and productive livelihood should not be interpreted as a call for complacency or to "leave pastoralists be". In Kajiado, for instance, the pressures

facing pastoralism are very real. Loss of prime dry season grazing and a growing population has irreparably undermined the traditional subsistence economy; and pastoralists have changed to adapt to the new circumstances. In this District, there are two immediate needs: firstly, pastoralism will have to be redeveloped if it is to continue to support large populations on a reduced resource base; and second, many producers will continue to be squeezed out of the system, and a number of viable alternative forms of employment should be available which are based on the needs and values of the pastoralists.²

5.3 REDEVELOPING PASTORALISM.

In the near future, pastoralists will continue to live on reduced livestock holdings and rely on other sources of food, particularly in dry season. In order to do so, they must be assured that alternate sources of food are available (Campbell, 1979). In the past, there have been grain shortages in Maasailand in times of drought. If pastoralists are to be more dependent on alternate foodstuffs, the system of distribution and marketing of these foodstuffs must be sufficiently efficient to permit them to be confident in the ability of the system to function when it is most needed. Should grain supplies prove to be a reliable alternative to

livestock as a provider of subsistence in a future drought, then more herders may be willing to follow a more commercial production strategy.

Furthermore, pastoralists must have the means to purchase these foodstuffs. They would be more willing to substitute grain for milk in their diet if producer prices were high enough to make the sale of livestock and livestock products worthwhile. Banking facilities are also required throughout pastoral areas. They would provide households with a means of saving some of their cash income from the sale of livestock in order to provide for their needs in times of drought.

In zones close to the urban core, such as northern Kajiado, there should be a shift in emphasis from commercial beef production to commercial dairy production. Demand for milk is high in Kenya, especially since the School Milk Programme was initiated. In 1981, over 13,000 metric tons of milk powder was imported into the country (Evangelou, 1984:4). In wet season, there is often a surplus of milk among pastoral households. If milk collection and transportation facilities were sufficient to market this milk, it could provide producers with a major source of cash income.

It has been suggested that the importation of fodder

into pastoral areas could serve as supplementary feed for livestock in times of drought (Mugambi, 1981). A fodder crop is any forage or root crop which is grown under arable conditions for the purpose of providing feed when pasture grazing is inadequate (Ibid., p 181). However, the cultivation of fodder crops is perhaps not the most efficient use of cropland. In a country concerned with the maximization of its food supply, all cropland will sooner or later become too valuable for livestock production, and only non-arable rangelands will be viable livestock producing zones (Konczacki, 1978). Furthermore, it is not clear that fodder could be delivered to pastoral households in times of need in a reliable or cost effective manner. A more reasonable suggestion is that livestock be fed on crop residues in order to extend the dry season livestock capacity of rangelands. This would replace a land use conflict between herding and cultivation with a system of compatibility (Campbell, 1979). Cultivation in marginal areas is only possible in wet season, and private arrangements between pastoralists and farmers could be made which grant access of livestock to stubble or fallow lands in dry season. The main obstacle to such a system is tension and mistrust between pastoral and agricultural groups over access and control of land. However, as increasing numbers

of pastoralists take up the hoe in higher potential areas, a flexible system of land use may be forthcoming.

A "redevelopment" of pastoralism would be a broadly-based development strategy which builds on traditional practices while facing up to the need for the diversification of the pastoral economy. The positive aspects of pastoralism remain, including its ability to sustain large populations and make use of far-flung resources. At the same time, it could contribute to an increasing extent to the goals of national development while avoiding the negative aspects of commercial ranching.

5.4 ALTERNATIVES TO PASTORALISM.

i. Sedentarization.

Sedentarization of pastoralists has occurred in every historical epoch (Salzman, 1980). Often, settlement has neither been permanent nor absolute. Pastoralists can become "more sedentary" when they begin to cultivate crops for part of the year, shift from full nomadism to transhumance, or become seasonal wage-labourers. Sedentarization can be temporary when its purpose is to rebuild herds after a disaster.

The circumstances which result in sedentarization vary

greatly. Most commonly, it has been in response to a difficult situation that has left the pastoralist with no choice. In arid and semi-arid pastoral zones, households may lose entire herds in times of drought. If the community is unwilling or unable to support and help rehabilitate the household, the family has no choice but to look for alternate forms of livelihood.

A second type of sedentarization takes place as the result of State compulsion. While this has not explicitly occurred in Kenya, it has been attempted in Tanzania and has occurred on a large scale elsewhere. In Tanzania, Maasai herders have thusfar resisted attempts to settle them into Ujamaa villages (Bennett, 1984). Where force was applied in the Middle East and Asia, the result was invariably disaster. One example is the Soviet attempt to sedentarize the Kazakh population. Justified by pronouncements that reorganization of the economy of nomads and semi-nomads along socialist lines requires sedentarization, the Soviets sedentarized several million Kazakhs by 1937, in spite of strong opposition. This had a disastrous effect on the livestock population, which declined nearly ninety per cent in Kazakhstan within a few years. Eventually, it was realized that natural pastures should again be put to productive use, and pastoralism was restored as a new form

of transhumance (Konczacki, 1978).

A third form of sedentarization is what Salzman calls the "adaptation and response" model. Here, sedentarization is not merely the outcome of particular environmental and historical forces. Rather it is seen as the result of choice and concerted action on the part of those involved in response to local conditions, and may therefore be temporary and reversible. This process is perhaps best illustrated by the case of the Ugandan Sebei over the past century (Goldschmidt, 1980). With their movement to the well-watered Mount Elgon region, they acquired a taste for native cultigens; cattle gradually decreased in importance as the tribe picked up the hoe, and were eventually eliminated as sources of sustenance. This Goldschmidt calls "a process of natural development", a set of changes adopted in response to perceived needs and opportunities (Ibid., p 49).

Salzman's "adaption and response" model has been criticized by Bradbury (1981) as being ahistorical and failing to place sedentarization in its larger political and economic context. The expansion of the world capitalist system has everywhere resulted in the removal of some proportion of the rural population from the land into conditions where they become members of a proletarian workforce.

The settlement of nomads is not simply the continuation of an age-old movement back and forth between settled and nomadic sectors of production. Instead, I think it should be seen as a part of the process of drawing all peoples who were previously engaged in subsistence production into the world market system (Ibid., p 38).

It is clear that many Maasai have been forced out of pastoralism in Kajiado as a result of the historical processes mentioned by Bradbury. Colonial and post-colonial capitalism must be held culpable for squeezing out poorer producers with the appropriation of land and the imposition of new conditions of production. Everywhere, the market is replacing the community as the primary gauge of production decisions, removing an important source of "social security" for destitute producers. The ability of producers to acquire commoditized factors of production is becoming the primary constraint to participation in the system.

Sudanese geographer Mustafa Khogali (1981) presents an emphatic case for government-sponsored sedentarization. He sees three disadvantages to contemporary nomadic pastoralism that make its transformation desirable. The first is wastage in human resources: with improvements in water availability and labour-saving devices (dogs, trucks, radios), pastoralism increasingly entails disguised underemployment. Second, nomadic pastoralism is incompatible with the use of social service: 90 per cent of Sudanese nomads have never gone to school, and many live in unhygienic conditions with

unbalanced diets. While the living conditions of Sudan's settled population is not much better, at least improvements are possible in towns. Third, nomadic pastoralism is no longer able to absorb natural increases in population: nomadic populations increase but livestock capacities remain constant. Khogali recommends that governments encourage every move toward sedentism, and begin by providing infrastructure to ensure a smooth transition.

Khogali might temper his enthusiasm, however, for the settlement of pastoralists may give rise to more problems than it solves.

When the settled pastoralist desires to retain some form of animal husbandry, the result can be increased environmental degradation. Without the mobility to exploit the climatic diversity of arid and semi-arid zones, the possibilities of successful husbandry are severely curtailed (c.f. Darling and Farver, 1972). Maasai households in Kajiado, for example, are tending to stay in one location on Group Ranches. Grandin (1981) relates this to the land claim issue. While men and cattle remain highly mobile, women, children, old men, and smallstock flocks stay in permanent bomas (Njoka, 1978). One negative effect of this new pattern has been severe overgrazing by smallstock around the homesteads. As well, sedentary life has led to many health

problems for animals and humans, as bomas no longer move to escape unhygienic conditions (Grandin, 1981:54).

In most of the territory occupied by pastoralists, agriculture is unfeasible without large amounts of capital investment (e.g. for irrigation). One exception is the high potential areas in Narok District, where the Government of Kenya is committed to promoting wheat and barley production. However, the role of the Maasai in this grain production is generally limited to leasing land to outsiders, who do the actual cultivation and retain the profits (Doherty, 1979; Sindiga, 1984). Some successful sedentarizations are possible through migration to other ecological zones favouring agriculture. Such was the case for a group of northern Somali who were able to settle and prosper in fertile regions to the south (Khazanov, 1983). This case is probably not widely replicable, however, for most fertile land in Kenya is currently occupied by groups who may be hostile to interjections of ethnically distinct pastoralists.

Otherwise, pastoralists may settle in urban areas. Pastoralists, however, are no better suited to urban employment than they are to agriculture. There is very little data to this process of proletarianization in Kenya. Some 30,000 Maasai are currently living outside of Kajiado

and Narok, and it is unknown what proportion of these people are involved in pastoralism, agriculture or wage labour. According to the 1979 population census, 3,425 of these Maasai are living in Nairobi, three-quarters of whom are male (Kenya, 1981). In urban areas throughout Kenya, Maasai men are commonly night watchmen, house guards, and wage labourers (Holland, 1986).

Concern must also be expressed about the physical and mental effects of sedentarization on pastoralists. While all societies are dynamic, their capacity to adapt to change is not infinite. Extreme social change can make these traditionally self-reliant individualists vulnerable to role conflict and loss of self-esteem (World Bank, 1982). Health may also be affected through the introduction of disease and alteration of diet and living conditions.

Pastoral nomads have settled and will settle when it is perceived to be in their own benefit. Sedentarization as a complete or compulsory solution to the pastoral "problem", as the historical record will show, will benefit no one. Rather, all alternatives along the continuum should remain open to pastoralists, and governments can respond by facilitating this development (Salzman, 1980).

ii. Education.

Formal education can provide pastoralists with some of the tools necessary to participate more effectively in the national society. People who are not literate are exploited in various ways, and are unable to articulate their interests at the national level. Although progress has been made recently, pastoralists are among the least educated segments of Kenyan society. Of White and Meadows Group Ranch survey households, 57 per cent of children between the ages of 6 and 12 years of age were attending school when the survey began (1981:iii). Schoolage enrollment rates are much lower among more marginal pastoral populations. For instance, in 1978, only one per cent of Turkana's eligible population was estimated to be attending school (Nkinyangi, 1981:187).

The development of schooling in Kenya is closely linked with missionary work, which was concentrated in the predominantly agricultural districts close to or adjacent to the settler enclave (Court and Kinyanjui, 1980). At the time of independence, education was the main channel of social mobility through which Africans acquired elite positions at the local or national level. This emphasis meant that pastoral peoples were effectively shut out of leadership positions, and were prevented from having a strong voice in

matters that concerned their own development. The government responded to the difficulties and expense of providing schooling for scattered pastoral populations by promoting boarding schools. However, as Nkinyangi (1981) argues, the high fees charged in boarding schools as well as other incidental costs make these installations, which were meant for pastoralists, positively closed to the children indigenous to those areas. As a result, they are filled largely by children from agricultural districts who seek to exploit the schools' compensatory academic policies in order to further their chance in secondary school selection.

Some analysts claim that schoolage enrollment is low because pastoralists are reluctant to send their children to school (c.f. Hedlund, 1979). Children are an important source of household labour, and schools are distant and offer a curriculum that may seem to have little relevance to the realities of pastoral life. However, pastoralists are increasingly aware that these realities have changed, and that there may be little future for the family if children do not acquire the opportunities afforded by educational certification. There is no social justification for the existence of elitest boarding schools in Kenya which receive twice the government subsidy that low-cost schools receive, when the latter schools cannot meet the needs of the least

educated strata of society (Nkinyangi, 1981).

iii. Secondary Activities.

There is an urgent need to organize secondary activities on a group basis in order to generate capital and employment. Many individual pastoralists are already involved in alternate forms of employment in order to raise cash. Some examples from Narok District include charcoal burning, timber cutting, cultivation and cattle trekking. Doherty (1979) claims that these activities are often poorly organized, tend to set individual interests off against group interests, and suffer from lack of capital. In many cases, Group Ranches could benefit from investment in simple items such as trucks, which would give pastoralists more control over the marketing of products. Such production should be organized so that it could generate capital for the ranches that may be reinvested, in diversifying the livestock economy.

Campbell puts forward a case "...for a much bolder approach to pastoral development which aims to create secondary activities based upon the livestock resources and skills of the herders" (1979:21). He points out that as an exporter of hides, skins and meat, Maasailand's primary raw material, livestock, is to a large extent processed outside

of the area. Thus employment opportunities in processing and the value added in manufacture accrue elsewhere. A local leather tanning and handicraft industry could provide an estimated 500 full time jobs in Kajiado District. An integrated livestock industry which included slaughtering, meat dressing, meat preparation, biproduct processing, and possibly canning could generate over 1,000 full time jobs (Ibid., p 19). Such a development strategy would maintain the traditional basis of the area's economy -- livestock -- and is compatible with the environmental and cultural characteristics of the area. It would build upon, rather than threaten, the traditional pastoral economy.

5.5 CONCLUSION.

From a national-economic perspective, the State expects pastoralists to contribute to development either by becoming producers of cheap meat for the nation, or alternately by giving way to forms of land use perceived to be more productive. In some cases, the penetration of capital and the State has resulted in a quasi-dispossession of producers -- for example, through the appropriation of grazing reserves, destocking campaigns, and rural development schemes which give the State significant control of the production process. Dependency on commodity relations

has subordinated pastoralists to the unequal relations of the capitalist world market. The history of pastoral development throughout Africa is characterized by struggle between the State and pastoral producers over the control of the conditions of production. Where it is perceived to be in their self-interest, pastoralists have been quite willing recipients of development inputs (e.g. water points, dips, land adjudication). When State interventions have threatened to deprive them of the resources necessary to maintain their way of life, they have resisted strongly.

In Kenyan economic policy, the priority is given to increasing food production. This cannot be achieved by State control of direct producers, but only by encouraging the initiative of pastoralists based on their own experience, improving their own material well-being, and defending their gains against the demands of the State (Williams, 1982).

In moral terms, all peoples have the right of self-determination. "By virtue of that right they freely determine their economic, social, and cultural development" (International Covenant on Economic, Social, and Cultural Rights, Part 1, Article 1, No.1). These rights should also apply to peoples who form minorities within national States, a claim that finds support in various international covenants (Knight, 1985). In the context of development,

self-determination requires an appropriate territorial "development space" which provides local communities with a greater degree of control over the process of change (Taylor, 1985). Culturally, it requires that development be consistent with the systems of meaning that people attach to their lives. Finally, it requires that the knowledge, skills, and interests of direct producers remain the top priority in the antagonistic process of economic development.

Pastoralists have demonstrated the willingness and capacity to change when change is perceived to be in their interest. It is the task of outside development workers to provide the structures which facilitate their adaption to the changing world, so such changes will work in their interest.

NOTES FOR CHAPTER 5

1. As Sandford's (1983:40) calculations show, the stabilization of livestock numbers to a point below the environmental carrying capacity (which is necessary on fenced ranches) has a very high cost in terms of the value of useful output from livestock foregone and waste of unused forage in relation to the value of output attainable under a more opportunistic strategy of herd growth.
2. Holland (1986) similarly argues along these lines.
3. It seems inevitable that Group Ranches in Kajiado will be subdivided into individual holdings in the near future (Grandin, 1985). However, Kenya's "Livestock Development Strategy" paper expresses concerns about Group Ranches "Inappropriately being subdivided into

units too small to be viable for either cropping or livestock production" (1983:22). It appears that the Government of Kenya has not learned a basic lesson of the Group Ranch program, that the Maasai distinguish between landownership and grazing needs and rights. The adjudication of Kajiado District into Group Ranches did not prevent the maintenance of reciprocal grazing relationships, and it is unlikely that ranch subdivision will discourage them either. Proponents of subdivision argue that it will free individuals from a burdensome Group Ranch organizational structure, allow them easy access to credit, and ameliorate land tenure insecurity, while not preventing them from gaining access to far flung resources through individual reciprocation (Grandin, 1985).

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