PARTICIPATION AND INDIGENOUS KNOWLEDGE IN DEVELOPMENT FOR AFRICAN PASTORALISTS

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(ABSTRACT)

Rural development in Africa's arid rangelands has been exceptionally difficult. Conventional approaches to range and livestock development have consistently failed to meet desired goals, including increased productivity and improved living standards for pastoralists. Perspectives on constraints to successful development can be divided into two major viewpoints.

The dominant view, which has guided these failed attempts, blames pastoralist for traditionalism and clinging to economically irrational and environmentally destructive herding strategies. From this conventional perspective, project planners have sought radical changes from current indigenous practice towards "modern" beef ranching and sedentary agriculture.

The other major perspective views pastoral systems as basically economically and environmentally sound, though they are increasingly becoming less so due largely to

pressures for such modernization. From this view, development projects should instead include the participation of herder populations and be based upon indigenous livestock and range management practices. Thus far there have been few projects which encourage herders to build upon elements of traditional pastoralism, though such an approach is seen as having a better chance for success than the conventional approach.

Several examples of failed projects are presented. Two of these failed partly because they denied genuine herder participation and were based on an inadequate understanding of indigenous pastoral systems. A third project faltered due to the unwillingness of the government in question to follow through on its appropriate, herder-oriented design. Two successful, NGO-sponsored projects are offered as evidence that the participatory/indigenous knowledge approach can serve as a viable strategy in donor-sponsored projects.

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PARTICIPATION AND INDIGENOUS KNOWLEDGE IN DEVELOPMENT FOR AFRICAN PASTORALISTS

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INTRODUCTION

The former disrespect for traditional systems...has given way to an increasing realisation of our own need for tutelage.

D.N. McMaster*

* (found in Baker,1975:87)

STATEMENT OF PURPOSE

The primary challenge in African pastoral development is to assist pastoralists in improving their economic security while maintaining social and environmental stability. This is a difficult task in view of pastoralists' rapidly changing social, economic, and ecological circumstances. Although such problems are common to rural development generally, pastoral development provides a unique and striking example. If progress in Africa's rural development has been difficult overall, then rural pastoral development provides an extreme example of these difficulties. Common obstacles to sound and sustainable rural development are amplified in pastoral areas due to a number of reasons, including pastoralists' physical remoteness and mobility and because of outsiders' ignorance of, and disdain for, pastoral systems.

Within national governments, social science, and aid communities there are deep differences of opinion as to the underlying constraints on development and on the most potentially effective strategy in pastoral areas. Opinion is often divided into two general categories, or perhaps more accurately, ideologies (Stiles,1981). On one side are those who see pastoralism as essentially irrational, leading inevitably towards environmental destruction and economic despair, viewing nomadic herding as a primitive system which is naturally evolving towards the higher stage of settled agriculture. Those who espouse this view often seek a more

or less radical change from current pastoral production towards something seen as more "modern", reflecting the lifestyle biases of foreign "experts" and foreign-trained indigenous personnel. Such an approach usually favors "top-down" development strategies and is based largely on erroneous assumptions about herder behavior and impacts. These top-down approaches have resulted in few project successes.

On the other side is the view which argues that pastoralism is inherently a sound practice ecologically and economically which has to some extent broken down in many pastoral areas due largely to externally imposed pressures. In this view, adapting existing pastoral practices to new circumstances, rather than replacing them with foreign technologies and values, presents the greatest possibility for improving herders' living standards. At the same time, this strategy allows "development" to occur in a way which is compatible with the world-view of the beneficiary population. Implicit in this approach is that program planning, implementation, management, and evaluation should allow for genuine participation of pastoral peoples. The potential benefits of utilizing local knowledge and participation in this way are expressed well by Brokensha, Warren, and Werner (1980:8):

To incorporate in developmental planning indigenous knowledge: is a courtesy to the people concerned; is an es-

sential first step to successful development; emphasizes human needs and resources, rather than the material ones alone; makes possible the adaptation of technology to local needs; is the most efficient way of using western "research and development" in developing countries; preserves valuable local knowledge; encourages community self-diagnosis and heightens local awareness; leads to a healthy local pride; can use local skills in monitoring and early warning systems;... [these, plus] the likelihood of failure without using indigenous knowledge - constitute a strong case for incorporating this knowledge in development programs.

This thesis provides a critical review of the literature on pastoral development and addresses the following question: Do participatory approaches utilizing indigenous knowledge offer a sounder alternative to "top-down" initiatives in pastoral development? While "modernization" strategies in pastoral development have often accelerated social, economic, and ecological breakdown (see Goldschmidt,1981), participatory approaches have seldom been attempted.

Although it is undesirable to force upon pastoralists socially and ecologically inappropriate development plans, it is equally undesirable to retreat to a Utopian vision of the past. Rather, the task is to create conditions for the resurgence of pastoralists' innate capacities for responding to the challenges that face them (Aronson,1981:48).

A thesis on pastoral development necessarily encompasses many disciplines. However, a geographical perspective is well suited to this topic. Development issues and human/environment relationships involving complex social

systems and dependence on precarious environmental conditions are central to a discussion of pastoral development. These issues, in Michael Watts' (1983:xxi) words, strike "to the very core of contemporary geography, whose intellectual lineages are closely bound to the study of the changing forms of the human appropriation of nature". More specifically, interest in sustainable agricultural development through building upon indigenous production systems has long roots in geography, including the work of Carl Sauer on Mexican agriculture dating back fifty years (Bebbington and Carney,1990).

The areal scope of this thesis is mainly restricted to the arid rangelands of Kenya and also in Niger where selected projects are discussed. Examples are also drawn from other regions where pastoralism is practiced and are presented to illustrate pastoral systems and to support the argument presented in this research.

OVERVIEW

This thesis is divided into six chapters, each dealing with a particular aspect of pastoralism and pastoral development. In Chapter 1, "development", "participation", and "indigenous knowledge" are defined as they relate to African pastoralism. Chapter 2 presents the indigenous socio-economic survival strategies of East African

pastoralists, and then puts these strategies into the context of the changing world that impacts them.

Chapter 3 addresses the image problem pastoralists have continually had among non-pastoralists, particularly among those in positions to impact herders' livelihoods. Specifically, perceptions of desertification and pastoralists' role in its creation have combined with views that indigenous pastoral economic strategies are "irrational". Such views have reinforced a tendency to promote "top down" pastoral development, replacing indigenous strategies with Western beef production and ranching systems.

Chapter 5 provides an analysis of several pastoral development projects undertaken by major foreign donors in contract with national governments. Their lack of success is attributed to an ideology among planners and/or government officials which is "fundamentally hostile to pastoralism" (Horowitz,1986). In two of the examples, failure resulted from plans which denied herders' genuine participation. Such schemes reflect an inadequate understanding of the indigenous pastoral systems. A third project faltered due to the unwillingness of the government in question to follow through on its appropriate herder-oriented design.

Chapter 6 evaluates a participatory approach to pastoral development based on indigenous knowledge. Two NGO

sponsored projects based on this approach, one a restocking program and the other a herder association project, are offered as evidence that participatory approaches can serve as a viable strategy in major-donor sponsored projects. Also, a number of general recommendations are given which could improve the record of pastoral development.

Chapter 7 concludes this work, reiterating the potential of participation and indigenous knowledge in improving the pastoral condition.

Before proceeding, a caveat should be added. Participation in development, though desirable, is not a panacea. In fact, in some cases participation may create unforeseen problems. Steven Sanford (1983:159-60) points out, for example, that giving herders complete control over projects can sometimes exacerbate inequality between clans or ethnic groups if a dominant group can use their control to suppress a less dominant group.

On the other hand, past top-down development interventions had neither respect for indigenous strategies nor allowed pastoralists a rightful voice in their own development. The intention of this thesis is, therefore, to examine the potential that as a <u>first</u> alternative pastoralists could direct their own development, unless it is proven that a more top-down, non-participatory approach is better suited to a particular situation. Salzman (in Galaty et al. 1981:280) expresses this point beautifully:

Do not governments and their agencies favor a priori centralized, bureaucratic control? It is the nature of governments to have this bias. So a certain tendency [towards top-down control] already exists, and the power of the system is behind that option. Consequently, it is necessary to weight the range of decentralization and democratic local control. Our general principle should be: control to the local people, unless good reasons are demonstrated for another arrangement. (my emphasis)

CHAPTER 1

DEVELOPMENT, PARTICIPATION, AND INDIGENOUS KNOWLEDGE

It is high time to take African peasants [and pastoralists] for what they are - not children, not virgin wax to be molded at will but experienced men [and women] who, for generations, have successfully maintained a difficult balance under difficult circumstances... Only if we see them in this light can we get them off to a new start. (in Brokensha, Warren, and Werner,1980;p.6)

INTRODUCTION

Since African nations gained independence from colonial rule, billions of dollars have been spent on the continent's development. However, development has turned out to be quite an elusive goal. Economic growth and standards of living remain relatively low compared to other third world regions such as Asia and Latin America while food production per capita had actually declined between the 1960s and 1980s (Lofchie,1986:161). Development in pastoral zones has achieved even less success than other sectors. While not fulfilling project objectives, many pastoral development attempts have actually undermined pastoralists' ability to cope with normal hazards, let alone improved their living standards. Part of the problem in pastoral development, and in the development of rural societies generally, is the conventional project approach which fails to address "development" in adequate terms.

WHAT IS DEVELOPMENT?

Successful approaches to pastoral development require a clear definition of terms and criteria. The question, "What is development?", is controversial and has no universally accepted answer. Development has generally come to mean the process of improving the well being of people; poorer people in particular (Gade,1985). In the early years of international assistance "development" and GNP growth were

virtually synonymous. Only recently has development addressed the all-around uplift of individuals and communities. Paulo Friere's (in Goulet,1989:165) primary indicator of development was not GNP, but "whether people who were previously treated as mere objects, known and acted upon, can now actively know and act upon, thereby becoming subjects of their own social destiny". In this sense, development implies that the empowerment of communities and individuals to act on their own behalf is an essential ingredient to success. Increased community participation and the utilization of local, indigenous cultural values and economic strategies is therefore necessary to direct development, both by the community as a whole and by the poorer people in particular.

"MODERNIZATION"

Though pleasing to the ear, such "grassroots" development through community empowerment is not often encouraged by those with the power to choose development strategies. Rather, since the 1950s, the conventional, Western-style development with its promise of modernization and rapid economic growth has been the strategy of choice for most governments and development aid agencies. Termed "Modernization" by social scientists, the strategy reflected an optimism that "less developed" nations, if they followed

the path taken by industrialized countries, would quickly experience economic growth in similar fashion.

Fundamental to this ideology was the notion that traditional economic and social systems, with their perceived low standards of achievement, innovation, and entrepreneurship, were responsible for the Third World's lack of material development. Only by shedding such backward-looking, constraining values and accepting modernizing, achievement-oriented values can development occur (Webster,1984). Those serving the Modernization ideology assumed that a transfer of technology and expertise from "developed" to "less developed" was the best method of improving Third World living conditions. Therefore, inherent in the Modernization approach is a "top-down" planning and implementation strategy where knowledge is transferred to rural farmers and herders without allowing for a reciprocal knowledge transfer.

Unfortunately, this "top-down" Modernization approach seems to have failed to benefit the majority of the world's population. While billions of dollars are being spent every year, with few exceptions, poverty is increasing, more people are hungry and development projects are destroying the environment (Stiles,1987:3). Among pastoral societies these Modernization approaches have almost always failed. In the words of Horowitz and Little (1987:60):

These projects are remarkable in their almost universal lack of success. Despite some half-billion plus devoted to the sector, there is a monotony of evaluations attesting to their failure. Productivity is not increased; producer income and 'quality of life' are not improved; anticipated financial rates of return are not achieved; and the retardation or reversal of environmental decline is not demonstrated.

Many contend that this poor record could be corrected by encouraging direct local participation and the use of indigenous knowledge.

PARTICIPATORY DEVELOPMENT

In the early 1970s, because of development agencies' own investigations and self-criticism, and the criticism from outside academics, most donor bureaucracies have incorporated guidelines into their project proposal formulation procedures which call for "local participation in planning at all stages" (Stiles,1987:3). Participation was to improve the success rates of projects and to focus on human welfare as a goal. Although a step in the right direction, the ambiguity of the term combined with a continued reluctance to respect and trust rural people's knowledge has meant that often in practice, participation has received lip-service only. As Warren (1980:369) states:

> One can find numerous examples of both public statements and published accounts by development agency officials emphasizing the need for integrated development and advocating the involvement of local rural populations in

problem definition and solution. ...One will search virtually in vain, however, for adequate mechanisms which might allow for such formal integration of rural populations into the developmental process.

The term's ambiguity has led to a variety of interpretations (Cohen and Uphoff,1980) ranging from "participating" simply by accepting externally imposed programs (Buell,1987), to a fully autonomous development in which the local people outline their own goals, draw their own plans, and oversee and evaluate the programs themselves. Accounting for the many variations, Cohen and Uphoff (1980:214) define participation in the following manner:

For us, asking 'what is participation?' may be the wrong question, since it implies that participation is a single phenomenon. It appears more fruitful to regard participation as generally denoting the involvement of a significant number of persons in situations or actions which enhance their well-being, e.g. their income, security or self-esteem (emphasis in original).

Participatory development, also known as "grassroots" or "development from below", affirms cultural variation as an important national resource. In this view, cultural diversity, provided by the great variety of indigenous cultures in all parts of the world, provides the human intellectual "gene pool" for adapting to the local environment (World Neighbors,1989:2). In addition, this development approach promotes the importance of each peoples' history of itself and particular world view (Smith,1987:12).

In the USA it is expected as a basic right to have control over local social and economic destinies through direct or indirect participation in decision-making. However, in attempts to bring "development" to other parts of the world this right is not always taken as seriously. Steven Sanford, an agricultural economist with the Overseas Development Institute and pastoral development expert, remarks in the pastoral context:

> I know of no case in Africa or Asia in which pastoralists or organizations of pastoralists have a formal role or representation in the planning of pastoral development at the national level (or state level in the case of a federation). In contrast, in Australia and the USA representatives of pastoralists are frequently allocated positions on (state-level) planning or regulatory organizations. (Sanford,1983:275)

Though participatory development has not been seriously implemented in pastoral development it is desirable for a number of reasons (from Gow and Vansant,1983): [1] The local population may be the best qualified to determine its development needs and goals since in the ultimate sense development is reflection of personal values, conditioned by the cultural framework in which one lives. Top down development is often insensitive to cultural differences and often brings the baggage of inappropriate foreign values along with project design. [2] Participation has the potential for a more egalitarian development since there ideally would broad-based local control. Orthodox

development approaches often benefit wealthier people at the expense of others. [3] Participation is possibly the best way to fully utilize local resources - human, physical, financial, and institutional since people organize best around problems they consider most important. [4] Reliance on voluntary local commitments of labor, time, material, and money to a project are necessary for breaking patterns of paternalism which reinforce passivity and dependency. [5] Participation implies at least some local autonomy through which communities discover their own capabilities thereby becoming capable of managing their own development. [6] Through participatory development, the priority of production would be more likely the provision of basic needs.

INDIGENOUS KNOWLEDGE

Integral to participatory development is the use of indigenous knowledge. Also known as "ethnoscience" (Brokensha and Riley,1980; Knight,1980) and "rural people's knowledge" (Chambers,1983), indigenous knowledge can be defined as:

> ...the set of concepts, propositions, and theories unique to each particular culture group in the world. According to this definition, each culture has its own ethnoscientific knowledge system and ours in the United States is known as "Western science."... A similar definition of ethnoscience is..."the system of knowledge and cognition typical of a culture" or more specifically, "its particular ways of classifying its material and social universe".
> (Meehan,1980;p.385)

The term "indigenous" implies knowledge that originates from an area or society and is often deliberately used to emphasize the separateness, sophistication, and validity of this knowledge (Chambers,1983:83). However, though such dichotomies between "indigenous" and "non-indigenous" may be useful for making a point they are often false -- what seems indigenous may, in fact, be adaptations of some outside influence. Chambers (1983:83) prefers the label "rural people's knowledge" since it allows for such exogenous influences while acknowledging the unique ways such knowledge is developed, acquired, augmented, stored and transmitted according to the societies system of knowledge including concepts, beliefs, and perceptions.

Indigenous knowledge or "ethnoscience" can be classified in a number of ways including physical knowledge (e.g. soils, water, climate), biological (e.g. crops, weeds, pests, domestic and other animals, insects), medical (indigenous medical systems), and social (detailed knowledge of that particular society's workings) (Howes and Chambers,1980). This indigenous knowledge provides a holistic view of a localized ecosystem which can only be achieved through the collaboration with a local observer (Howes,1980:345).

There is now a sizable body of literature suggesting that the depth and breadth of local indigenous knowledge warrants a more fundamental role in the development process

than has previously been given (Howes,1980:345). Examples of indigenous strategies potentially useful to development include reliance on nomadism (mobility) to prevent land degradation and the improvement of indigenously preferred milk production as a more appropriate alternative than the beef production orientation of conventional development. Unfortunately, in spite of the usefulness of traditional pastoral strategies, it has been difficult to convince development agencies and governments of the utility of these strategies in pastoral development*. Officials more often have sought to encourage fundamental change within pastoral societies towards a more "acceptable" lifestyle, which usually means a sedentary one.

Such little faith that the pastoral subsistence economy can improve living standards through its own internal dynamism is expressed by a Sudanese official in reference to the Dinka pastoralists:

> If we have to drive our people to paradise with sticks, we will do so for their good and the good of those who will come after us (in Lako,1985:29)

SUMMARY

One reason for Africa's poor development record is in current development strategies. Conventional approaches define development solely in economic terms and seek a modern-

* An example of this difficulty is found in the Niger Integrated Livestock Project, discussed in Chapter 5.

ization in the Western sense regardless of the cultural context or indigenous aspirations of the beneficiary populations. Critics charge that this modernization strategy is often culturally and economically detrimental since it often erroneously assumes all societies' development goals are the same.

An alternative view of development implies empowering individuals and communities to define and pursue their own development, reflecting the aspirations of the local society from their unique world view. Inherent in this definition is a more participatory approach to development which utilizes local indigenous knowledge as the basis for plans in addition to appropriate outside technologies and ideas.

Though pleasing to the ear, this development approach has not been taken seriously, particularly in pastoral development.

CHAPTER 2

INDIGENOUS PASTORAL STRATEGIES IN AFRICA

People who were brought up to always be told what to do, or who didn't feel comfortable unless lots of people were always nearby, would not make good herders. We have seen that the land is best utilized when people and cattle spread out to the maximum degree, and for this to happen people have to be relatively independent from one another, able to make their own decisions and take their own risks, and like being in that situation. (Riesman,1978 in Horowitz,1979:70)

INTRODUCTION

Greater allowance for herder participation and the use of indigenous knowledge in pastoral development is often hindered by an ignorance of pastoral systems. Though much more research into pastoral systems is needed (Galaty et al.,1981), the considerable amount of research conducted in the 1970s and 1980s has shown that pastoralists often show remarkable adaptations to their risky environments. It is becoming more and more apparent that sustainable development in arid areas will require a closer look at utilizing indigenous pastoral strategies as its base.

PASTORALISM WORLDWIDE

Nomadic pastoralists are an important feature of the world's drylands. "Nomadic" refers to the largely mobile nature of these societies (Spooner,1973) while "pastoral" refers to the husbandry of ruminant animals (Goldschmidt,1979). Not all pastoralists are nomadic; in fact, even commercial ranchers in the USA qualify as pastoralists due to their dependence on herding (Sanford,1983). Pastoralists adapt nomadically to their environment when resource availability requires movement beyond a certain range from a home base and also when there is a greater advantage in mobility than in having a fixed settlement, such as because of trade relations (Spooner,1973:21). This thesis focuses on this extensive (nomadic and semi-nomadic

subsistence) pastoralism rather than intensive (settled, commercial) pastoralism. Galaty (1981:5) defines extensive pastoralists as follows:

> [Pastoralists are] a rural-based and relatively autonomous set of shifting homesteads, dependant to a large extent on the food products of livestock, and related to each other by means of conceptual scheme of social and political identity and a set of social networks usually mediated by the exchange of animals.

Nomadic pastoralists live in many parts of the world. Pastoralism is practiced in the mountains and steppes of south and central Asia in Afghanistan, Pakistan, India, Tibet, Mongolia, and Manchuria. Reindeer pastoralism is practiced in the northern tundra of Scandinavia and the Soviet Union. In the Americas, pastoralism exists among some Native American groups and among the llama and alpaca herders of the Andes. In Africa, pastoralists occupy a "seven" shaped band stretching from West to East Africa along the southern Sahara and Sahel zones, turning southward through east-central and into southwest part of the continent* (fig.1).

Because of difficulties encountered due to remote locations and mobility, pastoralists are frequently excluded from national censuses. As a result, the worldwide pastoral

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* Countries with the largest numbers of pastoralists (both extensive and intensive) include in order: Sudan, USA, Somalia, Chad, Ethiopia, Kenya, Mali, Mauritania, India, and China, each with about 1 million or more pastoralists (Sanford,1983:2).

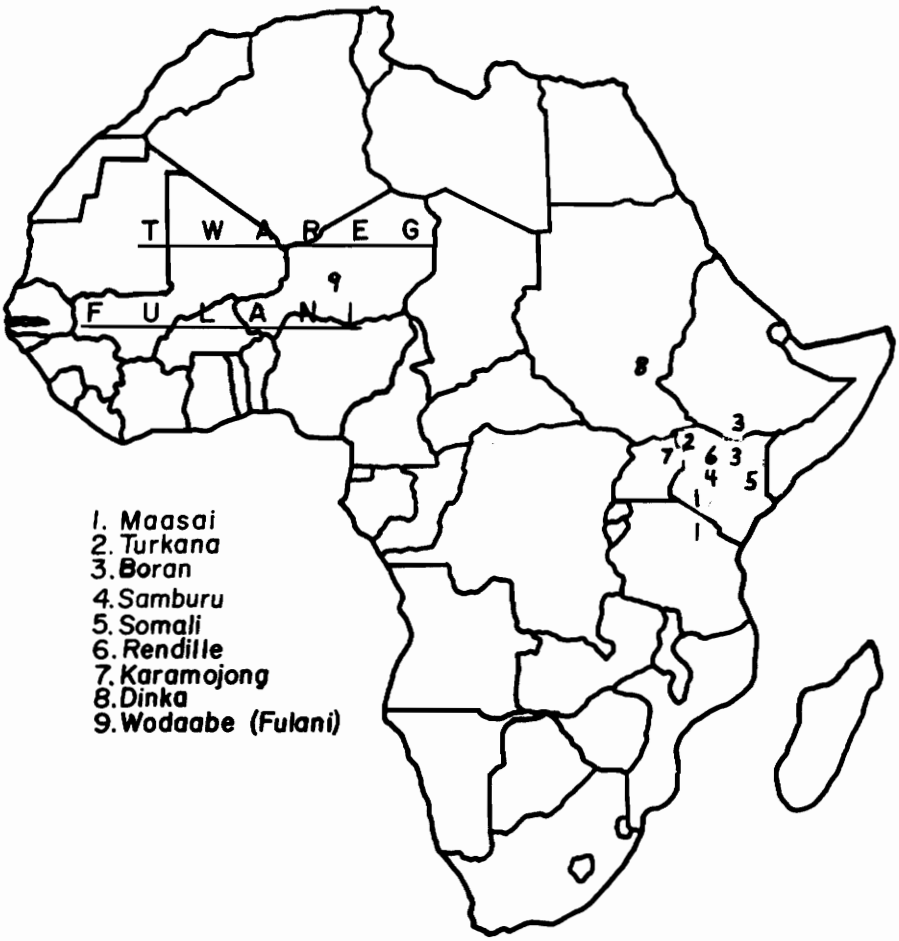

Fig.1 Locations of pastoral peoples discussed in thesis

population is difficult to assess, though a generally accepted estimate is between 30-40 million worldwide (Swift,1977:26; Sanford,1983:2). In spite of their relatively small numbers, pastoralists are almost the only people to make extensive use of very large areas. In the Third World as a whole, 39% of land is either devoted to agriculture or under forest. The remaining 61% is permanent or seasonal pasture, desert or mountain used only, if at all, by nomadic pastoralists (Swift,1977:26). In Kenya, for example, only 8% of the population (mainly pastoralists) occupies two thirds of the total land area (Ominde,1984).

Though pastoralist and agricultural communities are often viewed dichotomously, no clear boundaries exist between the two. Some pastoral groups reflect the so called "pure" pastoralist conception, such as the Wodaabe of Niger or the Maasai of East Africa. However, most pastoral groups practice a combination of reliance upon animal production and agriculture in a "mixed economy", as evident among the Turkana of Kenya or the Karamojong of Uganda. Likewise, many agricultural communities also keep animals, such as the Kamba of Kenya.

THE PASTORAL ZONE

Though pastoralist populations are relatively small, extensive pastoralism is the dominant land use in much of Africa. The range of primarily livestock-keeping peoples is

in the arid areas extending into the semi-arid zones. These areas include the Sahelian belt and around the periphery of the Sahara in North Africa. Drier areas of East and Southern Africa also are inhabited by pastoralists. The focus here will be the arid and semi-arid climatic zones of Kenya and Niger since the major examples of pastoral peoples and development projects in this thesis are from those areas.

A classification scheme for East African rangelands has been developed by Pratt and Gwynne (1977) differentiating the variety of climatic zones in the region. Divided into seven parts and moving from higher to lower rainfall, Kenya's pastoralists generally inhabit zones IV, V, and VI; respectively semi-arid, arid, and very arid. Pure desert (zone VII) does not exist in Kenya (Pratt and Gwynne,1977:42). Examples of locations from each of these ecozones in Kenya are found in table 1 (also see fig.2). Average annual rainfall amounts in semi-arid areas (ecozone IV) are generally between 600mm and 800mm. Arid areas (ecozone V) generally have rainfall between 300mm and 600mm while very arid areas (ecozone VI) have average rainfall amounts usually below 300mm annually.

Climate in Niger is determined primarily by latitude with increasing aridity as one moves northward. Pastoralists generally inhabit the more arid northern part of the Sahelian zone where rainfall amounts generally fall

Table 1. KENYA: MEAN MONTHLY AND ANNUAL TOTALS OF PRECIPITATION (ARID AND SEMI-ARID AREAS) (in millimeters)

Station	Jan	Feb	Mar	Apr	May	Jun	Jul
ZONE VI							
Lokitaung	5	20	41	196	41	15	56
Mandera	1	4	25	78	24	2	0.5
Lodwar	6	6	21	41	24	8	13
ZONE V							
Wajir	4	7	17	44	24	2	10
Garissa	12	6	31	64	21	6	18
Isiolo	36	39	87	135	40	4	8
Narok	61	79	104	124	89	28	15
ZONE IV							
Moyale	12	21	55	186	123	17	16
Nakuru	18	34	62	134	115	84	104
Nairobi	41	57	117	207	144	60	17
ZONE II							
Marsabit	25	13	57	192	121	11	13
Eldoret	18	48	58	114	122	107	185

Station	Aug	Sep	Oct	Nov	Dec	Annual
ZONE VI						
Lokitaung	8	10	18	18	30	458
Mandera	0.5	2	41	27	8	213
Lodwar	8	3	6	8	8	152
ZONE V						
Wajir	2	6	20	44	20	200
Garissa	7	6	24	75	76	346
Isiolo	5	7	58	149	82	650
Narok	15	18	25	58	56	672
ZONE IV						
Moyale	15	24	92	83	39	683
Nakuru	109	69	60	60	33	882
Nairobi	25	29	54	119	74	944
ZONE II						
Marsabit	26	13	83	116	72	742
Eldoret	190	79	30	48	28	1,027

(Source: Lebedev (1970:182-183))

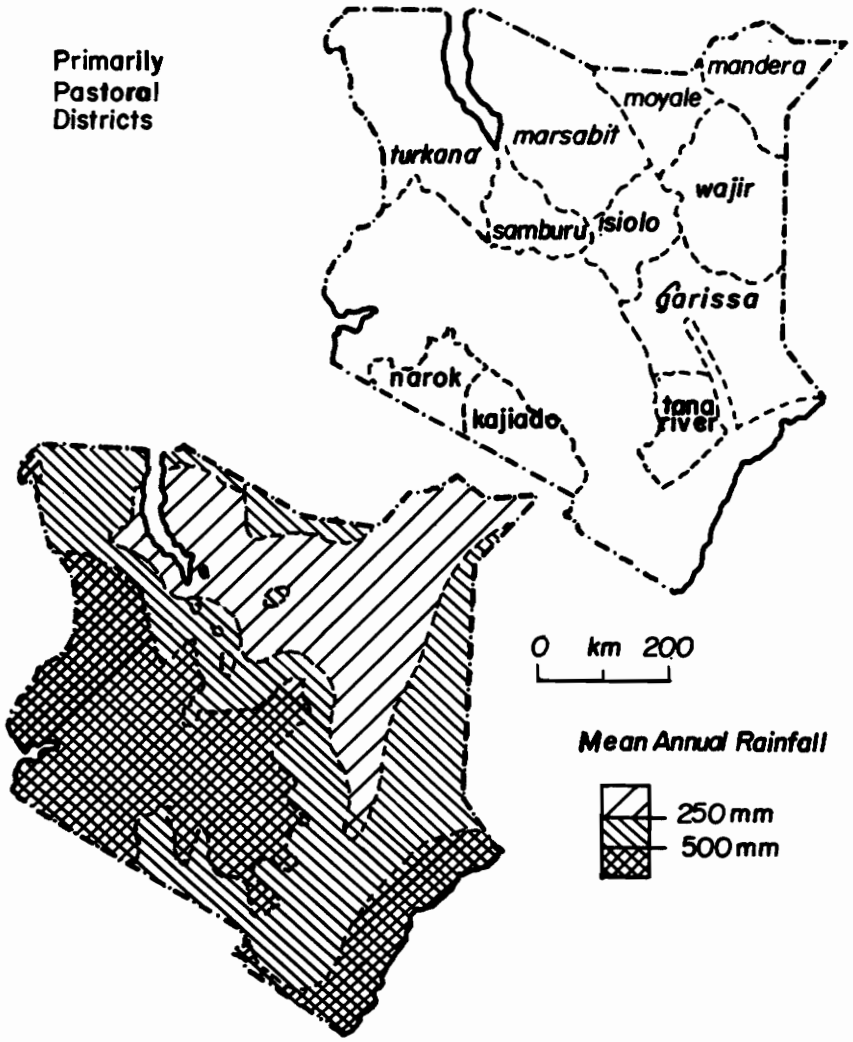

Fig. 2 Kenya, primarily pastoral districts and mean annual rainfall.
(Source: adapted from N. Dyson-Hudson, 1980)

between 400mm and 200mm or less annually (see fig.3). The southernmost portion of the country is classified as semi-arid and is generally suitable for agricultural production. To the north of the pastoral zone lies the Sahara desert.

While arid and semi-arid zones in both countries may be defined by average rainfall over long periods, there can be enormous variability in rainfall over time and space. For example, Swift points out that in the Sahel, rainfall at a given location may vary annually by more than 30% from the long-term mean, while in Somalia, records for an unspecified time period show completely different rainfalls at two stations only a kilometer apart (Swift,1977:27). Variability can be so great that even during drought some locations may get above average rainfall amounts, as occurred in the Sahel during the 1968-74 drought. Shusky and Heinricher (1986:156) discuss this phenomenon using data from Niger (see table 2 and fig.3):

> In considering all the weather stations for the nation, the dry years of 1968-1973 and 1981-1983 are apparent while the years in between are obviously wetter. Yet in 1970, in the middle of the drought, Tahoua had more rain than in the wet years of 1976 or 1977. Maine-Soroa had more rain in 1970 than in 1974 or 1975. Nguigmi had more rain in 1970 than in 1975 or 1976, and Maradi had far more rain in 1970 than in the drought year of 1969 than in 1975 or 1976. Zinder Aerodrome reported more rain in 1973 than in any other year in the 1960s or 1970s. In the dry year of 1982, Niamey Aerodrome had more rain than in 1974, often called the year of the great rains, while Birni NKonni also had more rain in 1982 than in any year in the 1960s or 1970s.

Table 2. ANNUAL RAINFALL FOR NIGER
(in millimeters)

Station	1966	1967	1968	1969	1970	1971	1972	1973
Bilma	18	11	27	14	7	2	20*	T
Agadez	100	162	165	82	40	92	73*	68
Nguigmi	360	230**	105	93	238	157	69	85
Maine-Soroa	412	484	344	203*	488	308	122*	124
Zinder	480	390	370	424	324*	352	303	799
Maradi	590*	600	360	605	586	438	426	350
Birni NKonni	620	555	532	520	478*	389	307	290
Tahoua	441	480	402	275	422	248	151*	244*
Tillaberi	344*	576	346	290*	294	242	354	356
Niamey	462	830	542	604	446	460	372	390

ANNUAL RAINFALL IN NIGER (CONT'D)
(in millimeters)

Station	1974	1975	1976	1977	1981	1982	1983
Bilma	15	T**	0***	0**	0***	19	T
Agadez	134	129	105	67	127*	138	94
Nguigmi	178*	168	79	331	113**	174	87**
Maine-Soroa	391	354	308*	372	233*	193	182*
Zinder	575	472	431	257	288*	446	294
Maradi	370*	352	520	608	404	286	306
Birni NKonni	419	487	466	541	233**	642	387
Tahoua	420	422	316	360	209*	206	234
Tillaberi	402	235*	413	402	189*	269*	320
Niamey	477	690	560	557	203*	635	604

Source: Shusky and Heinricher (1986:156)
Rainfall figures are for the rainy season April-September
* Data not available for one month of the rainy season.
** Data not available for two months of the rainy season.
*** Data not available for three or more months of rainy season.

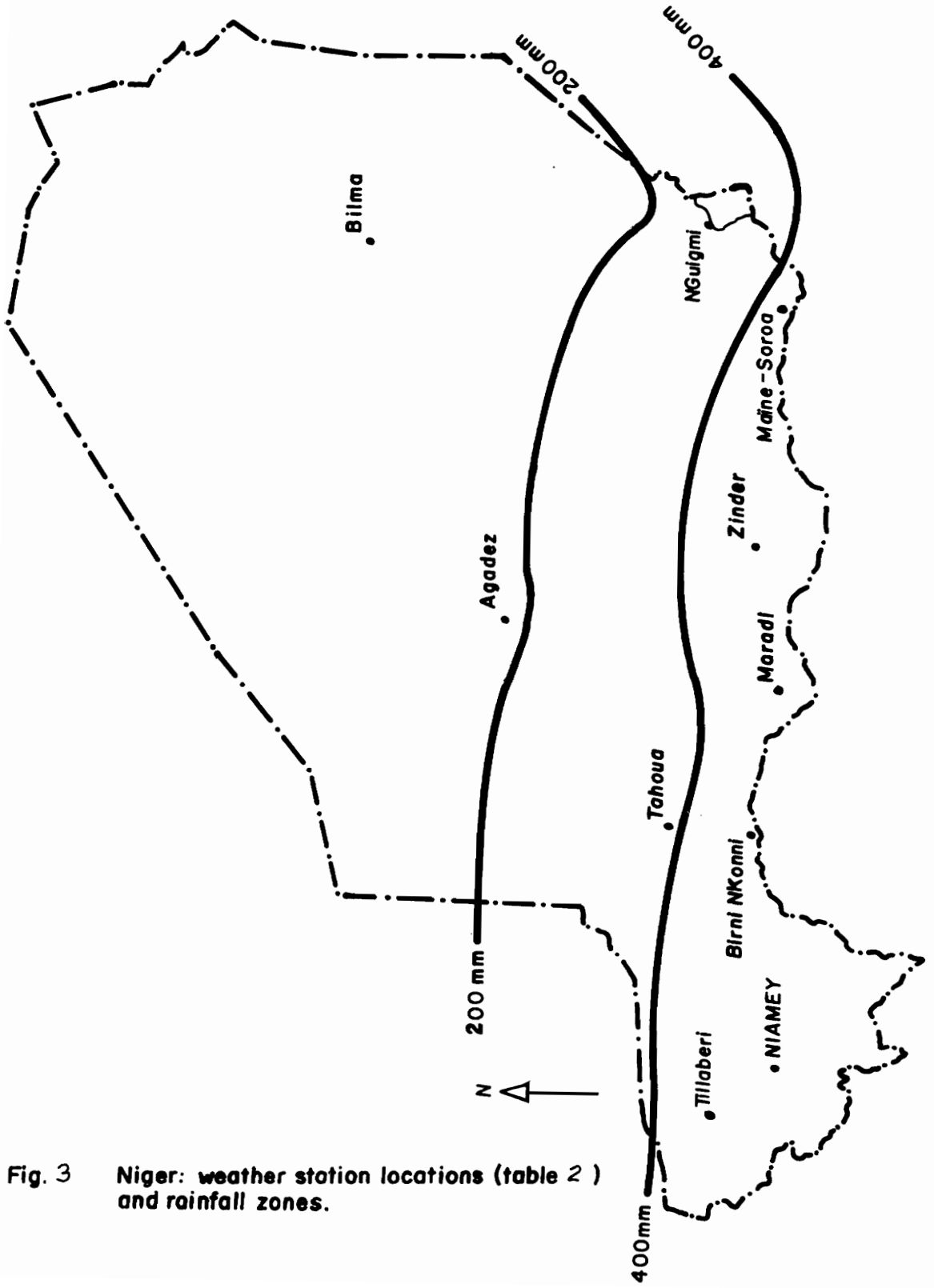

Fig. 3 Niger: weather station locations (table 2) and rainfall zones.

THE PHYSICAL ENVIRONMENT

Though pastoral systems occupy similar environments in various world regions it is not easy to generalize about them. Pastoralists in central Asia and the Middle East who for centuries have had extensive contact with the market economy and the state have largely different problems than East African pastoralists who have until recently been much more isolated. What all pastoral groups have in common is their exploitation of rangelands though the use of domesticated animals. In addition to the livestock population, pastoralists manipulate the human population and their physical environment (N.Dyson-Hudson,1980). Far from irrationality, their strategic use of the range shows that pastoralism is a carefully thought-out and well planned activity.

Dyson-Hudson (1980:177) states that due to the pre-technological stage of subsistence pastoralism, the physical environment is manipulated by skills rather than by tools. These manipulations include burning the range to promote new plant growth and control pests, the construction of dams and wells to increase and stabilize water supply, mental mapping of the region, and the authority of elders, whose long experience in herding recalls memories of difficult situations and responses to them, successful or not.

Each of these strategies is designed to increase the carrying capacity of the rangeland both by increasing its

quality and quantity and through the best utilization of what is available. The major constraints of the physical environment are pasture, water, disease vectors, such as the tsetse fly (Sindiga,1984), and salt (Western,1982).

Adjustments to pasture

Though rainfall quantity and distribution cannot be manipulated, the quantity and quality of pasture can. Pastoralists do this in several ways including annual range burning which, in addition to creating pastures by promoting new plant growth, also reduces the threat of disease, via the tsetse fly and ticks, through the clearing of brush. Otherwise brushy areas would be unavailable to livestock. Brushy pasture also provides ideal hiding places for predatory animals such as lion and is avoided for this reason as well (Western,1982). Though range burning has been criticized and in some cases even forbidden it has proven to be a valuable practice among pastoral groups (UNESCO,1979; Conant,1982).

The actions of animals themselves, through trampling, reseeding (UNESCO,1979) and grazing (Western,1982), help to improve pasture. These actions maintain pasture at a subclimax stage of succession, perpetuating the existence of palatable grasses and preventing the invasion of woody plants and tall fibrous grasses which are less suitable for cattle.

Water Availability

Water is the most important constraint in semi-arid and arid pastoral areas. Though in some pastoral regions, seasonal rainfall is relatively predictable permitting more regular migrations of pastoralists and livestock, many regions receive only highly irregular rainfall, both in quantity and distribution. Water availability limits pasture since animals must be herded reasonably close to watering points. Temporary water sources are sometimes available after rainfall in the form of ponds, streams, and puddles. More permanent watering points include rivers, swamps and human-made wells.

Wells are of great importance in more arid areas where other water sources are less available. For the Boran of Ethiopia, wells are so important as to form the focus of social and religious life (Helland,1982). Watering livestock at wells is sometimes preferred to watering at rivers because pastoralists feel that the deep wells carry greater amounts of salts which will help nourish livestock.

Since water is an obvious constraint to pasture availability, many development projects create wells to increase water supply. Without taking social factors into account before their creation, these interventions have often disrupted traditional social institutions and have led to a breakdown, particularly in West Africa, of social controls

on grazing which led to examples of desertification around bore-holes in the 1970s.

THE HUMAN POPULATION

The human population is manipulated by adjusting its numbers to the maximum feeding capacity of the livestock. Flexibility through autonomy of individual households or small groupings allows quick decision-making in crisis situations. Annexation of new areas, permanent or temporary, may also take place as does birth spacing and redistributive devices such as adoption and age/sex-specific labor patterns (N.Dyson-Hudson,1980:177-78).

Population Growth

Socio-economic mechanisms encourage the adaptation of the human population to the conditions of the environment at the moment (UNESCO,1979). These mechanisms often take the form of demographic controls which assure low population growth and therefore lessening environmental impacts. Pastoral groups typically have lower population growth rates than their agricultural neighbors affected in many cases both by lower fertility rates and higher death rates (Sindiga,1987). For example, the population growth rate of the Kenyan agricultural population is around 4% annually, while the growth rate among the Maasai is around 2.2% or less (Sindiga,1987). Population growth rate estimates for

other African pastoralists are around 1.5% (Swift,1982a:171).

Some groups, such as the Boran, have complex age-classes which set rules delaying the age at which marriage can take place and when children can be raised (Helland,1982). Among the Maasai fertility control measures include social restrictions on sexual activity as well as infertility caused by the prevalence of sexually transmitted diseases. Seasonal undernutrition and possibly malnutrition may also depress fertility due to seasonal food shortages (Sindiga,1987). Pastoralists' low growth rates are also attributed to higher mortality rates. Brainard's (1986:525) comparison of pastoral and agricultural Turkana showed that Turkana pastoralists have substantially higher levels of mortality among children*. UNESCO (1979:295) confirms that "the highest mortality levels of black Africa are found in tropical grazing land ecosystems", due largely to poorer medical facilities and their harsh environment in general. Though poor health quality among pastoral groups is regrettable, particularly those which result in unnecessary deaths, lower growth rates have allowed pastoralists to live with relatively little environmental impact. Hence, the

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* Both nomadic and agricultural Turkana still have substantially higher mortality rates than for Kenya as a whole. Even the sedentary group has a mean life expectancy at birth about 10 years less and an infant mortality rate about 50% higher than the national averages (Brainard,1986:534).

health issue is a dilemma faced by development planners (Omerod,1980-81).

Social Linkages

Social linkages are usually kept with agricultural communities as a means of supplementing income and diet. These relations are traditionally very important in the survival of a pastoral unit during the dry season or in drought years (Campbell,1982). Social obligations through marriage relations are a major method both of expelling excess population and of insuring survival of the family unit during periods of food insecurity. Polygyny, for example, which is common among many African pastoral groups, helps to increase the resource base of a group by having family members living in different ecological zones. For example, the Pokot of western Kenya engage in a "mixed" economy, combining pastoralism and agriculture, due to their territory's semi-arid climate. Men from drier areas in Pokot territory say that one consideration in marriage is whether food is plentiful in the wife's home area. In marrying a second wife, it is better to marry one from an area whose harvest comes at a different time from that of the first wife's village (Porter,1979).

Some destitute pastoralists have no stock at all, particularly after drought, and must leave pastoralism at least temporarily to either practice settled agriculture or to

seek wage employment to save money to start a new herd. However, stockless families are less common since destitute herders often strike up deals with wealthier relatives or friends (Spooner,1973:14). Families with too few animals are often assigned others' animals, allowing poorer families to maintain themselves until their own herds are rebuilt. Animal loans or labor loans are repaid when the lender is in need (McCabe and Ellis,1987:38).

Decentralization of Authority

Flexibility of the pastoral unit is also a very important human response. The uncertainty of rainfall in dryland areas requires the ability of a pastoral family to make quick decisions regarding movement resulting in small sized pastoral "communities" and minimal political organization. These quick decisions would be hampered by cumbersome political organization.

"Mixed economy" semi-pastoralists, who tend to be more sedentary than their "purer" pastoral counterparts owing to more stable rainfall, tend to have a greater degree of political centralization and a more hierarchical social structure (Lewis,1975:433). As the environment becomes harsher, the more informal and decentralized the political organization becomes. In addition, the size of the total cultural unit, wider political circumstances and relations between the nomads, their sedentary neighbors, and the

government are also important factors in the degree of political organization (Lewis,1975:433).

Militarism

The human population may also manipulate its environment through expansion into areas occupied by other groups. Particularly in East Africa, livestock raiding had been a regular feature of pastoral life; both to increase herds and to recover from stock losses due to drought. Though livestock raiding continues, it is somewhat less frequent since colonial rule when the practice was actively discouraged by administrators.

Division of Labor

The division of labor by age and sex supports pastoral environmental adaptations as well. In most East African pastoral societies sex roles are well defined with men in charge of livestock and women responsible for food collection/preparation and household duties. Women's comparatively large workload, which includes the transformation of milk products and any agriculture practiced, helps to explain polygyny (UNESCO,1979:276). In the age division of labor, adult, married, and old men have more exclusive herd management roles while young, unmarried men are generally responsible for surveillance. Male children also share herding responsibilities. Among the Turkana, at 4 years of

age a child looks after the goat kids and baby camels; at 7 he tends calves, goats, and sheep; at 12, camels; and from 14 onwards, cattle. During this time the work is supervised by the father (UNESCO,1979:276).

THE LIVESTOCK POPULATION

Perhaps most important to pastoral strategy is the manipulation of livestock. This manipulation includes herding multiple species of animals, spatial distribution of herds on various parts of the range to optimize use, and productivity of all species and of both sexes (through bleeding or milking). Mobility of the pastoral unit (herd and people) is an important, as well as the best known, adaptation. Stock selection for a variety of factors, including heat tolerance, disease resistance, and milk production, is important. Stock reduction through sale or slaughter in crisis periods is practiced as is calf/human milk division, techniques for the recognition, avoidance, and treatment of disease, and protection from predators (Dyson-Hudson,1980:178).

Livestock Uses

Among pastoralists, foodstuffs are most often viewed as an asset which can be eaten, traded, or retained, depending on which brings the best return (Schneider,1981b:28-29). The economic uses of livestock among East African

pastoralists reflect this complexity. Rada and Neville Dyson-Hudson (1969:78) describe the many uses for livestock among the Karamojong of Uganda:

> Cattle are property, and accordingly they represent variable degrees of wealth, of social status and of community influence. They are a man's legacy to his sons. They can be exchanged to symbolize formal contracts of friendship and mutual assistance. The transfer of cattle from the groom's family to the bride's is needed to validate a marriage. The sacrifice of cattle is a vital feature of religious observances. ...Interesting and important as all these elements are, they are cultural elaborations of one central fact: cattle are the major source of subsistence for the Karamojong. First, last, and always the role of cattle in Karamojong life is to transform the energy stored in the grasses, herbs and shrubs of the tribal area into a form easily available to the people.

Cattle are not the only livestock used in the pursuit of these various goals. Usually up to four types of productive animals are kept for including cattle, camels, sheep, and goats. Often donkeys are also kept for transportation purposes. Each animal type occupies a different niche and minimizes the risk that a single disease will wipe out an entire herd (Scott and Gormley,1980:99). In addition, each animal type has different water requirements. Cattle and sheep drink often while camels can live productively without water for relatively long periods. Milk production in camels is the most reliable since they can produce milk even under extreme climatic conditions (McCabe and Ellis,1987:38).

As different species are kept to optimize use of different ecological niches, within species the optimum breed for local conditions is sought by pastoralists. For example, the adaptiveness of Zebu cattle to dry and hot conditions has made them a favorite of many African pastoralists (Western,1982) while Sahelian Kabashi sheep are chosen by many because they require less frequent watering (UNESCO,1979). An animal's color may also be a factor in its selection. Kenyan pastoralists seem to aid "natural selection" in that lighter colored cattle survive better in the drier, hotter north than do darker colored ones; darker cattle absorb more solar radiation, drink more water, lose less weight during drought and gain weight faster afterwards (Finch and Western,1977:1384). Accordingly, pastoralists in areas of higher heat stress tend to keep more lighter colored animals while herders in lower heat stress areas and higher altitudes tend to own more darker animals (Finch and Western,1977).

Herd Sizes

Herd size is also important in keeping subsistence pastoralism viable. Generally, herders try to maximize herd size, pursuing what Sanford (1982) calls an "opportunistic" strategy where herders try to keep as many animals as the environment will hold given local climatic conditions. In high rainfall years, herds are built-up so that at least

some animals remain to rebuild the herd after a severe drought.

Herd sizes can differ greatly among pastoralists and wealth inequalities are prevalent (Dahl,1979; Grandin,1988); in spite of the common view that pastoral systems are egalitarian. Among the Maasai, Grandin (1988:5) found that rich households can have five times as many cattle per adult than a poor family and three times as many small stock (sheep and goats). Middle-wealth Maasai average 7 head of cattle and 15 small stock while the average Turkana holding per person is three to four large stock (cattle and camels) and ten head of small stock (Spooner,1973:14). Wealthy Turkana, however, can have even 600 large stock and 1000 small stock per household, though these people's living standards may not seem much higher since these animals support more dependents or are distributed through loans (McCabe and Ellis,1987:38).

Critics allege that pastoralists desire to accumulate ever larger herds simply for wealth and prestige. Referring to this allegation is the commonly held notion expressed by Ward et al. (1980:573) that "cultural patterns are the most serious obstacles to livestock development". While it is true that larger herds give pastoralists greater status, the rationale behind herd accumulation goes beyond prestige. Large herds ensure survival of the pastoral unit, especially under drought conditions where both herd and human survival

are under threat. However, in spite of needing more animals to insure survival, Cougenhour et al.'s (1985:43) study of Turkana pastoralists, for example, did not find herd sizes to be in excess of carrying capacity and, in fact, found that Turkana herds utilized only 7% of available forage.

While larger herds are desirable, there are managerial constraints which limit herd sizes. The number of animals that can be kept is limited by the amount of labor that is available to the herding unit (Horowitz,1979:43). Without sufficient labor the herd becomes uncontrollable:

> Humr [pastoralists of Sudan] recognize an optimum size for a grazing herd. A very large one becomes unwieldy: the tail end straggles out of sight through the trees; towards the end of the dry season, when grazing may be scarce, a large grazing herd is bad because the fast cattle tramp over the small patches of good grazing before the slower cattle arrive. Humr do not enumerate their cattle, but it appeared to me that about 150 head was the largest convenient size for a grazing herd that would suit all seasons. (Cunnison,1966 in Horowitz,1979:44)

Herd sizes beyond the managerial capacity of the herding unit would require that parts of the herd be either sold on the market, loaned to another herding unit which has the managerial capacity to keep them (often stock-poor pastoralists whose herds have been devastated for one reason or another), or to hire laborers to help with the herding. All three of these methods are used, although the last, hiring laborers, is the least practical:

> Those with large herds are forced to employ herders from other households that have labor to spare. The employment of such herders may lead to diminishing returns. A hired herder may not pay the same attention to the herds as the owner would. Also the fact that herders must be paid a certain amount oat the end of the year reduces the ability of the owner of the herd to maintain sufficient replacement for the stock. (Ahmed,1972 in Horowitz,1979:44)

Costs of too-large herds due to insufficient supervision include stock losses from predation, theft, and disease (Horowitz,1979:44).

Mobility

Mobility allows pastoralists to exploit their unstable environments without putting too much pressure on its resources. It also insures that herds get access to new grass rather than grass at the end of its growing cycle which quickly dries out and is thus less nutritious. Western (1982:191) has shown that:

> A significant advantage can therefore be derived from mobility geared to select growing pastures since a high proportion of the forage can be assimilated rather than passed through as faeces. The same pasture may be 70 per cent digestible when green, 40 per cent when dry. Mobility is a strategy that maximizes the intake of the most digestible forage, leaving until last that of low nutritive value. ...To take advantage of localized, high quality patches, pastoralists must be capable of detecting small differences, e.g. through the sensitive feedback they have in milk yields.

All nomadic pastoralists move according to a migratory cycle, determined by seasonal changes and flexible enough to

account for unpredictable localized climatic differences (Spooner,1973:21). In regions of better pasture and water resource potential, nomadism may not be as necessary. Semi-pastoral groups such as the Nandi and Teso of East Africa generally fall into this category as do some West African Fulani groups. Frequent nomadic movement is an important economic strategy where rainfall is irregular, such as in northern Kenya, though amount of movement for specific pastoral groups vary. In most of East Africa, movements can be irregular over short to medium distances where rainfall is less predictable. In other regions movements may be seasonal and of medium to long distance, as with most of the pastoral Fulani in West Africa who regularly oscillate between wet season pastures in the north and dry season pastures in the south. Many Maasai sub-groups also use wet and dry season movements. In the Amboseli region of Kenya, a seasonal movement of this type by the Maasai results in a 50% increase in carrying capacity (Swift,1982a).

In areas with unpredictable rainfall and therefore uncertain pasture quality, as in much of Northern Kenya, migration patterns are less predictable, though there are still general wet and dry season ranges. The Boran, for example, may spend long periods of time in a single location, even up to several years, while at other times they may need to move after just a few months or weeks (Dahl,1979). Among the Ngisonyoka Turkana, families may

move from seven to fifteen times per year depending on climatic conditions and the degree of hostility among the various rival pastoralist groups, though each move may cover only five to eight miles (McCabe and Ellis,1987:34).

Diet

Pastoralists can inhabit dry areas unsuitable to agriculture by converting available plant energy, unusable by humans directly, into human food through livestock. Milk is the main product used by pastoralists though meat is also use during special occasions or in the dry season as is blood. Many pastoral groups also grow crops where conditions permit. In East Africa, the Karamojong and the Turkana grow grain crops to supplement their milk diets.

For the Ngisonyoka Turkana, camels provide 56% of the total milk consumed, or about one-third of all food energy year-round (McCabe and Ellis,1987:38). Their main dry-season foods are camel milk and livestock blood. Blood is either drunk plain, mixed with milk, or cooked with grain. Through the rest of the year, meals may be milk alone or sometimes supplemented with wild fruits, goat meat, or bartered or purchased grain. In a year, grain provides 10% to 15% of food energy, though it is particularly important in the dry season when livestock production is lowest (McCabe and Ellis,1987:38).

The Maasai, on the other hand, traditionally depended solely upon cattle milk (and blood during the dry season) and only consumed grain under more-or-less desperate conditions (Jacobs,1965). Their dependence on milk had been so complete that they developed biological immunities to cholesterol build-up (Biss et al.,1971). More recently the Maasai are becoming increasingly dependent on grain consumption and a significant portion have even begun practicing agriculture in addition to herding (Campbell,1982) -- a practice which they previously ridiculed.

DECLINE OF PASTORALISM

While the strategies outlined in this chapter generally describe pastoralism, particularly in the East African context, these systems are not always adequate to protect pastoralists from hazards. Over recent decades herders have become even more vulnerable to hazards due to accelerated changes, often imposed from without, which hold unforeseen consequences. As a result, in some instances traditional pastoral systems have broken down.

Development Attempts

Ecologically and socially inappropriate attempts at development have been major factors in the decline of pastoralism. Sedentarization, either on irrigated agricultural plots or on restricted ranches, has often

produced severe environmental consequences with little or no improvement in living standards. Development programs have typically discarded the indigenous in favor of foreign techniques untested in tropical arid environments, as we shall see from examples in later chapters. The result is decline of time-tested practices with no viable strategy to take their place.

For example, Richard Hogg's research among the Boran of Isiolo district, Kenya (1980;1985) and among some of the Turkana groups (1982) illustrates social breakdown in these pastoral societies due largely to external pressures for modernization. Among the Turkana, for example, sedentarization (seen by the Government as a move towards modernization) has led to increased poverty and desertification as herders abandon pastoralism in favor of agriculture and fishing. The result is decreased local self-sufficiency due to dependence on distant outside markets, greater vulnerability to drought and rapid spread of livestock diseases (Hogg,1987). Among the Boran, similar problems due to sedentarization are evident. Also evident is that wealth and resource access inequalities have continually increased since the colonial period as wealthy pastoralists have diversified economically and non-pastoralists (civil servants and businessmen) entered the livestock sector. These people with their big herds are largely insured against losses and are able to buy-up cheap livestock in

times of drought while also being able to hire herders to take their animals to the best grazing grounds. The majority, however, as a result of drought and warfare in the 1960s and 1970s, had nearly lost everything. Present economic opportunities for destitutes are increasingly infrequent (Hogg,1986:325) creating what Hogg calls a "permanent population of paupers...who at every crisis are thrust deeper into poverty" (Hogg,1986:329). However, this breakdown is not evident in all pastoral groups. For example, pastoral systems of the Ngisonyoka Turkana (McCabe and Ellis,1987; Coughenour et.al.,1985) and the Boran of southern Ethiopia (Helland,1982) continue to provide a relatively sound system for survival.

Wherever it has occurred such social breakdown is a relatively recent phenomenon. For thousands of years pastoral societies had enjoyed influential positions around the world. The dominance of pastoralism extends back at least as far as the writing of the Biblical story of Cain and Abel. Cain, a tiller of soil, was envious of Abel, a keeper of sheep, since God seemed partial to Abel's animal sacrifices. Only recently is the continued existence of pastoralism threatened in many parts of the world due to pressures on land and resources, population growth, agricultural advances, mining exploration, tourism and political efforts at nation building (Swift,1982a:159-160).

Contempt for Nomadism

Another problem in maintaining pastoralists' livelihoods and cultural identities is hostile attitudes towards the pastoral way of life. Pratt and Gwynne (1977:35), for example, assume that understanding pastoralism will reveal the mechanisms which inevitably promote environmental destruction and social disarray:

> It is especially desirable to understand the way of life and basic biology of the nomad pastoralists since he is, too often, the cause of unavoidable and severe deterioration of his own environment, thereby becoming a problem to, and throwing himself on the mercy of, others.

The term "anti-nomadism" describes the generally negative attitudes held towards pastoralists (Horowitz,1979;1986). "Backward" traditional social and economic systems of pastoral populations, including common control of pastures, and an "irrational" unwillingness to sell excess stock to reduce environmental pressure, are common justifications for seeking fundamental changes in pastoralism. Salzman relates his personal experience with these biases:

> I am reminded of the repulsion I have felt from time to time when encountering self-proclaimed enemies of pastoralists, of nomads, of tribal peoples; enemies with diverse origins and situations, from that of centrally appointed regional governor to that of a reconstructed, reeducated, recultured tribesman; enemies with, to be sure, the best of intentions and also the best of certainties about what would be best for the poor, benighted pastoralists. "They are poor, ignorant, dirty. They do not like to work. They move around for no good reason. They are backward, hardly better than animals in their habits. They need progress, or moderniza-

tion, or civilization; they need to settle in villages, have bath houses and schools, and learn to speak our language" so the refrain goes. (Salzman,1981a:34)

With the exception of countries where pastoralists comprise a large portion of the population, such as Somalia and Afghanistan, very few governments see value in pastoralism. Nomadic pastoralism is disliked by governments for several reasons. Pastoralists are difficult to exercise control over due to their often remote locations and mobility. They tend to ignore international boundaries, moving across them at will in their search for pasture. Pastoral mobility also creates problems for providing services such as schools and hospitals and in the collection of taxes. Largely for these reasons governments favor sedentarization of nomadic pastoral people. Governments also see the land inhabited by pastoralists as valuable real estate, perceived as more valuable to the nation in other uses such as for agricultural production or national parks. Pastoralists, particularly in East Africa, often share the range with wildlife so the formation of national parks for tourism is more appealing than leaving it to uncooperative pastoralists who generate little revenue.

Encroachment

Recent advances in irrigation technology have pushed agriculture into more humid pastoral zones, taking away

valuable pasture and increasing pressure on remaining rangelands. Sahelian pastoralists in West Africa in some places are being "squeezed" out of their centuries-long livelihoods as displaced farmers are pushed northward into traditional pastoral lands due to the expansion of irrigated cash crop farming. Irrigated groundnut farming in Niger is a good example of this trend (Horowitz and Little,1987). More direct encroachment by irrigated agriculture on pastoral lands has occurred in Kenya where large scale irrigation projects claim important river valleys previously used for dry season grazing (Hjort,1981).

Maasai pastoralists have also lost land to smaller scale farming since the beginning of this century, first to European confiscation of lands and later to the influx of landless farmers from other land-scarce regions. Conflict between farmers and herders has escalated as population and landlessness in the agricultural highlands increases. As a result of such encroachment, many pastoralists are becoming marginalized in the sense that they much congregate their animals in increasingly smaller areas of lower biological productivity (Horowitz and Little,1987).

Modern Warfare

In the recent past and present, war has played a particularly damaging role in Africa, often taking place in areas inhabited by pastoralists. In the 1960s, the "Shifta"

war in Northern Kenya devastated the livelihoods of the Boran pastoralists whose livelihoods had not returned to normal even years later (Hogg,1980). More recently in the Sudan, Chad, Uganda, Ethiopia, and Somalia, war has greatly and perhaps irreversibly disrupted the livelihoods of many pastoral groups*. Warfare has also modernized livestock raiding. Raiding has been practiced in East African pastoralism for centuries as a means to expand herd populations and territory. Recent active guerilla movements in eastern Africa, however, have made modern weapons more available to pastoral groups, resulting in much deadlier raiding than in the past (Conant,1982).

Drought

Various drought coping mechanisms such as mobility and social networks help to insure survival during insecure periods. More recently, however, disruptions in these strategies has sometimes made pastoralists more vulnerable to drought. The result of strategy breakdown has been greater livestock losses when drought strikes and therefore less reliable access to food. In areas such as Kenya's central Baringo district, as much as 50% of all cattle died during the 1979-1980 drought due largely to restricted mobility

* By contrast, in Afghanistan in the 1980s, though war had disrupted the country, pastoral groups regained some of their past value as transport agents due to the insecurity of road travel (Sana,1982).

through the loss of higher rainfall grazing areas (Little,1984a:47).

SUMMARY

A variety of pastoral societies inhabit the drylands worldwide. Their extraordinary adaptations to harsh environments take a number of forms which are often similar though not easily generalized. East African pastoralists provide an example of indigenous African herding systems. As with all pastoralists, East African herders exploit the range through the use of domesticated animals for food production, manipulating the physical environment, the human population, and livestock.

These adaptations are threatened mainly by external pressures for modernization though many pastoral strategies remain viable to a great extent. However, pressures such as encroachment of irrigated agriculture, modern warfare in pastoral areas (such as in Southern Sudan, Northern Uganda, and Somalia), and disrupted strategies for coping with drought combine with a generally negative attitude towards pastoralism to seriously threaten pastoralism. This potential breakdown is regrettable since pastoralism is still the best adaptation to most African dryland environments.

CHAPTER 3

ARE INDIGENOUS PASTORALIST SYSTEMS RATIONAL?

Pastoral societies are often, probably usually, well adapted to their physical environment, have efficative social security systems for supporting the less fortunate, and provide a set of coherent beliefs and moral values, participatory social organizations and a social identity for the individual that contrasts sharply with the perplexity, alienation, and aimlessness found elsewhere.
(Sanford,1983:4)

INTRODUCTION

To understand what has gone wrong in development for pastoralists the attitudes behind many of the policies and projects which have been attempted until now should also be understood. Preconceived notions that pastoralism leads inevitably to overgrazing or that pastoralists keep large herds simply to enhance their own prestige have, in the past, been viewed as evidence that pastoral systems are irrational both ecologically and economically. On the basis of these assumptions top-down solutions seeking radical changes in such practices almost automatically precluded pastoralist participation and the use of indigenous knowledge in development plans.

DESERTIFICATION AND PASTORALISM

Enormously popular in the last two decades is the view that desertification is quickly engulfing the worlds arid and semi-arid areas. In the 1970s, since the Sahelian drought and famine of 1968-1974, desertification was at the forefront among Third World environmental issues. Widespread attention was given the issue in both professional circles and the popular media and culminating in the UN Conference on Desertification in 1977. However, by the late 1980s the desertification had taken a back seat

to other, more pressing environmental issues, such as global warming*.

There are several major viewpoints on desertification and pastoralism which express different opinions on the desirability of utilizing indigenous knowledge and pastoralist participation in development attempts.

The first, referred to as the "ecological" view (Hjort,1981), holds that pastoralism is necessarily an environmentally destructive practice. This destructiveness is due largely to population growth and to a subsistence milk production orientation (as opposed to beef production which is perceived as being more rational ecologically). The milk orientation is thought to result in large numbers of female animals which produce large numbers of offspring (Brown,1971). Authors adopting this perspective tend to blame herders for desertification. For example, Tolba (1982:14), director of UNEP, states the following regarding the overuse of dryland areas:

> Overuse is often related to excessive pressures of increased population and the failure of existing socio-economic systems to adequately manage land resources of arid and semi-arid lands.

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* For example, even in 1986, the Worldwatch Institute's State of the World report (Brown et al.,1986) devotes an entire chapter to desertification while their 1990 issue (Brown et al.,1990) only mentions the topic once in passing.

In similar fashion Ferguson asserts that pastoralists' land management systems have caused desertification in the Sahelian region:

> It is generally agreed that overstocking and lack of managed grazing patterns in the Sahel are the most important causes of desertification in the region and that desertification is a symptom of more fundamental problems of rapid population growth and the inability of individuals and communities to adopt known land management and conservation technologies. If current desertification trends cannot be reversed quickly, the countries of the region may permanently lose the capacity to feed themselves and the ability to support a growing population at even current subsistence levels. For these reasons, the mastering of the critical problems of overstocking is one the keys to the medium- and long term economic development of the Sahelian region. (Ferguson,1977 in Horowitz,1979:27)

In the ecological view, keeping less animals is better for the sake of environmental preservation. Subsistence pastoralism promotes exactly the opposite. The solution to desertification is therefore to promote fundamental changes change in subsistence pastoralism; preferably from milk production to beef production. In Pratt and Gwynne's view (1977:40), for example, "it is necessary to stress that <u>any</u> solution involves radical changes from traditional customs" (emphasis in original).

Such views were usually supported by governments, such as that of Kenya which was only too happy to induce a beef orientation to supply growing urban markets. There was little room in such thinking for the utilization of pastoralist indigenous knowledge, or pastoralist inputs into

what the goals of their development should be. Rather, the virtual eradication of traditional pastoralism was the desired goal. Reaching this goal required ignoring or even suppressing pastoralists' interests since, as Pratt and Gwynne (1977:40) point out, "such changes are always resisted". This sentiment is also expressed by Meyn (1970:26):

> Any plan for an improvement of beef production and its development towards a cash economy that does not interfere with the traditional way of life, will probably find an easier approval by the local people than abrupt changes. The question remains, however, whether there is enough scope to improve cattle husbandry within the existing way of life. Furthermore, there is the danger that people revert to their traditional methods of husbandry after already having adopted innovations.

While this view has had the greatest influence on pastoral development policy (Hjort,1981), perhaps a more common view is that pastoralism had been a viable adaptation in the past; before population pressures and external disruption of pastoral systems rendered them at least partially inoperable. This view also accepts the notion that desertification is occurring. However, proposed solutions to the ecological problems created by such circumstances vary. Some contend, as with the ecological perspective, that the situation has deteriorated to such an extent that a fundamental alteration of pastoralism is needed to regain sustainability (see Eckholm and Brown,1977;

Erlich and Erlich,1987). A World Bank paper (Gorse and Steeds,1987), for example, asserts that because of such disruptions settlement should be encouraged to prevent further desertification (Gorse and Steeds,1987:x). Others disagree, asserting instead that development based upon indigenous pastoral management practices would do more to halt desertification than conventional development projects which disrupt pastoral systems and typically exacerbate or even cause desertification (see Timberlake,1985; Brown et al.,1986; Hogg,1987).

The perspective adopted in this research is from another closely related section of this literature. This section contains authors from a variety of disciplines who agree with the indigenous knowledge approach just mentioned, questioning the ecological view's assumption that pastoralism is an inherently destructive practice. What sets these authors apart is their questioning of the conventional wisdom that widespread desertification is occurring. The assertion is that in spite of the conventional rhetoric of desertification as a serious problem in the African rangelands and popular notions of an ever-expanding Sahara, there is very little evidence to substantiate such claims. As Griffiths and Binns (1988:50) put it:

> There is now a vast literature on desertification, focussing on the causes and processes of desert expansion,

particularly that of the Sahara. However, there is need for caution. What exactly does the term 'desertification' mean? Does it imply the once-and-for-all removal of land from cultivation and pastoral use? Or is it the case that areas which have been desertified may, in a series of wet years, be returned to economic use? In parts of the Sahel there is certainly localized desert encroachment, but the broadly advancing desert claimed by some has never been scientifically demonstrated.

More specifically, Nelson states the following regarding the lack of scientific evidence on desertification:

> Contrary to popular belief, the extent of desertification is not at all well known....there is extremely little scientific evidence based on field research or remote sensing for the many statements on the global extent of the problem. (Nelson 1988 in Binns,1990)

A major point of such authors is not that there is no desertification, but that one should be cautious about drawing conclusions on the extent of the phenomenon and its primary causes based on the evidence available. This caution is particularly important when the accepted viewpoint can lead to inappropriate policies which may adversely affect the less powerful members of society (Sanford,1983), which pastoralists typically are.

The details of the desertification debate are dealt with in other sources (Binns,1990; Horowitz and Little,1987; Horowitz,1986; Sanford,1983) and will not be pursued here in detail. However, besides the lack of investigation, there are several main factors in the debate.

One factor is a difficulty in finding an unambiguous definition of desertification (as Griffiths and Binns alluded to in the above quote). Another factor is that the lack of scientific evidence for desertification stems from a number of difficulties in data collection relating both to climate and livestock. With climate, it is well known that drought is a regularly occurring phenomenon in the Sahelian and East African rangelands (see Faure and Gac,1981; Mortimore,1988). As a result it is difficult to distinguish between livestock induced and drought induced desertification, unless an investigation spans many years (Horowitz,1979).

As for livestock, remoteness of location and the use of different estimating techniques makes accurate counting difficult if not impossible (Sanford,1983; Homewood and Rodgers,1984). Even when approximate figures are known there are disagreements on appropriate stocking levels and carrying capacity estimates in any given area. Regardless, some of the most convincing evidence for desertification through overgrazing are statistics showing dramatic growth in livestock numbers in pastoral regions. However, Sanford points out that while livestock numbers have undoubtedly increased, it is difficult to determine by how much and whether the increase is beyond the environments' carrying capacities:

> The real evidence for [increases in livestock numbers] is extremely poor. For most dry areas we do not know, within a margin of 30-40 per cent, for even one moment in time what the livestock population is. Mortimore has stated this of Northern Nigeria, a comparatively closely and well-administered country. ...In huge dry areas of 30,000 km^2 in Ethiopia and Sudan the same observer, using the same estimation techniques, found, in different rounds of a repetitive survey, that the size of livestock populations varied, over the course of a few months or one or two years at most, by 100 per cent or more. Official estimates of long-term increases in livestock numbers tend to lie in the range between 50 and 250 per cent over 20-60 years. But these increases easily lie within the range of error and variation obtained simply by using different estimating techniques or different starting-points within a short period of a year or two. Livestock populations probably have grown; it would be unwise to rely on the statistics to prove this. (Sanford,1983:13-14)

The final factor in the desertification debate is the role that indigenous herding strategies (e.g., nomadism and transhumance) and social adjustment mechanisms have on preventing or creating desertification. While authors writing from the ecological perspective have seen traditional pastoralism as the major cause of desertification, other authors have sharply retorted (for example, Hjort,1981; Horowitz,1979; 1986). Western and Finch (1986) state that, though accused of irrationality, African pastoralists had evolved social and economic systems which permit them to support a relatively large human and livestock population in harsh, arid lands with minimal environmental impact. In this view, two of the most important indigenous adaptations relating to environmental impact are mobility and a common property land tenure system

with social constraints on access to pasture and water. The unforeseen environmental problems of privatizing grazing lands for ranches and the sedentarization of pastoralists are due largely to ignorance of these elements' value and a faith in the "tragedy of the commons" hypothesis.

The Tragedy of the Commons

Garrett Hardin's (1968) essay on the "tragedy of the commons" has greatly influenced opinions on this issue. According to Hardin's theory, all resources owned in common, such as grasslands, will eventually be overexploited because no one is motivated to take responsibility for them. Because they belong to everyone, no one protects them (McKay and Acheson,1987:xiii)*.

Because of its common sense logic and the timing of its rise in popularity (during the 1968-1974 drought), Hardin's argument appeared sound. In the African rangelands the connection between a common resource, the grasslands, and desertification seemed obvious. The logical solution was to

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* Regarding pastoralists specifically, Ruthenburg (1980:340) gives more recent expression to this argument, stating that:

> "The tendency to over-grazing and to neglect of those measures that could help to increase the efficiency of grazing is rooted in traditional institutions. Everyone tries his best to maximize his numbers of animals, and no one feels it incumbent upon himself to improve the land, since he has to share it with others. Communal bodies that undertake to organize the use of pastureland have not been able to survive, or even to establish themselves."

replace the land tenure system of communal grazing with private ownership of grazing areas, forming ranches and settling nomads on private plots. It was felt, particularly by Western donors, that private ownership of the range would give pastoralists a sense of responsibility for environmental protection - something which they were perceived to lack. However, there are many unforeseen problems (unforeseen by officials - not pastoralists) with this approach which can worsen rather than alleviate desertification and disrupt indigenous social support systems. Goldschmidt (1981:109) shows the pro-Western and anti-nomad bias of pastoral ranching programs:

> Of all the efforts to change the patterns of pastoral behaviour, the most appealing one to many Western development economists is to establish ranches, fenced or otherwise demarked tracts held in fee-simple title by individuals or groups. This accords with Euro-American notions of land holding, farming, and business operations and appears as simply being the right way to do things. That it is destructive to the native way of life is at best viewed as irrelevant, at worst as desirable. That, if successful, it would pauperize nine-tenths of a tribal people in the area is conveniently overlooked.

Though the "tragedy" argument is very appealing in its logical consistency and its common sense approach, misunderstood was that in the African rangelands, having common pasture does not necessarily imply open access (McCabe,1990; Feeny et al.,1990). There are a variety of constraints on access to pasture in different societies,

some of which focus primarily on water rights. Though pasture is common property, wells are usually owned by the herding group that digs it or pays to have it dug. Therefore access to pasture around a particular watering point is effectively restricted to the livestock of a single group or those who obtain permission to use the well.

In the absence of restrictions there is a greater potential for desertification. One case where this system broke down and the "tragedy of the commons" became reality resulted from the now famous deep bore-hole wells in the Sahel. Donors in the 1950s and 1960s from Senegal to Somalia and down through Tanganyika to Angola (Goldschmidt,1981:104-105) sought increases in animals' water supplies by drilling bore holes fitted with diesel engines. Ignoring the relatively sound traditional systems of private water access, government-funded wells were available to all herders. Horowitz (1979:50) states regarding the Sahel:

> Instead of small groups of animals dispersed across the terrain in the search for pasture and water, huge numbers of animals began to assemble around these bore-holes, particularly as the dry season progressed and surface waters disappeared, and in consequence the land for great distances around the wells was grazed to bare ground. When the drought struck, vast numbers of animals died for lack of food in ironically tragic proximity to the new wells.

Such unfortunate results have led some pastoral groups to reject government offers of more wells except where they

can be paid for by the pastoral group, thus retaining traditional exclusive water rights (ibid:51-53).

Restricting Mobility

Similarly, attempts to constrain pastoralists' mobility, increases the risk of desertification. Policies which constrain herders' relatively free movements (themselves constrained by rainfall patterns, access to watering points, and proximity to other pastoral groups) by restricting pastoral movements to the boundaries of ranches or settling them altogether are ecologically unwise. Due to unpredictable rainfall amounts and distribution, pastoralists need large tracts to support livestock through both wet and dry seasons. Herders also need the autonomy to move spontaneously to localized areas where adequate range is available. Ranch and grazing block schemes are often not large enough to support herds, particularly during drought, resulting in pastoralists' ignoring boundaries (as is the case in Maasailand) or remaining within bounds and overburdening the environment.

Sedentarization

The greatest potential for range desertification often occurs when nomadic pastoralists are encouraged to practice settled agriculture. Some organizations, such as the FAO (in Hogg,1987:47) and, as previously mentioned, the World

Bank (Gorse and Steeds,1987) have even proposed sedentarization as a means of combatting desertification!

The problems with encouraging settlement are obvious. Unpredictable rainfall in arid rangelands is the primary reason that pastoralism and not agriculture is practiced there. Irrigation technology could help to sustain agriculture but there are problems with affordability and equipment maintenance forcing communities to rely on outside funding to maintain projects. Hogg (1980) shows that the attempts by the Kenya government to settle the Boran pastoralists on irrigated agricultural schemes have actually increased desertification, impoverishment, and food insecurity.

A partial cause of such problems is that there is a general trend of rapid population growth among nomadic populations that sedentarize (Meir,1987:103); generally, natural increase rates of nomadic populations ranged from 0.7% to 3.0% while increase rates among sedentarized nomads ranged from 2.2% to 5.7% (Meir,1987:101). Rising populations, densely concentrated in ecologically marginal areas spells potential disaster. In addition, sedentarized nomads do not forsake livestock keeping which adds to a worsening environmental scenario. At the same time, neglecting outlying grazing areas results in the invasion of bush and therefore tsetse fly, rendering such areas inhospitable and therefore further reducing available

grazing areas (Hjort,1981). Rising populations also means increased social service needs of people who are usually poorly served already. The resulting ecological and economic stresses could be avoided, according to Meir, if governments adopt a pastoral development policy for nomads which does not require a shift toward sedentary agriculture (Meir,1987:103). Hogg (1987:48) also holds this view, suggesting that desertification in Kenya might be halted more effectively if current government sedentarization policies were changed rather than pastoralists' land-use practices.

The adoption of a non-sedentarizing pastoral policy could form the basis of sustainable dryland development. As evidence, pastoral groups whose traditional practices, particularly mobility, have been little disrupted by outside intervention may be more socially, economically, and ecologically stable than their sedentarized counterparts. Helland (1982:241) contends that Boran pastoralists of southern Ethiopia (just north of the Kenya border) "seem to live in a finely adjusted adaptation in an area which is comparatively little degraded". He attributes this perception to the fact that these Boran have only been marginally affected by development and large-scale famine relief, thus their effective traditional coping strategies have remained intact. On the Kenya side of the border the Boran are in a much different situation. Hogg (1985)

explains how the Kenya government settled many Boran pastoralists onto irrigation schemes after the "Shifta" war with Somalia in the 1960s. The result has been the gradual pauperization of this once wealthy tribe and increased desertification due to restricted grazing.

Similar to the Ethiopia Boran, during the droughts of 1979-81 and 1984 the Ngisonyoka Turkana (of southern Turkana District) "seemed to be going about their business as usual and surviving the devastating drought. While they suffered temporary hunger and losses among their livestock, for the Ngisonyoka there was no famine, no environmental degradation and no need for outside relief" (McCabe and Ellis,1987:33). This situation is compared to the massive famine relief efforts that were under way among the Turkana in the northern part of the district, nearly one-third of whom occupied famine relief camps during this time. As with Helland and the Boran, McCabe and Ellis (1987:39) attribute the success of the Ngisonyoka Turkana to the maintenance of traditional herding practices and "because their system has not been disrupted by well-meaning but inappropriate development activities." Their comments regarding Kenya's Rift Valley could apply to pastoral regions generally:

> In the harsh environment of the Rift Valley, pastoralism has supported humanity for a long time. It would be a serious mistake to assume that such a time-tested strategy can easily be replaced by practices developed in another time and another place. (McCabe and Ellis,1987:40)

PASTORALISTS' ECONOMIC RATIONALITY

Linked to allegations of widespread desertification are reports of pastoralists' "irrationality" in economic matters. Herskovits' (1926) work popularized the notion of the "cattle complex" in which herders desired ever-larger herds, not for reasons of assured subsistence, but primarily for status and prestige. Subsequent perceptions, both in the colonial and post-independence periods of desertification and of the failure of pastoralists to participate as planned in government cattle-marketing objectives were most often attributed to pastoralists' "irrational" cattle-complex mindset*.

As stated above, the conventional, "ecological" conception expressed, for example, by Brown (1971), Pratt and Gwynne (1977), and Ruthenburg (1980) is that traditional pastoral milk production strategies are irrational in the sense that they lead inevitably to environmental deterioration. Milk production in arid and semi-arid areas, according to this view, results in keeping high percentages of mature females. This situation creates excessive reproductive capacity through which animal populations rise quickly. In addition, dividing milk production between

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* For example, Nester et al. remark that the pastoralist..."lives outside or on the fringes of a monetary economy and usually he attaches greater importance to the number of his stock than to their productive efficiency." (Nester et al.,1974 in Horowitz,1979:20)

calves and humans requires even larger animal populations to insure adequate nutrition for both. The alarming conclusion is that animal numbers rise uncontrollably, which, in marginal environments, leads to overgrazing and desertification. This scenario had moved Brown to state that even under normal circumstances subsistence pastoralism is not sustainable:

> These considerations appear to make it almost impossible to maintain the environment in sound condition on a sustained-yield basis so long as the ecologically unsound practice of depending on milk for subsistence persists. They also explain the all-too-common situation of rather widespread local damage to the environment, even when the overall human population/stock population figures for any given area do not appear excessive. (Brown,1971:97)

However, such consequences are largely theoretical and not necessarily based on empirical evidence (Hjort,1981). While research on a number of topics relating to pastoralism is sorely lacking, the results of one study in Kenya actually refutes Brown's claims. Regarding the assumption that traditional strategies lead to increased herd sizes and thus land degradation, Coughenour et al.'s (1985) findings from a study among the Ngisonyoka Turkana "do not support the causal relations between pastoral biology and land degradation" (Coughenour et al.,1985:624). Their findings include:

> First, while predominantly female milking herds have inherently high reproductive capacity, production to biomass ra-

tios are low because a large fraction of gross production is diverted to animal and human maintenance. Second, while milk consumption diverts energy from young animals, energy transfer to humans through milk is both more efficient and more stabilizing than transfer through meat. Third, excessive herd sizes were not encountered. Nonlactating animals are not excess, but are "fallow" in that they replenish their energy reserves, gather extensively distributed forage energy, and therefore stabilize temporal and spatial resource availability. Fourth, low animal productivities did not result in a high ratio of livestock to humans. (Coughenour et al.,1985:624)

The Focus on Beef

Prior to such recent findings, the "ecological" view that beef production was a more rational economic activity was the accepted viewpoint guiding development attempts. Therefore, in attempting to increase productivity and to decrease environmental degradation, conventional development approaches have most often assumed a transformation from traditional pastoralism into commercial beef production. As Swift (1982a:168) states:

Governments and their advisors have very stereotyped views about what development in dry areas should consist of. ...Where governments do think of developing traditional livestock husbandry, their plans are most often guided by preconceptions arising from the Western or North American training of most of their national and international advisors: that cattle are the only important animals, that meat production for local urban consumption or export has priority, that there is a large untapped potential surplus of male cattle ready to be marketed if pastoralists can be persuaded to abandon irrational hoarding, that present marketing chains are inefficient, and that water and disease control are the main feasible inputs.

This beef production orientation and the desire to persuade pastoralists to comply is evidenced in Evangelou's (1984:123) words in reference to Kenya:

> Kenya's meat supply is not keeping pace with rising levels of demand and shortages are likely to occur within the decade if present trends continue. ...the production and offtake potentials of the nation's rangelands will need to be more effectively exploited if the burgeoning demand for beef, mutton and goat meat is to be satisfied.

Although the rhetoric of pastoral development projects often states as their primary goal the promotion of herder welfare, statements such as the one above reflect the real goals of pastoral development - cheap food for non-pastoralists.

Offtake

As a result of this beef production bias, assessments of pastoralist "rationality" and efficiency have often been based on how herders behave towards the market (Horowitz,1979). However, in spite of the possibility of making money through livestock sales, they (particularly East African pastoralists) continue to utilize herds according to traditional strategies of family consumption of milk products and animal exchange through social relations.

The expectation was that incentives such as higher cattle prices would change pastoralist behavior towards the market and greater offtake would follow automatically. When

the expected behavior did not occur (as was often the case) pastoralists were labeled as irrational and conservative, exhibiting a "perverse supply response" (Sanford,1983:201). This response refers to cases in which sellers respond to rising prices by selling less and to falling prices by selling more.

Though in a market-oriented system such behavior is irrational, in a primarily subsistence herding economy where production is not of a marketable surplus but of a regular daily supply of food (Dyson-Hudson and Dyson Hudson, 1969:76), this behavior makes economic sense. In subsistence pastoralism a wet season (a time when livestock prices are typically higher because no-one is selling them) is a time to build-up herds both to replace animal losses and as insurance in case of future drought; even the Maasai, who have the highest per capita holdings of any African pastoral society, have too few cattle to survive the worst droughts (Western and Finch,1986:89). In a dry season animals produce less milk due to decreased pasture availability. Livestock prices fall as more herders are willing to sell animals to obtain cash to purchase supplemental foods.

In fact, it may not always be the case that pastoralists are unwilling to sell livestock. Pastoralists recognize the usefulness of money as much as anyone else, whether for grain and other purchased foods or manufactured consumer goods. Mwaniki (1980:10) argues that the so-called perverse

supply response does not always hold true, stating that among the Karamojong it is often the buyers who refuse to buy when the prices are high during the wet season. It was found in a survey conducted among northern Kenya's Rendille that there was no shortage of animals for sale among the herders (Njiru,1986:338). Traders were able to buy as many animals as they wanted and 75% of surveyed pastoral households indicated that there were long periods when they wanted to sell animals but could not find a buyer (Njiru,1986:338).

Livestock offtake has averaged about 3 percent in Africa compared to 35 to 40 percent in North America (Ward et al.,1980). However, there are constraints to increased offtake in remote pastoral areas which do not exist or exist to a lesser extent in the North American situation. A major reason for low offtake among the Rendille, for example, was that prices paid for their animals were so low that there was little incentive to sell (Njiru,1986:338). Other constraints included the inavailability of markets, lack of capital among local traders with which to purchase pastoralists' animals, and problems in transporting animals to market (Njiru,1986:338).

Even when pastoralists are less willing to sell animals it should be remembered that the sale of livestock is only a <u>secondary</u> option for herders. Other livestock uses, including loans, marriage gifts and other transactions are impor-

tant and complex social safety-net features that make subsistence living in the precarious, tropical dryland environment more stable.

Another interesting point regarding offtake was discovered by Dahl and Hjort (1976) in their highly acclaimed study, Having Herds. They found that livestock sales are not a sign of "progressiveness" or "sophistication", but a reaction created by necessity and scarcity. For example, they found that among the Maasai there was higher offtake for commercial use among the less well-off Maasai than among the larger herds kept by wealthier Maasai. Similarly they found that herds in low-potential areas generally have a higher offtake rate (10-12%) compared to herds in higher potential areas (4-9%) (Dahl and Hjort,1976:181). The willingness of the Rendille to sell animals may therefore be partly due to their region's highly unstable climate.

Higher offtake, according to this study, appears to be a function of economic insecurity rather than security. Wealthier herders are more assured of a continued food source, even in low rainfall years, than are stock-poor herders who, for example, may need cash to buy grain.

Dahl and Hjort (1976:180) also found that the sale of pastoralists' cattle does not bring down herd sizes -- often desired goal of increased offtake. The sales only substitute commercial transactions for domestic slaughter as

part of the 8% of a herd which may be sold or slaughtered per year.

Comparing Beef and Dairy Orientations

According to Schneider (1981a:217), a shift to beef production is not just an alteration in the pastoral way of life but a radical revolution. Furthermore, this revolution is being imposed from without and against the will of the majority of herders. At the same time, many researchers assert that the traditional strategy based on milk rather than beef production is the more rational use of the arid range. A more appropriate development strategy which truly seeks herder economic and social welfare, therefore would replace the current focus on beef by a greater emphasis on dairy production. As Scott and Gormley (1980:96) state for Sahelian pastoralists:

> In a western development optic, herding is usually synonymous with meat production and while the ultimate fate of Sahelian herds is the cooking pot, Sahelian herders are more accurately viewed as dairy farmers because they subsist on a diet composed largely of milk and its by-products. Subsistence dairying has implications for herd composition and size, culling rates, human demographics, the environment and development that are radically different from herding for beef production.

The uncertainties of a shift to commercial beef production have been explored by (among others) Western (1982) who argues that pastoral dairying strategies provide a sound

support base for the large numbers of people who live in tropical arid lands. His research among the Kenya Maasai found the pastoral milk production system to have a higher food chain efficiency (7.8%) than that of well-managed commercial ranches (6.5%); "this is despite the fact that wildlife competitors, which remove 37 per cent of the forage consumed by large herbivores in the pastoral system, are virtually absent from commercial ranches, and despite the fact that the ranches studied are in higher rainfall zones where the digestibility of forage is greater due to lower seasonality" (Western,1982:198). Therefore to impose commercial beef ranching on Kenyan pastoralists could create major production losses compared to a pastoral system. In Western's (1982:200) view, reliance on milk rather than beef production is the key to the high productivity in pastoral systems when compared to commercial ranching and is a major reason why pastoralism can support such a high human population density in marginal lands. Such a density is a result of greater nitrogen production efficiency for milk. For cattle the efficiency of nitrogen production from pasture on an annual basis is 38 per cent for milk and 6 per cent for meat.

In addition, pastoral production is labor intensive while commercial ranching requires low labor inputs in comparison. Western (1982:198) estimates that the number of people supported by commercial ranches in Kenya is typically

less than 15 percent of that supported by traditional pastoralism in the same areas. There would be serious labor surpluses among pastoral societies if they adopted commercial ranching and there are very few employment opportunities outside pastoralism.

A switch to beef production would also mean that an adequate diet must be provided to pastoralists at prices they can afford to replace lost milk production. Otherwise, as the Dyson-Hudsons put it, the price of national meat is regional starvation (Dyson-Hudson and Dyson-Hudson,1982:236).

Western (1982), Western and Finch (1986), and Grandin (1988) argue that pastoral systems in tropical arid environments have been unfairly compared to temperate zone commercial beef ranching systems. Cougenhour et.al. (1985) show that while human food energy outputs in arid zone pastoral systems are very low compared to temperate zone commercial ranching (25 megajoules of human food per hectare in extensive pastoralism compared with 9000 megajoules in intensive commercial dairy systems and 635 megajoules in beef production systems), pastoral production levels are comparable to other arid, animal based systems such as Australian arid-zone sheep ranching.

On this point, the Dyson-Hudsons (1982:234) assert for a section of Turkana District, Kenya that a switch to arid zone ranching would not seem to represent a major food gain over the indigenous system. The pastoral system produces

2.09 kcal/sq.m/year of human food while ranching would generate 2.25 kcal of human food. However, much of the food energy produced in ranching systems would be exported to urban markets, creating the need to import food from other regions.

In arid zones climatic factors place production limits on both pastoral and commercial systems which do not exist in temperate zones. Lower, uncertain rainfall amounts mean that large amounts of land are needed to maintain even low production levels; changing the production system to intensive temperate zone methods will probably not increase production since the extra forage needed for intensive grazing will not be available. In the harsh arid zone, production efficiencies are also limited because breed selection necessarily favors animal survival over production (Cougenhour et al.,1985:623). In this context Cougenhour et al. (1985:624) conclude that:

> Although a goal of modern, developed economies is to maximize net production, efficiency, and growth, this narrow strategy would be risky in the... pastoral ecosystem.

In fact, when comparing pastoral production in a tropical arid environment to commercial ranching in a similar environment, Western found that animals under the pastoral system can more efficiently utilize available forage than do those under the commercial system. The reasons for greater food chain efficiency among pastoral systems are found in

the traditional herding strategies of mobility, species diversity (using cattle, sheep, goats, and camels (where appropriate)), high stocking rates, selecting adaptive breeds, and human reliance on milk production (Western,1982). Cougenhour et al. (1985:624) agree with Western's assertions stating that these traditional pastoral strategies may be the cornerstones of stability and sustainable productivity in the arid environment. Far from irrational economic strategies, traditional herding techniques such as sharing milk production between humans and calves, large herd accumulations, and common ownership of the rangelands can be seen as ingenious adaptations for long-term survival in an extremely uncertain environment.

The status of women in pastoral society would also be detrimentally affected by a shift to beef production since the major role of women is food (mainly milk) production for the family. Horowitz states that:

> Now even if the total income were to increase with greater emphasis on beef production, an often stated though seldom demonstrated proposition, the contribution of women would of course decline. They would lose both control over the income from dairy sales and the status attendant on making decisions relating to the family's food supply. My student Mary Hooglund, who examined the final design report for the AID Eastern Senegal Bakel Range Livestock Project, concluded that if the project were implemented:
>
> 'Women would be left without an important labor input into the family economy and without control over family resources. As the status of women depends practically on their position in the subsistence system and symbolically upon the number of milking cattle at their disposal..., the status of women in general among these Fulani would suffer.

The status of individual women whose husbands join the project will decrease in relation to other women who have more milk cows at their disposal.'

Where the position of fifty percent of the society is placed in jeopardy, it is fair to assume that pastoral women, particularly the outspoken independent Fulani and Twareg women, will be the most reluctant participants in these projects. (Horowitz,1979:72)

Because of the relative efficiency of traditional strategies in the arid savanna, interventions which seriously impact upon mobility or which threaten the ability of the herd to support large numbers of persons, will be resisted by the pastoralists (Horowitz,1979:86).

IMPACTS OF COMMERCIAL SYSTEMS

According to Galaty (1981:8), there is a general trend towards greater commercialization and offtake among pastoral groups. In fact, many pastoral groups are well integrated with the commercial market. For example, the Lackenkhel of Afghanistan sell their entire herds every year while the Fulbe of Nigeria now attain greater wealth status through increased market-oriented livestock production (Galaty,1981:8). In East Africa, however, livestock production tends to be kept within the limits of the subsistence economy, though even these pastoralists have to some extent been affected by greater commercialization.

Although pastoralists have been increasing offtake, this commercialization trend has had mixed results. Ranches typ-

ically have not experienced the increases in production nor improved the herders' quality of life as was expected (Horowitz,1979). In addition, where commercial ranches have been established in pastoral areas, negative effects are often experienced by neighboring pastoralists whose resources are diminished for the sake of the commercial industry; potentially valuable grazing areas are declared off-limits to herds outside the ranch due to privatization of grazing areas. The result is a loss of economic opportunity for those excluded from privatized range due to decreased forage availability and a greater potential for overgrazing on remaining pasture.

Although according to the "tragedy of the commons" model the privatization of grazing lands is to give herders more responsibility over pasture quality, the results of private ranching often has the opposite result. Cruz de Carvalho's (1974) study in Angola showed that private ranching resulted in greater range degradation than did traditional extensive herding practices. In the same vein, an increased market orientation can yield similar results due to overstocking for maximum profit returns. In the Sahel, for example, a study revealed that increased market production may actually result in a total increase rather than decrease of livestock numbers on the range, exacerbating the problem it was meant to solve (Galaty,1981:12).

That Western systems are by no means perfect models for Third World pastoral development is expressed by Swift (1977:29):

> The development history of dry grasslands in other parts of the world is not very helpful. In the USA and Australia the original inhabitants (Indians and Aborigines) were cleared from the land and highly capitalized private ranches took their place. In the Central Asian Republics of the USSR the previous nomadic pastoral economy was completely restructured into collective farms after the 1920s. Neither model is appropriate for the Third World now: the first because, in addition to its obvious injustice, it replaces abundant labour by scarce capital, and contributes to a rapidly widening gap between rich and poor; the second because it was only accomplished at great social cost with the resources of a powerful central government.

SUMMARY

This chapter reviewed the ecological impacts and economic behavior of pastoralists. The main criticisms of pastoralism, besides its alleged role in desertification, are related to economic strategies.

In spite of studies which show milk-oriented pastoralism as an ecologically viable system, the emphasis of most conventional projects has been beef production for urban populations. Project designers expected herders to increase livestock sales to satisfy production objectives. When higher sales did not materialize, as was often the case, pastoralists were accused of behaving "irrationally". The design of such projects revealed how little planners actually knew about the prevailing herding systems. It was

unknown, or at best underestimated, that subsistence production and social exchanges took precedence over commercial sales. Though offtake for commercial production does occur, it is only as a secondary option.

The commercial beef orientation ignores the sound indigenous strategy of a milk-based economy. Dairy production in the arid environment is clearly a more suitable adaptation in terms of both food chain efficiency and labor productivity. Although low production levels are the norm, the arid environment cannot, within the current technology constraints, sustain a consistently higher output demanded by a beef orientation. Also, a beef production orientation has negative consequences for women, who derive their status in large part from their role in milk production.

Western livestock systems may actually exacerbate ecological problems in pastoral areas as increased herd sizes for maximum profit returns may be kept on restricted grazing areas. These systems also do not provide good models because of their capital intensive nature and the social costs incurred in carrying them out.

CHAPTER 4

IMPACTS OF CONVENTIONAL PASTORAL DEVELOPMENT PROJECTS

[African livestock] projects are remarkable in their almost universal lack of success. Despite some half-billion plus devoted to the sector, there is a monotony of evaluations attesting to their failure. Productivity is not increased; producer income and 'quality of life' are not improved; anticipated financial rates of return are not achieved; and the retardation or reversal of environmental decline is not demonstrated. (Horowitz and Little,1987:60)

INTRODUCTION

In 1972, Neville Dyson-Hudson asserted that "the simple if somewhat gloomy truth is that we really know extraordinarily little about human behavior in nomadic societies. Certainly much of what passes for knowledge about nomads...is quite misleading" (N. Dyson-Hudson,1972:2). The result has been a misunderstanding of pastoralists' social, ecological and economic behavior along with a long list of failed development projects based on these misunderstandings.

Seven years later the proceedings of an African livestock development workshop echoes Dyson-Hudson's assertion in the conferees' number one conclusion that "quantitative data relating to pastoral systems (including human populations, herd demography, biotic composition) are notoriously unreliable" (IDA,1980:5). The report states that "existing data, about the present and past, are almost totally useless" (IDA,1980:5) due to a lack of standardized research methods. Research in the 1980s has greatly improved knowledge of pastoral systems though there is still a great deal of work needed. Rather than supporting the past stereotypes of pastoralists as "fathers (and mothers) of the desert", the newly acquired knowledge has supported the inherent rationality of pastoral systems and has prodded attitude changes in advocates of radical overhaul. As part of a wider movement in development generally, official donor

rhetoric in pastoral development now extolls the virtues of herder participation and the usefulness of indigenous herding strategies (Teele,1984; Tufts University,1985).

THE EVOLUTION OF LIVESTOCK DEVELOPMENT STRATEGY

Due to the overwhelming number of project failures, pastoral development strategy has gone through changes over the past two decades. While a lack of respect for pastoral systems characterized early projects, pastoral development has now reached a point where indigenous practices have gained their deserved respect in the development community.

Pastoral development efforts throughout the 1960s and 1970s had largely neglected pastoral populations and instead had focused on technological inputs such as water-hole development, introducing irrigated agriculture or imported western-style ranching schemes designed to increase pastoral productivity. Government goals were paramount, including: the expectation that pastoralist contribute to the national economy through livestock production and labor; environmental conservation -- the prevention and/or reversal of real or perceived desertification trends; and the governments' desire to integrate pastoralists with the national identity.

Projects were not as much concerned with improving pastoralists' living standards nor with their indigenous development goals. Though pastoralists' development goals are necessarily quite varied, generalized goals include: im-

provement in material living standards; assurance of their livelihoods long-term viability (the ability to survive droughts without being economically devastated); maintaining the freedom of individual herders to manage themselves; maintenance of social relations both to define range and water rights and to assure the survival and rehabilitation into pastoral life after stock losses; and retaining management and resource control in the hands of pastoralists (Sanford,1983:24). Development approaches instead were concerned primarily with physical and technical aspects of production, such as animals, pasture, and water; the organization and infrastructure of marketing activity, such as marketing boards, slaughterhouses, and trek routes to facilities (Bennett, et al.,1986:vi).

However, the governments and pastoralists need each other's cooperation to make plans work; government and donor disinterest in pastoral goals as well as herders' frequent disregard for government plans has therefore resulted in recurring project failures.

As a result of these unsuccessful attempts, by the late 1970s donors began to rethink their livestock development approaches. For example, in 1979 and 1981, USAID conferences addressed the problems being faced resulting in a turning point in pastoral development strategy. Bennett et al. (1986:2) sums up the problems faced and the progression towards new thinking in the 1980s:

> The failures -- or at least the very limited achievements -- of livestock and range development projects in African countries during the 1960s and 1970s were based on this general ignorance of dryland management under unfamiliar social and economic circumstances. The urgency of the development efforts in the countries concerned did not permit a generation or so of lead-in research before various instrumentalities were tried, and the available technical expertise consisted mainly of people trained in the commercial regimes of the Western world, with their many subsidies and regulatory practices designed to make up for resource deficiencies. Such methods, translated into the African reality, were not only less than effective, but interacted with poorly understood livestock-production institutions to result in lowered productivity and serious resource depletion. By the 1980s, it was clear that basic research needed to be done, and, in effect, a fresh start on the livestock development problem is being made. In the past decade, probably more research and conference activity have been devoted to African livestock than to any other agricultural sector for the continent... .

Since the early 1980s, livestock development projects have put a greater emphasis on improving the pastoralists' quality of life as a major goal, and have called for a greater degree of herder participation. Though quality of life improvement and participatory development were themes in project documents since the early 1970s, their practical importance was quite small. Even today, some observers remain skeptical about the commitment of development organizations to these principles (for example, Horowitz,1986). Host country politics and persisting anti-nomad biases often keep participation, use of indigenous knowledge, and a real focus on the herder's quality of life strictly at the level of rhetoric.

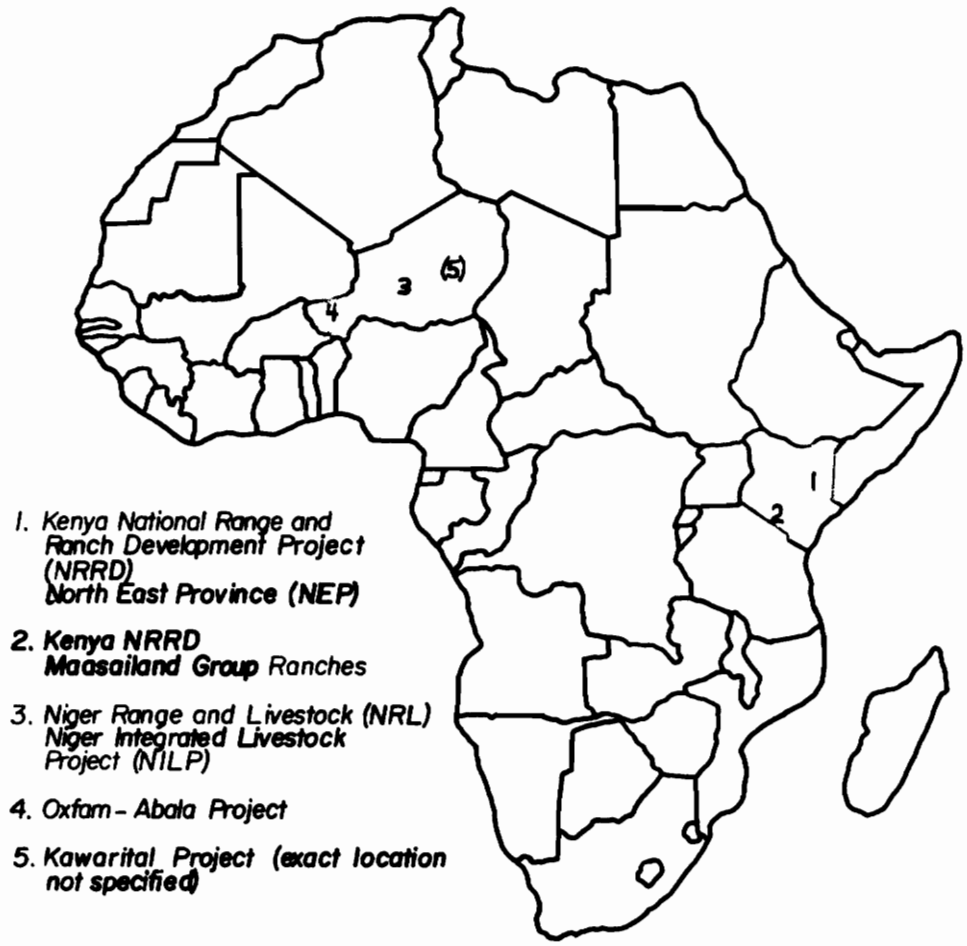
DEVELOPMENT ATTEMPTS AND IMPACTS

Many types of projects have been aimed at pastoral populations. The number of individual projects are far too many to detail though several will be examined (fig.4).

Early Livestock Development Attempts: Colonialism in Kenya

Colonial rule had a variety of impacts on African pastoral populations depending on the degree of contact between the two groups. Pastoralists in more distant regions, such as Northern Frontier District in Kenya, experienced only slight and even positive colonial impacts as cattle raiding was better controlled while traditional economic systems were left alone (Hogg,1980). However, among pastoral groups directly adjoining agricultural areas the colonial impact was felt more acutely and more negatively. Particularly for the Maasai, colonial intervention greatly disrupted the relative balance of pastoral life. Colonial policies of forced land acquisition and restrictive boundaries often excluded pastoralists' herds from traditional dry season grazing lands.

By the 1930s the perception was that Maasailand and other arid and semi-arid areas was becoming severely degraded. The causes of what land degradation actually existed were so completely misunderstood that policies aimed at its reversal probably worsened rather than alleviated the



1. Kenya National Range and Ranch Development Project (NRRD) North East Province (NEP)
2. Kenya NRRD Maasailand Group Ranches
3. Niger Range and Livestock (NRL) Niger Integrated Livestock Project (NILP)
4. Oxfam - Abala Project
5. Kawarital Project (exact location not specified)

Fig. 4 Locations of pastoral development projects discussed in thesis.

problem. The colonial government thought that land degradation was caused by human overpopulation resulting in animal overstocking, failing to understand the true main cause which was the reduction of dryland grazing areas (Sindiga,1984).

The perception of severe degradation in Kenya in the 1930s led to the institution of soil conservation measures throughout the drier regions. There is debate, however, as to whether chronic range deterioration was actually occurring at that time. Referring to Maasailand, Campbell (1986:47) states that:

> The attention given to the rangelands in the colonial times may have been influenced by the fact that the major policy formulation for these areas, such as the Carter Commission in 1934, the ALDEV [African Land Development] program in 1947, the Swynnerton Plan in 1954, and early programs of the independent government, all coincided with or followed closely upon periods of drought, during which the range conditions would have deteriorated even in the absence of the effects of livestock grazing.

Anderson (1984) suggests that international alarm generated by the Dust Bowl in the United States during the Great Depression affected colonial land protection policy in Kenya. To attack the land degradation problem in the 1930s, measures such as grazing rotations, grass planting, bench terracing, and trenching were carried out. Compulsory programs against land degradation backfired, however, to such an extent that distrust and bitterness toward soil conserva-

tion and livestock management persisted until even after independence (Bernard and Thom,1981).

From the mid-1940s, grazing schemes were established in Kenya's pastoral areas to model "proper" land use and livestock management. The intent was to convince pastoralists of the necessity of reducing livestock numbers, to overcome overuse of land resources, and to reduce soil erosion to manageable levels (ole Sadera,1986:20). The terms of the schemes included livestock quotas among scheme members to be grazed within defined boundaries and signed agreements to sell excess stock. Failure to comply with stock reduction measures meant automatic eviction from the scheme (ole Sadera,1986:19).

The schemes did not succeed for a number of reasons. First, grazing rotations within the provided boundaries were not strictly enforced, thus herder migrations continued according to climatic patterns -- the schemes existed in name only (ole Sadera,1986:19). And second, while stock reductions were expected, veterinary medicine provisions through the schemes resulted in dramatic herd size increases due to declines in animal mortality. Families with large numbers of livestock refused to sell surplus stock and preferred to quit the schemes. At the Konza grazing scheme in Kajiado District, created in the 1950s, all families had left the scheme by 1961 (ole Sadera,1986:19).

Among pastoralists as well as other livestock-keeping societies, destocking policies created the greatest resentment against the colonial government. Such policies had failed miserably. In Machakos District in April, 1938 the government attempted to destock herds through compulsory sales at half the market price. The policy was so unpopular that the scheme was abandoned in August of the same year (Moore,1979; Bernard and Thom,1981).

In Samburu District, destocking and grazing restrictions lasted longer. Starting in 1935, large tracts of the district were taken by grazing schemes, forestland, and the Northern Game Reserve. The competition and conflict for available grazing created by the spread of restrictive grazing schemes prompted Samburu elders and chiefs to form an alliance to protest grazing control in 1949. It was not until 1961 that the colonial government decided to give them the power to decide whether to retain or abolish the grazing schemes. Given the chance the Samburu unanimously voted to abolish them (Fumagalli,1978).

Among the Maasai, the colonial government unsuccessfully pursued a destocking policy and encouraged them to abandon pastoralism for crop cultivation (Sindiga,1984). The promotion of sedentary agriculture was not realistic since most of Maasailand, which had already been taken by European settlers, was too dry for regular agriculture. Government destocking efforts from the late 1920s attempted to market

"surplus" Maasai cattle, but low prices and European settler opposition prevented the program's success (Sindiga,1984).

The primary objective of colonial livestock sector interventions was to prevent soil erosion rather than to bring development to the African population. British policies and attitudes were similar in other colonies. Mamdani (1982) tells how the British pursued similar tactics of forced land acquisition in Karamoja District in semi-arid northeastern Uganda, thereby greatly disrupting the pastoral economy. Portions of the district were declared Crown Lands, became game reserves, or were simply cut-off from former lands by the formation of the Kenya/Uganda border (Mamdani,1982:68). Subsequent land degradation was blamed by colonial officials on overgrazing of land due to overstocking. Again, the British solution was to destock the herds. As Mamdani (1982:69) points out:

...having grabbed the peoples' land, the only way to restore a balance between limited grazing pastures and livestock was to grab the peoples' cattle!

Kenya National Range and Ranch Development Project

Livestock projects of the 1960s and 1970s reflected the attitudes of the times. First, there was a faith that project benefits, ie., income from increased production, would automatically trickle-down to low level producers. Secondly there was a lack of faith in the pastoralists

themselves as competent managers of their own economic affairs. This attitude subsequently led to the top-down project design and implementation. Participation was not encouraged and indigenous knowledge was ridiculed.

An example of a conventional livestock development/range management project is found in the Kenya National Range and Ranch Development Project (NRRD), sponsored primarily by US-AID and the Government of Kenya (GK). The criticisms of the project are typical of projects of this type. They include: weak planning, relying too heavily upon unwarranted assumptions of expected herder responses; restrictive grazing areas (grazing blocks), too small to be viable; and the insufficient allowance for pastoralists' participation. The information used here to summarize this attempt and its impacts comes from an evaluation conducted in 1979 by Devres, Inc..

The NRRD was begun in 1967 to help to develop Kenya's livestock economy in two geographic locations. The project focused on promoting range management, including grazing blocks* and water development, in Kenya's Somali-dominated North Eastern Province (NEP); group ranch development in Maasailand in southern Rift Valley Province; livestock marketing improvements; and wildlife conservation. This

* Grazing blocks are defined as "loose community grazing schemes involving demarcation of large land areas for controlled grazing. There are no changes in land and livestock ownership and the main investment is for range water development". (Government of Kenya,1979:251)

review will deal exclusively with the NEP section of the project. The purpose of NRRD was stated as follows:

> To increase the quantity and quality of livestock production to meet growing domestic demand and to earn foreign exchange through exports of livestock and livestock products. In so doing, the total Project will directly benefit pastoralists and other small cattle owners and wage employees on commercial and company ranches, in meat marketing, wildlife and range water development. In addition, higher prices of beef... would transfer income directly from relatively prosperous urban consumers to the lower income rural producer. (Devres, Inc.,1979:13-14)

The second phase of the NRRD, begun in 1972, added to the above-stated goals that herder welfare was also a priority. According to Devres:

> Equally important, it was also intended to improve the economic welfare of the poorer Kenyans through their increased participation in the livestock industry and provide them with a greater and more steady access to animal protein at fair prices. The program further sought to induce a stable way of life among the nomadic pastoralists by integrating them into a system of livestock production based on rotational grazing blocks including a reliable water supply for their herds, thus permitting them to settle in one area and thereby have more ready access to health, education and other Government services. (Devres,Inc.,1979:15)

The specific goals of the NEP section of the project were to develop and improve livestock grazing areas and livestock production in the Province. The means to achieve these goals was based on the formation of a number of grazing blocks, each to be provided with adequate water, through the provision of small reservoirs and borehole wells. Also to be provided were improved roads, and building facilities.

Ultimately, the project's aim was to restrict the Somali pastoralists' normally free herd movements enrolling as many herders as possible in grazing blocks and eventually limiting pastoralists' movements to block boundaries with systematic grazing rotations within them.

At the date of their inquiry, Devres concluded that most project objectives for the Grazing Block program in NEP have not succeeded to any extent. There was..."no evidence of any change in quality of life [in NEP] that could be associated with the grazing block program there " (Devres,Inc.,1979:25) There were, however, some successes in NEP including that a number of Kenyans have received formal training in range management and livestock development. Also effective was a training center for pastoralists. A positive consequence of the operation in the NEP and especially in the group ranching areas, was a possible reduction in friction between clans (Devres,Inc,1979:3).

Apart from these small successes, the major goals of the project had not been fulfilled between 1967 and the 1979 evaluation. The major problem with NRRD, according to Devres, was weak planning based on too many questionable and unwarranted assumptions. Of the thirty-four project assumptions, ranging from availability of pasture to expected positive market response to procurement and maintenance of

machinery, only four were deemed valid by the evaluation team.

The underlying problem was that little or no research was carried out prior to implementation to test the assumptions' validity. For example, there was no research on the likely or expected production or sale response by pastoralists to prices or price changes. There was no prior analysis of the composition of cattle herds (ratios of male to female, young to mature). There was no research on the need for and location of marketing facilities. Also there was no analysis of the marketing potential of sheep, goats, and camels even though these animal types are important in the region.

Another aspect of poor planning is that the grazing blocks in NEP were simply too small to accommodate normal pastoralist movements. Devres (1979) found that apparently the reality of drought potential was not written into the plans. While the first grazing blocks averaged 233,333 hectares each, the evaluation team suggested that the blocks needed to be between 300,000 to 400,000 hectares each.

In addition, the project planners assumed that herders would remain within block boundaries when adequate rainfall and watering points were available. However, many of the water points, whose aim was to open up unused pasture to grazing, were not functioning as planned. Many of the water storage reservoirs had silted up faster than they were being

cleaned out and borehole wells had generally not been equipped with operational pumps.

Apart from planning weaknesses, the NRRD also suffered from problems in attaining marketing objectives. The biggest problem was government-controlled beef prices were too low to encourage significant sales by pastoralists. Additionally, the assumption that pastoralists would automatically become market-oriented ignored the diversity of animal uses for pastoralists' domestic and societal survival. Sales of animals for cash are only one option among many for herders. Also, ignoring the marketing potentials of sheep, goats, and camels disappointed many herders who were more willing to sell such stock.

There were also problems between the pastoralists and government officials. The Range Management officers, according to the report, were not appropriate for the situation in NEP. Most of the officers were not from pastoralist families, had not been livestock producers, seemed to know relatively little about sheep, goats, and camels (due to their Western, cattle-oriented training) and they generally did not speak the Somali language. In addition:

> It seems that the Range Management officers spend much of their time trying to convince pastoralists that the Range Management system learned at school is the only right way -- without exerting sufficient effort to first ascertain the views of the pastoralists and understand their system, family needs, etc. (Devres,Inc.,1979:49)

Pastoralist participation in NRRD was also discussed in the Devres evaluation. Although the project design called for involvement of pastoralists in decision making through representation on grazing committees (Devres,Inc,1979:53), the quality of the participation mechanism was deemed inadequate:

> While committees are organized in every block, membership is split between government officers and graziers representatives. Usually, this type of committee structure, found in many parts of the world, results in government officers talking to each other while pastoralists listen. Other writers have suggested that these committees do not actually represent the graziers in the NEP. Observations that hardly any of the GOK [Government of Kenya] officers speak the Somali language, that minutes of these meetings are kept in English, and that pastoralist representatives tend to be those living in the town, rather than those moving in the pastures, support the inference that involvement of the "target group" in decision making is limited. (Devres,Inc.,1979:53)

The Devres team called for greater pastoralist participation in many aspects of the NRRD. The project, in their view, could have been much more effective had planners allowed more herder involvement. In their words:

> But the creativity and flexibility necessary to design programs uniquely and appropriately suited to the pastoralists of Kenya are not likely to come from outside donor agencies like AID, nor even from the various ministries of the GOK. <u>These kinds of program modifications are most likely to emerge through the voices of the pastoralists themselves, when arrangements are made for the others to listen to those voices -- to listen carefully and in depth, with respect for the wisdom which comes through experience. Getting about the business of encouraging those arrangements is the recommendation to those who sponsored this study.</u> (Devres,Inc.,1979:113, emphasis in original)

The Devres evaluation team pointed out that long-term survival of NEP pastoralists is due to effective indigenous range management techniques, particularly their reliance on mobility to avoid range degradation. The team asserts that in view of the relatively sound indigenous system, restricting movements to the limits of grazing blocks may have been less than appropriate. Indeed, indicators of range degradation were already evident on the grazing blocks at the time of evaluation. The conclusion was that if pastoralists had the economic and social power to do so, they would probably resist such change in their normal herding strategies.

Devres laments the project's insensitive "Modernization" approach, stating that: "If the project succeeds the present cultures of the pastoralists will tend not to survive. ...it will be part of the forces tending to decimate present social systems and replace them with something different" (Devres,Inc.,1979:111). However, the team also reassures us, saying that "...the ineptness of implementation of an otherwise questionable plan, may contribute to the survival of the people, their livestock, and the other plant and animal components of the ecosystem" (Devres,Inc,1979:135).

Niger Range and Livestock/Niger Integrated Livestock Project

While projects designed and implemented with little actual concern for "appropriateness" normally fail, even those livestock development/range management projects which take pains to gather sound socioeconomic information are not a guaranteed success. An example is the Niger Range and Livestock project (NRL) which in its second phase became known as the Niger Integrated Livestock Project (NILP). This project, also sponsored by USAID, seemed to have learned some lessons regarding the importance of pastoralist participation, the use of indigenous knowledge, and conducting sound research prior to implementation. However, due to backtracking on the part of the Government of Niger (GN) on their commitment to project principles, the project's future success is in doubt (Horowitz,1986).

NRL was begun in 1977 as phase I of a two phase project and was intended to carry out studies and pilot interventions among Wodaabe pastoralists. The results would be used to implement a long-term action program to protect range resources and increase animal productivity (USAID,1977:1). Although the goals were conventional, the project's approach departed from convention significantly in favor of the pastoralists. USAID persuaded GN to overcome their reluctance and impatience while waiting for "action", and agree to a multi-year study of the socioeconomics and human ecology of pastoralists in the region (Horowitz,1986:269). The desire

was to base the second phase of the project (NILP) on sound local knowledge.

Trying not to impose a foreign organizational structure on herders as other projects often did, NRL studies gathered data on existing structures and their capabilities to serve as vehicles for development. Importantly, NRL consciously avoided taking a top-down approach and instead sought to build upon actions that emerged from the herders' own interests and priorities which could not be readily captured by local elites (Horowitz,1986:269).

USAID researched herder decision-making processes, resource utilization, use of government services, and their relevant attitudes and aspirations (Tufts University, 1985:3). They also conducted surveys to gather data on family structure, herd composition, labor utilization, income and expenditures, social organization, and herd management (ibid:3).

One finding, surprising from the conventional view, was that the indigenous range management practice of moderate grazing early in the rainy season was sounder ecologically than was the lighter grazing pressure often recommended by pasture management specialists (Horowitz,1986:270). USAID's research also found that many pastures in the area were underutilized rather than overutilized.

The implementation of NRL's pilot projects emphasized socioeconomic appropriateness based on Wodaabe priorities.

Herder associations were organized as a means to deliver services. The main focus of the associations was on "[1] training human and veterinary health workers and [2] administering credit programs for the purchase of animals and cereals. No attempt was made to define boundaries within which pastoral groups would have exclusive grazing rights or to place limitations on herder movements. This was a significant departure from earlier livestock projects" (Tufts University,1985:3).

When the time came to implement NILP, phase II of the project, GN regressed to a more conventional mind-set. While the Government originally supported, if reluctantly, the socially appropriate design of NRL, they seemed to have rejected, or at best ignored, its findings in implementing the NILP (Horowitz,1986:254).

Anti-nomadism was reinstated full-force when the ILP production advisor objected to providing credit to poorer producer families because it would delay the departure from pastoralism into the wage sector of the national economy. Such a transition, he felt, is economically and environmentally desirable (Horowitz,1986:271). This ideological retreat on the part of GN is lamented by Horowitz (1986:271):

> Having shown an initial courage in carrying out the study, the Niger Government appears to be shying away from its implications, that the best way to proceed with livestock sector actions is to vest major decision-making with the

herders themselves. ...Despite the trenchant and empirically well-supported conclusions of the AID-NRL project from both social and biological scientists favoring continuation of established patterns of range use, the Government of Niger, in 1983, officially proclaimed a policy "limiting the movements of nomadic peoples," and achieving thereby "the end to nomadism in Niger."...If the state enforces this policy, the predictable consequences will be reduced productivity, increased environmental degradation, and marked declines in the income and well-being of herding peoples. Ancient ideologies with contemporary updates continue to guide policy and praxis in Niger.

Horowitz concludes that the prospects for greater herder participation in future livestock projects generally is very uncertain:

While the blatant anti-nomad rhetoric characteristic of project documents during the 1960s and 1970s has moderated somewhat in the 1980s, ...there is still no evidence that "people...are put first." That is, in the case of livestock sector projects, implementation continues to exclude genuine participation by pastoralists. The apparent inability of AID's Niger Range and Livestock project, which focused squarely on aiding herders in their own terms, to influence the Government of Niger's position in the successor Integrated Livestock Project, is not a good omen. (Horowitz,1986:272)

Group Ranches in Kenya

Ranching systems have also been tried in pastoral development. Conventional livestock development goals of increasing production and halting perceived desertification, it was felt by donors and governments, would best be attained by replacing indigenous systems with more productive temperate zone systems. The formation of ranches was seen

as a natural progression from a primitive state to modernity.

However, while ranching systems were appropriate for the temperate conditions under which they evolved they have turned out to be less practical in the dry savannas of Africa. In West Africa, almost without exception the ranches had "been financial catastrophes, achieving nowhere near the rates of return anticipated from the initial cost/benefit analyses. Managerial costs are too high, and the prices received from production -- which cannot exceed world market prices for beef without heavy subsidies -- are too low. Production itself often falls far below expected levels" (Horowitz,1979:15-16). In addition, erosion rates were seriously accelerated on the ranches.

In most cases the ultimate goal of ranches regarding their social impact was to settle nomadic herders (Bennett et al.,1986). For example, the introduction of cooperative ranches in Sudan's Southern Darfur Province was intended first to settle the nomads and second to "initiate a better livestock raising system" (Oxby,1981:23). In Tanzanian Ujamaa cooperatives, the main development efforts were to settle pastoralists in Ujamaa villages and to encourage a transition from cattle husbandry to crop farming. This attempt met with limited success and many pastoralists left the Ujamaa villages soon after their arrival (Oxby,1981:26). The first objective of proposed group ranch projects in the

Samorogouan area of Bobo-Dioulasso District, Burkina Faso, was to settle Fulani pastoralists. Though some Fulani agreed to settle, their motive, as with Kenya's Maasai, was primarily to acquire land titles rather than to change their livestock production techniques (Oxby,1981:33). By far the greatest effort towards group ranch* implementation is found in Kenya, particularly among the Maasai.

Ranch programs were first tried in Kenya in the mid 1960s when individual ranches, owned by single families, were introduced to the Maasai and Samburu. These ranches were total failures. Individual ranches, such as those in Maasai districts, for example, allowed wealthier, entrepreneurially inclined pastoralists to obtain the best tracts and to exclude their poorer neighbors and relatives (Bennett et al.,1986:41; Goldschmidt,1981:111). The individual ranch program was scrapped in favor of group ranches designed to protect the rights of the majority of herders in an area.

However, the group ranch program had a built-in failure in terms of meeting government objectives due to the lack of participation or consultation of the Maasai in designing the

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* A group ranch is defined as "a demarcated area of rangeland to which a group of pastoralists, who graze their individually owned herds on it have official land rights" (Oxby,1981:2). The goals of group ranches are typically to increase production to supply urban populations with beef. In addition to meeting offtake obligations, veterinary and extension services, and improved water supply are provided through the ranches.

project. Without consulting the Maasai, the group ranch system was created by GK and foreign technical advisors (including USAID) to gain economic and political control over migratory pastoralists by abolishing their wide ranging communal grazing (Bennett et al.,1986:44). The welfare of the pastoralists was not a consistent or dominant theme (Bennett et al.,1986:44).

The project demanded a great amount of social change among the Maasai for the ranches to succeed as planned. Devres, Inc. (1979:76) puts into perspective the amount of change required:

> Changes envisioned in this program, as planned, would require changes in the next five to ten years which are greater than changes made by pastoralists in the past 200 or more years. It will require reductions in cattle numbers, the sale or slaughter of more cattle (especially male calves or steers), changes in pastoralists' diets, and a reduction in the number of pastoralists and family members who live primarily on the products of their herds and flocks.

Predictably, the desired changes have not yet occurred; except for dietary changes which now include more grain consumption (Simpson,1984). Devres points out a clear divergence between the government view of ranches as a way to increase production of cattle and provide beef for urban consumption, and the Maasai, who seem to view the program as a means of increasing herd sizes thereby assuring a larger and steadier supply of milk to feed their families (Devres,Inc.,1979:76).

The result of these divergent goals and poor planning has led to a general lack of success in meeting goals. For example, Oxby (1981:38) points out that [1] the sale of animals by ranch members has not increased as much as the plans envisaged; [2] many pastoralists have neither implemented nor see the need to observe stock quotas on the ranches; and [3] there is no evidence that group ranches have caused a general increase in herder incomes or enabled a redistribution of wealth among ranch members. More recently, according to ole Sadera (1986:24), "the overall performance of group ranches throughout the country has been declining". This situations mainly due to lack of finances from the Agricultural Finance Corporation and that no new loans had been approved since 1979 (ole Sadera,1986:24).

One of the most commonly mentioned problems, or failures, is that group ranches are not large enough to support herds, particularly during drought. The smallness of the ranches is illustrated in Narok District, where:

> ...there are 14 proposed ranches with less than six hectares per family (including five with 3 hectares or less per family). ...Of the total of 162 ranches [in Kenya], there are a large number with less than 20 to 30 hectares per family. Many of these acreages simply are too small to support even one person. (Devres,Inc.,1979:77)

Consequently herders often do not remain within their ranch boundaries, which are not enclosed by fences. Regardless of

government desires for change, indigenous Maasai strategies seem to continue unabated.

In spite of these problems, group ranches have been successful where land ownership is concerned. Oxby states:

> Group ranches in Kenya, by granting land titles to the pastoralists, have arguably done more to protect the interests of and encourage the development of the large numbers of pastoralists involved than any other form of pastoral development. (Oxby,1981:38)

Land ownership was seen as the only way to prevent continued encroachment into Maasai pastures by others. Thus acceptance of the ranches was "borne more out of a sense of political than economic insecurity" (Galaty,1980:158); group ranches were a compromise between the insecurity of potential government land appropriation and individual ranch ownership which would lead inevitably to piece-meal sale to non-Maasai, either of which would destroy the base of the pastoral system (Galaty,1980:163). As Galaty (1980:165) states:

> They [Maasai] perceive an increased vulnerability of Maasailand to individuation, enclosure and loss to the general pastoral pursuit, through the encroachment of outsiders and insiders alike. Here, the registration of land to the Group Ranches in the form of a collective freehold is considered a means by which Maasailand could be rendered inalienably Maasai. (emphasis in original)

The ranch program sought to impose a new political structure, establishing a "group" unit of administration.

The government not only ignored the Maasai political structures, but had the intention of eventually replacing them to stimulate fundamental changes in pastoral nomadism (Galaty,1980:62).

The government-imposed political structure, however, has not altered the traditional system as planned. While the government played an important role in the implementation of the group ranches, the control and subsequent initiative rested with the Maasai ranch members (Galaty,1980:162). This amount of freedom for the Maasai has allowed the traditional political system to operate much as before, with the added political security of land ownership. Galaty (1980:169) concludes:

> The Group Ranch may appear in summation to represent a positive innovation precisely because of its limitations, for in the cracks and crevices of its organization, Maasai may be able to make it work - through their own system. What it promises them is the security and the time to generate innovations appropriate to their needs without the inevitable anomie of national neglect, or the demoralization and disenfranchisement of direct governmental intervention.

SUMMARY

Pastoral development projects have been repeatedly branded as failures, by both critics and development agencies themselves. The result has been an evolution in development planning among donors While conventional development approaches were invariably top-down in nature, there has been a great deal of rhetoric towards herder involvement

and the use of indigenous knowledge. However, this rhetoric has rarely been translated into action.

Pastoral development goals are often divided between those of governments concerned and those of pastoralists. Often the goals of each group are incompatible and typically, the governments' goals have won-out over those of the politically weak herders. The neglect of pastoralists' goals has often led to the frustration of project plans by herders who see little benefit from cooperation.

Arid zone projects in colonial Kenya were more concerned with preventing a perceived (though debatable) livestock-created environmental degradation than with herder welfare and the improvement of pastoral economies. Colonial policies actually discouraged livestock sales which competed with settler ranches. Policies included unpopular compulsory destocking of herds.

Since the independence of African countries, a variety of approaches to arid zone development have been tried, but found little success. For example, the goals of the Kenya National Range and Ranch Development project (NRRD), to increase livestock production and improve herder welfare, have not been met according to an evaluation team. Reasons for failure include weak planning that relied too heavily upon unwarranted assumptions of expected herder responses, grazing blocks which were too small to be viable, and insufficient allowance for herder participation.

The USAID-sponsored Niger Range and Livestock (NRL), which in its implementation phase was called the Niger Integrated Livestock Project (NILP), tried a more appropriate design based on indigenous systems and herder participation. However, the Government of Niger balked at implementing these features in NILP.

Group Ranches in Kenya is the final example discussed. The goals of the group ranch program were to increase livestock production and to gradually settle the Maasai in an attempt to modernize their social and political structures. These goals have not been met, though it is contended that the ranches' greatest success has been the provision of title deeds which protects against encroachment on Maasai pastures.

CHAPTER 5

PARTICIPATION AND INDIGENOUS KNOWLEDGE IN DEVELOPMENT FOR PASTORALISTS

Nor must it be forgotten that the views of the principal people concerned, the nomads themselves, must seriously be taken into account. Their fate cannot be decided without them; and this is all the more true when it is a matter of human communities that have over centuries built up a way of life whose adaptation to natural conditions represents, in the case of the true deserts, an ecological "success" as remarkable in its own way as those of the Eskimo or the Pygmies. (Monod,1975:118)

INTRODUCTION

While the analysis in other chapters presented a critical appraisal of previous development attempts and attitudes, this culminating chapter will address the more positive question, "What can be done to improve the development record in Africa's grasslands?" The argument in this chapter is that participatory approaches to pastoral development based upon existing indigenous economic and social structures provide the basis for successful pastoral development. Regarding development generally, this argument is also expressed by Brokensha, Warren and Werner (1980:7):

> The thrust of our argument, then, is that "development from below" is for many reasons, a more productive approach than that from above, and that an essential ingredient is indigenous knowledge.

The implementation of this participatory/indigenous knowledge approach has two main components. The first lies in appreciating that indigenous pastoral strategies have been evolving over centuries and that often indigenous systems can deal better with the realities of harsh, arid environments than systems imposed from without. The second component requires a sincere effort among development agents to allow pastoralists a hand in shaping their own destinies.

A literature survey from within the last decade shows almost unanimous support for greater herder participation in some or all of the planning, implementation, maintenance,

and evaluation of projects. However, the great call for participation in pastoral development has not been found in practice, at least not among major donors. Horowitz (1986:253-254) reviews USAID's record since the New Directions legislation in the early 1970s, designed to make participation integral to planning:

> Despite the rhetoric of the New Directions and despite the many social soundness analyses attached to project design documents, it is sadly clear that development activities during the 1970s and early 1980s reveal little predication of interventions on effective participation by the rural poor. One is left with the impression that donors and host governments rarely demanded more than an appropriate vocabulary of social soundness, participation, and equity, and that they were not genuinely committed to the partnership with the poor that was implied in legislation and doctrine. In the remainder of this paper, I explore this conclusion based on a review of some ten years of pastoral livestock development projects funded by AID or the World Bank in West Africa and the Sahel. Not a single one of these projects was identified, appraised, or implemented with more than a cosmetic veneer of participation on the part of the supposed beneficiary herders. Interventions were informed by an ideology fundamentally hostile to pastoralism.

REASONS FOR PAST PROJECT FAILURE

Apart from not allowing participation and neglecting indigenous knowledge, reasons for failure in African livestock/range development projects are many. One general reason is that planners rarely learn from their mistakes. As Goldschmidt (1981:117) states:

> To see governments plan to make elaborate installations of water-holes or to launch stock-reduction programs after

these have been repeatedly branded as failures makes one wonder why writing was ever invented.

A second reason has to do with the negative biases against pastoralism:

> ...fundamental errors about the nature of pastoral production systems are maintained by planners and technicians, and these errors lead inevitably to flawed projects. Planners often maintain a portrait of pastoralists which, however persuasive it might appear, in fact caricatures rather than describes the pastoral enterprise. The portrait substitutes untested assumption for verifiable fact, rhetoric for analysis, and it imposes ethnocentric models that project motives drawn from alien environments. Ignoring or misunderstanding much of what <u>is</u> known about pastoral production systems, the caricature serves to justify a development posture that has both a disappointing performance record and disastrous unintended consequences. (Horowitz,1986:255-256)

A third major reason for project failure is that even where planners have access to sound information and analysis, as in the Niger ILP, political considerations may lead to their being ignored in implementation (Horowitz,1986:256). Presently this political resistance is the most important obstacle to an appropriate development strategy. Governments are reluctant to support projects which do not address their own primary objectives or which give a significant degree of autonomy to those already perceived as too independent and not integrated with the national identity.

My impression from a recent visit to Kenya, as an example, was that appropriate development using indigenous

knowledge and participation is all but impossible within the current political climate. This climate is one in which Maasai, for instance, are discouraged from wearing traditional clothing and hair styles (Hunt,1988) and instead are encouraged to wear Western clothing popular among the highlands societies.

Governments also prefer "action" over research since politicians and officials are under pressure for "results". Pressure to "act" often negates efforts towards learning useful information about a pastoral group, leading to inappropriate projects due to lack of sound knowledge of indigenous systems. One example of political resistance comes from Mali:

> Chemonics' own technical assistance team in the Dilly Zone of Mali experienced some aspects of this phenomenon, mostly because they were prevented, by the Malian project direction and lack of resources, from researching existing practices and devoting sufficient time to working closely with the herders. (Teele,1984:233)

INDIGENOUS KNOWLEDGE AND PARTICIPATION IN PASTORAL DEVELOPMENT

According to Sanford (1983:22), "Not only do pastoralists not always share the government's objective but they tend to have several others which it has not thought of; and if these others are not taken into account pastoralists have too little incentive to behave in the way government wants and expects. What needs to be done may

seem very obvious to government officials....One way to find out pastoralists' objectives is simply to ask them".

Although "participation" is a popular buzz-word, the question remains whether participation will really bring about greater success in pastoral development projects. Participation has been tried to varying extents throughout the world by organizations from NGOs to the World Bank. In many of these efforts, participation has shown itself to be an asset. Finsterbusch and Van Wicklin's study (1987;1989) of data from 52 USAID projects tentatively suggests that greater degree of participation in project origin, design, redesign, implementation, and maintenance has lead to a higher degree of success.

The Oxfam-Abala Project

Though major donors often balk at participatory pastoral development, the variety of NGO-sponsored projects have probably tried the participatory approach more often and possibly with success. However, reviews of such projects are difficult to find. While such projects are promising, Swift (1982:312) remarks that they have had little impact on official development policy:

> Some promising approaches to development in dry marginal areas have been pioneered by voluntary agencies. They have a much greater freedom of action because they do not appear to threaten large-scale vested interests, and are relatively [less] resource-intensive, especially in skilled supervision. For the same reason they do not lead to policy

changes or to replicable development programmes. The challenge is to take the results of such experiments and to generalize them into major policy and programme changes. To do so can probably only result from a new coalition of those people within national bureaucracies and the aid agencies who are ready to act on behalf of the inhabitants of dry marginal lands, and those rural populations themselves.

One such NGO-sponsored project, known as the Oxfam-Abala Project, was a restocking effort started in 1974. The project was aimed at rehabilitating Wodaabe pastoralists' herds in Niger after the severe 1968-74 drought. The project's intent was to replenish Wodaabe herds by utilizing and adapting the indigenous system of animal loans. The main difference was that an externally provided fund of animals was available for loan to destitute herders rather than obtaining loan animals through internal social kinship networks. Restocking through usual social networks after the drought would have been next to impossible since most herders had suffered great stock losses.

The Oxfam-Abala project was small scale. The original grant was only $50,000, most of which was used to buy animals on the local market (Scott and Gormley,1980:108). In contrast, the North Eastern Province section of the Kenya National Range and Ranch Development project cost at least $14,000,000 (Devres, Inc.,1979).

The Oxfam-Abala version of the indigenous system worked as follows:

> Following the custom of sharing animals (Habbanaae), locally purchased livestock was loaned for the period of three calvings at which time the borrower returns the original animal (or its equivalent value in kind or cash) and retains the three offspring. The offspring are owned by the borrower and, the milk produced by the cow during the loan period also belongs to the borrower. In addition, short term loans of lactating cows were also made to tide extremely poor families over the dry season. This relationship is called dilaae by the Wodaabe. (Scott and Gormley,1980:106)

Though the Oxfam-Abala Project is based on the local system reflecting Wodaabe culture, including its taboos (Scott and Gormley,1980:106), it differs from traditional practice in several respects: [1] The loans are not from the Wodaabe. Rather, the livestock loans are provided by a European priest who devised the scheme and who lives locally and is fluent in the local language. [2] The livestock loans are also made to women. [3] The project seeks no future reciprocity, ie., project sponsors will not ask for a loan from herders in the future (Scott and Gormley,1980:108).

These modifications seek improvement of the indigenous systems rather than their replacement. Though the project was conceived by an outsider who lived among the Wodaabe, its implementation required close participation of herders. For example, prospective borrowers were selected with the advice of trusted lineage elders (Scott and Gormley,1980:108).

The appropriate approach of Oxfam-Abala had a number of benefits for the local population (Scott and

Gormley,1980:109): [1] The project had directly impacted herders (rather than indirect impacts of conventional projects)); [2] Compared with other regions, project participants more rapidly recovered their herds, resuming their preferred livelihood and contributing to food productivity and export earning; and [3] The project met the material needs of herders while reinforcing indigenous culture and values without creating long-term dependencies.

The Oxfam-Abala Project exemplifies the potential usefulness of participation and indigenous knowledge in pastoral development. Scott and Gormley (1980:94) link the project's appropriate design to its success:

> In the context of encouraging pastoral nomadism, the Oxfam Abala project has been remarkably successful at rebuilding herds by reinforcing the herders' own survival strategies and in so doing has assisted in the recovery of pastoral nomadism as a viable use of a significant portion of the African landscape...the Sahel.

Appropriate restocking programs such as Oxfam-Abala are rarely implemented by major development agencies. Rather than restocking after drought, governments and aid agencies often see herders' stock loss as an opportunity to sedentarize nomads. Contrasting the restocking emphasis of Oxfam-Abala is the Turkana Rehabilitation Project (TRP) and irrigation schemes established in northern Kenya along the Ewaso River. Hogg's review of the TRP indicates how the emphasis has been on "the settlement of destitutes and the

development of fisheries and agriculture as alternatives to pastoralism" (Hogg,1982:164). As for the irrigation schemes along the Ewaso, one objective was "to provide an opportunity for destitute nomads to lead more stable and prosperous lives through irrigated agriculture and settlement" (Hogg,1985:40). The desire sedentarize pastoralists persists in spite of the well known problems of settlement in arid areas. The push for sedentarization continues, yet, as Hogg remarks, "livestock are the key to economic prosperity in the area, and fully 99% of the land surface in Turkanaland is good for little else but livestock herding" (Hogg,1982:164).

The Kawrital Project

Although Oxfam-Abala is perhaps better documented than most, other NGO projects which utilize participation and indigenous knowledge have also been tried. The Kawrital project (reviewed by Harmsworth,1984) was a direct outgrowth of the Oxfam-Abala experience (though the particular NGO involved was not revealed) and was started in 1979 among 15 Wodaabe families. The intention was to form a herders' association* designed to develop a system of collective decision-making to allow herders to gain greater control over their economic lives.

* A herders' association is defined as a loosely structured "pre-cooperative" designed to promote a sense of collective responsibility and solidarity (Harmsworth,1984:60).

The Kawrital project's association members defined four main project activities (Harmsworth,1984:60): First was to create an association herd through young livestock purchases to be raised and then sold at maturity, the profits of which were shared among members; second, calves were bought from members who needed money and would otherwise have been forced to sell when market prices were low. The animal remained with the former owner until it matured and was sold. The proceeds were to be divided among the association members; the third activity was the purchase of millet, bought after harvest and stored by the association and sold to members during periods of scarcity to avoid much higher market prices; the fourth activity was a small credit scheme which provided short-term interest-free loans to members for emergency cash needs.

After a modest initial grant for start up costs (no figures were given) and obligatory member contributions, the project quickly became self-financing mainly through livestock sale profits and crafts production. Also, the initial importance of the project's expatriate advisor diminished as the herders began to run the association themselves. Eventually the advisor only provided general support during occasional visits (Harmsworth,1984:61).

The management of the scheme came from within the association members and was democratically elected by the full membership which met formally at least twice per year.

Though the success potential of herder associations is sometimes doubted because of members' nomadic orientation, this fear proved unfounded in the Kawrital case; at certain times of the year the members were dispersed with their individual herds in search of pasture, but they always came together periodically, especially during the rainy season when milk and pastures are plentiful (Harmsworth,1984:61).

The success of this project led the Government of Niger to grant it official recognition and it was even adopted by the state as the most appropriate strategy for extending the national cooperative system to nomads countrywide. USAID even used modifications of the Kawrital example to design herder associations for a larger livestock project (presumably NILP) and the example has also been adopted in livestock projects funded by the French government and the World Bank (Harmsworth,1984:61).

ADAPTING PASTORAL STRATEGIES

While participatory/indigenous knowledge based projects may be more successful, indigenous social, economic, and political structures do not always function effectively due to a number of factors, presented by Swift (1982b:310):

> The basic problems are ...: a reduction in land available to...pastoralists, and a lack of security or rights in the land still available; a changing political economy as ownership and control of herds, pasture and water pass from pastoralists to outsiders; continuing drought and disease risks, heightened by the decreasing control by pastoralists

themselves over the production and distribution systems of their own economy; an increasing gap in service availability compared with villages and towns; and, more generally, declining control by ...pastoralists over the terms and rate at which they are incorporated into wider capitalist economies and bureaucratic state structures.

The continued erosion of indigenous pastoral systems can possibly be averted by adopting more appropriate development strategies. Throughout the literature are expressed a number of recommendations to define appropriate development strategy based solidly upon herder participation and indigenous knowledge. This list includes the following points:

[1] <u>The participation of pastoralists should be encouraged in as many aspects of their development as practical.</u>

Though participation in development is not always necessary or helpful (Finsterbusch and Van Wicklin,1989:573), it has been asserted that in pastoral development participation is perhaps more necessary than in any other sector (Atherton,1984). The need for pastoralist participation is well stated by Galaty et al. (1981:20):

Local people must be the subjects, not the objects, of development. Pastoralists must be fully involved in the design and implementation of programs that are to benefit them. Nothing fails like non-involvement. Consultation with and for them must be demonstrably voluntary and patient. Because whatever happens to a project during implementation depends on whether it is embraced by those for whom it is intended, the only sure way to point it toward success if for it to be embraced from the outset.

[2] A greater understanding of existing pastoral systems is needed (Galaty et al.,1981)..

A major reason behind so many project failures is that little information was known about the societies the projects would impact. The neglect of research into pastoral systems and their greater economic and social linkages means that large numbers of areas require further study. Galaty et al. discuss some of these key research needs, which would "form the basis for informed programs of planned change" (Galaty et al.,1981:25). According to the authors, these areas for study address issues that "have been coloured less by research-based knowledge and evidence than by development ideologies or myths derived from anecdotal evidence or cases" (Galaty et al.,1981:25). Some general areas where research is needed include: 1] The influence of the state on pastoral societies; 2] analysis of the regional economy; 3] the impact of the market on pastoral production and pastoralist social and political systems; 4] the household economy; and 5] pastoralists' resource use and impacts, such as how traditional institutions serve to regulate patterns of land use and conserve pastoral resources, the changes which have occurred in these traditional mechanisms, and the effects of resource management schemes implemented by outsiders on pastoral productivity (Galaty et al.,1981:23-25).

[3] Interventions in the livestock sector should be based on existing systems wherever possible.

Many researchers note that pastoralists demonstrate sophisticated social, cultural and economic adaptations to the problem of making a living from scarce and unreliable resources (Swift,1982a:159). As herders themselves better understand survival in the drylands it would make sense that pastoralists could make valuable contributions to development planning. This idea has been echoed for years by interested professionals, from the World Bank to academia. For example, a 1977 United Nations document states:

> The 'ecological' and zootechnical experience and knowledge of the local populations [should] be considered the point of departure for studies which precede and prepare development projects. (UN,1977 in Horowitz,1979:26)

However, in spite of calls for using indigenous knowledge in pastoral development, no projects thus far have used this information in implementation. Projects which attempted without success to incorporate this knowledge include the Niger Range and Livestock (NRL) and its successor, Niger Integrated Livestock Project (NILP), discussed in Chapter 5.

As another example, in Maasai group ranches, traditional and established social units were not used as the basis for demarcating the group ranch boundaries despite anthropological advice at the time (Goldschmidt,1981:111). These group

ranches have neither met production goals nor improved the living standards of most herders.

[4] The mobility of pastoralists and their herds is an effective strategy for long term exploitation of the range (IDA,1980) and should be ensured rather than restricted.

Many assert that continued mobility for herders' livestock is vital to the success of pastoral development projects. Stephen Sanford refers to the importance of mobility:

> Mobility is now generally, although not universally, recognized as certainly the best, and in some cases the only possible, way of exploiting the seasonally differential availability of the feed resources of drier, hotter, or colder areas. (Sanford,1976 in Devres,Inc.,1979)

Pastoralists' mobility, either as nomadism or transhumance, is not uncontrolled access to any pasture. Rather, local systems of grazing rights typically regulate pasture use between various herding units. In many cases, however, indigenous grazing control systems have broken down. For example, the indigenous grazing regulation system among Il Chamus herders in Northern Kenya is presently ineffective due largely to a decline in local elders' political power (Little,1984a). In cases of system breakdown, alternatives must be found which allow pastoralists adequate grazing land, preferably according to historical land rights. Little (1984b:206) emphasizes the

importance of utilizing indigenous systems to a great extent as possible:

It is important that before imposing a novel set of grazing regulations, efforts to restore the indigenous, more familiar system should be made. As Hoben et al. remark, "only when the indigenous institution forms can be shown to be ineffective and nonadaptable should new mutual grazing insurance mechanisms be created.

[5] Projects should seek herder welfare through poverty-oriented, risk avoidance strategies (Swift,1982).

Most projects in the past assumed that herder welfare would be benefitted if pastoralists would increase livestock sales. Since this expected outcome has not happened, there should be a shift of emphasis to support the pastoral subsistence base rather than emphasizing commercial activities (IDA,1980:10). The IDA (1980:10) qualifies this view so as not to discount government development goals:

This is not to deny the validity of national needs, nor to denigrate the pressures to increase the contribution of herding to the national wealth. But such contributions will not be assured on a sustained basis until the pastoral producers themselves enjoy a reasonably secure subsistence base.

Devres, Inc. (1979:6), in its recommendations for Kenya's NRRD project also advised a greater emphasis on improving subsistence production as a first priority:

If appropriate modifications in the project strategy can be made, emphasizing gradual change in a longer time-frame,

recognizing that the pastoralists themselves tend to have superior knowledge of their fragile ecosystem and how to survive in it, with increased concern for minor improvements in the subsistence system, and less emphasis on commercial marketing and extensive credit, then the US assistance to the Kenya National Range and Ranch Development Program should be continued.

Supporting pastoralists' subsistence base would include approaches such as supplying credit to herders for grain purchases. Normally, pastoralists are vulnerable to drought. During drought or even a long dry season, herders must sell poor quality livestock at low market prices to earn money for grain purchases, which costs more due to high demand. Supplying credit would allow pastoralists to purchase grain during the dry season or drought without having to sell animals at low prices. To repay, herders could sell an animal during a higher rainfall period at a higher price.

Swift (1982a) suggests several other stabilizing options to protect pastoralists from poverty and periodic destitution. These options include improvements in milk production, improvements in small stock and camel husbandry, and the provision of herd insurance through herder associations. This insurance program would, in Swift's view, reconstruct herds to a viable level for those herders who have suffered losses. Such programs loan a flock of sheep and goats to be repaid according to prearranged specifications. Swift (Swift,1982a:179) contends:

An insurance system along these or other lines would offer the means for poor households to reconstitute the pastoral capital indispensable for re-entry into the pastoral economy, and replace in modern form the traditional systems of animal loans common in African pastoral societies.

[6] Means should be found to protect pastoralists' land rights.

One major threat to sustained pastoralism is the encroachment of other peoples and land uses onto pastoral lands. Kenya's Maasailand provides a good illustration. The Maasai lost much of their traditional grazing area to European settler confiscation, encroachment by farmers of other ethnicities, separation into two distinct sections by an international boundary, and national park formation. In light of continual pasture losses, the group ranch program gave the Maasai an opportunity to gain official title to their remaining grazing areas. Grazing land security for other pastoralist groups is a necessary step towards stabilizing indigenous herding economies and protecting herder's rights.

Swift (1982a:174) outlines several steps to help ensure herders' land rights including: a.) mapping socio-ecological units to be used by pastoralists; b.) to define, on kinship and historical range-use basis, the principal right's holders for a given area. It is also necessary to define the rights of all other pastoral groups which have historical claims and to list other grazing areas sometimes

used by the principal right's holders; c.) a legal text specifying the rights and obligations of herders' associations. Herder associations, in Swift's view, should not be given exclusive grazing rights while the rights of others who have traditionally also used the pasture should be safeguarded by mutual agreement (Swift,1982a:174).

[7] A greater emphasis should be placed upon milk production than beef production.

As pastoralism is primarily dairy oriented it makes sense to promote dairy production in development projects. Pastoralists' herd composition is already suited towards milk production given the high percentage of female animals. Milk production supports a much higher population density per unit of livestock than does meat production alone (Western,1982:200) and is more efficient at energy conversion than meat (Coughenour et.al.,1985). The energy conversion efficiency for milk from pasture is 14% compared with 3% for meat (Western and Finch,1986). Also, a shift from dairy production to beef production has negative implications for the status of women, who are primarily responsible for food (primarily milk) provision for family needs. Barbara Grandin explains the problems in Maasailand of a purely beef oriented program and the potential of one which is dairy oriented:

> A pure beef operation (as often recommended by developers) would reduce productivity per unit land while also reducing the labor absorbed by the production system. A move away from subsistence dairying would also require the substitution of other foodstuffs for the milk foregone and would place producers at some risk of fluctuating supplies and terms of trade. However, in the long term, encouraging the sale of milk and milk products (or their exchange for foodstuffs) would help meet the country's increasing protein needs and the Maasai's increasing caloric needs. (Grandin,1988:10)

At the very least, beef oriented projects should not threaten the nutritional status of the herders by depriving them of sufficient quantities of milk for their own consumption (IDA,1980:39).

[8] Programs should use appropriate social service provision.

Most often, services provision to pastoralists, such as schools, health facilities, and marketing arrangements, knowingly or unknowingly encourage unwise settlement in semi-arid and arid areas. Hogg (1985) shows that small towns have developed in Kenya's Isiolo District where shops, primary schools, dispensaries and police posts have been permanently created. This settlement, encouraged by the Government, has resulted in deforestation and the extension of the desert into once important dry season grazing areas (Hogg,1985:42).

Rather than provide services in a way which encourages settlement, many authors assert that services should be

somewhat mobile to follow herder movement. Devres, Inc., for example, recommended that the Kenya National Range and Ranch Development Project (NRRD) modify its approach to service provision, arguing that "stability" among pastoralists does not necessarily mean "settled" as the Government asserts. Devres' suggestion is as follows:

> It may be possible to have both increased levels of levels of living among pastoralists and more stability. But this stability does not have to be location specific. Marketing services could "float" from location to location. Even schools and health services could be mobile, moving with the pastoralists, rather than being fixed in one particular place. The Maasai might have dips or spraying arrangements for their cattle without confinement of group ranches to particular physical locations. And the Somali might produce a bigger off-take of immature cattle if they were free to move in wider patterns than those of the grazing blocks, especially if improved water points and marketing and health facilities were based on this wider pattern of movement. (Devres,Inc.,1979:112 emphasis in original)

Mobile services provision is not untried, although the technical problems and costs of delivering them are immense. In Iran, for example, there have been successful mobile tent schools for nomads as well as mobile health workers and veterinarians who move among the camps (Swift,1977:30). Fully nomadic livestock services existed in Sudan and more recently in Ethiopia (Sanford,1983:190).

The degree of staff mobility in services could feasibly be adjusted to the degree of pastoralist mobility; higher rainfall areas requiring less nomadism could warrant a relatively sedentary service provision. Where land-use systems

are very mobile, according to Sanford (1983:185), "it is likely to be more appropriate for staff to be either centralized at district headquarters where they can be attached as nomads to nomadic groups rather than for them to be isolated in stationary field stations where they have no clientele for much of the year".

Pastoralist participation in such schemes could also be encouraged by training members of the herder community itself as extension agents or veterinary assistants following the example of "barefoot doctors" (IDA,1980:20); already, at least one member of every Maasai homestead has the necessary equipment and is capable of administering bovine vaccines (ibid:20).

[9] Greater attention should be paid to small stock production.

The typical livestock development project focuses almost solely upon cattle production neglecting the other important animals in most pastoral societies - sheep and goats, and where conditions permit, camels. The cattle emphasis, plus the potential role of small stock in development, is well stated in the Harper's Ferry workshop document (IDA,1980:38):

Livestock interventions have too one-sidedly focused on bovine herds and ignored both small ruminants and camel. Mixed herds are a major adaptive strategy for pastoralists in semi-arid regions of Africa, for each kind of animal

makes a different demand on the environment and plays a different role in the local economy. Small stock are the common form in which meat proteins are consumed by rural peoples, both herders and farmers. Goats are especially attractive because of their hardiness and because of their short gestation periods with frequent twinning. Yet goats have a very bad press and have received little positive attention, except where there is an interest in their hides. Cameline herding engenders no interest at all among planners, and this again is unfortunate because of the obvious adaptability of the African dromedary to the semi-arid and arid range.

[10] If greater offtake is desired, attention must be paid to adjusting price policies to encourage sales.

Though much has been said of pastoralists' resistance to selling livestock (particularly cattle), many researchers contend that pastoralists do respond to the market, though only as a secondary option. Pastoralists' primary orientation is subsistence production and exchange through local social networks. Where offtake on the commercial market is concerned, it is contended that herders do respond to high prices. Unfortunately, prices, which are often government controlled to assure cheap beef for urban consumption, are often artificially kept too low to encourage significant sales (see Devres,Inc.,1979).

[11] All professional staff in the Livestock Services should be sensitized to the ecological and social realities of pastoral life in their countries (Horowitz,1979;p.91).

Attempts at attitude adjustment among professional staff would perhaps affect the success potential of all the other proposals. Only when those with power to make and implement policy develop respect for pastoralists' right and ability to manage their own affairs will participatory pastoral development will be taken seriously.

The news on this point is somewhat positive since the definite trend in pastoral development has been towards greater acknowledgement of herder welfare and of the need for participation. For example, though its design was rejected by the Government of Niger, USAID's Niger Integrated Livestock Project took a very progressive approach:

> From its inception, NILP, and NRL before it, has focussed on the human element as the driving force within the pastoral system rather than on physical factors of production. Herder organization is based on a "bottom up" principle whereby herder associations are established at the lowest organizational level before they are linked into larger units at the level of the pastoral centers. Emphasis is on maintaining a dialogue between the herders and the project or government services rather than on regulating the herders' way of life. (Tufts University,1985:5)

The effort toward genuine participation by the NILP is evidence that over the past decade, some donor livestock policies and programs in Africa have moved towards a balance between national goals and enhancing pastoralists' well-being. The gradual transformation in livestock development is further illustrated by the following quotes on USAID's expe-

rience. Each quote represents a stage in the evolution of policy:

> Large-scale ranching enterprises...have been tried in the Sahel but proved to be uneconomical. Commercial feedlots based on irrigated fodder production or agroindustrial by-products for fattening Sahelian feeder steers have not yet proved their economic viability, and have yet to assure a constant flow of feeder cattle...Grazing control programs with pastoralists were first attempt (sic) by USAID in Northern Nigeria, and have been a failure. (UN,1977 in Horowitz,1979:26)

These consistent failures had by 1978 influenced USAID to rethink their methods:

> Therefore, institutional development approaches should concentrate on group management and bottom-up community self-help activities which are less management and resource intensive. (USAID,1978 in Atherton,1984:167)

By the early 1980s, participation was taken more seriously as part of official USAID livestock development strategy:

> Throughout, a participatory approach to livestock development is emphasized [in USAID] because the lessons drawn from prior experience clearly indicate that intervention success depends on meeting producers' perceived needs perhaps more strongly than in any other subsector of agriculture. (Atherton,1984:169)

In spite of apparent attitude changes among donors, participatory pastoral development still appears more often in project rhetoric than in practice. Hopefully, and quite

possibly, this gradual movement will lead towards a more genuine allowance for meaningful participation and the use of indigenous knowledge in pastoral development.

SUMMARY

There has been a push since the mid 1970s for participatory development, evidenced by the New Directions legislation for USAID and the Basic Human Needs doctrine of the World Bank and ILO (Finsterbusch and Van Wicklin,1989:573). In the pastoral sector, consistent project failure led to the realization among most that participation is necessary. However, despite attitude shifts, herder participation in pastoral development is still not sought. Finsterbusch and Van Wicklin's comments aimed at development generally are applicable to pastoral development:

> Development projects have had disappointing results despite the acknowledgement of past mistakes and significant evolution in development strategies. A major disappointment has been the failure of most development projects to benefit significantly the poor majorities in developing countries. (Finsterbusch and Van Wicklin,1989:573)

Genuine and effective implementation of participation is continually impeded due to anti-nomad biases among planners and officials. In addition to the all-too-often inability of planners to learn from mistakes and misunderstanding of pastoral systems, political factors often prevent implementation of participatory project designs.

Top-down efforts at pastoral development have been unsuccessful at increasing production or raising pastoralists' living standards. Smaller-scale projects run by NGOs offer evidence that participatory projects based on indigenous knowledge can be more successful. One example is the Oxfam-Abala project in Niger, begun after the 1968-74 drought. This successful restocking project was based on indigenous systems of animal loans. This approach differs from conventional projects in similar circumstances which see post-drought development primarily as a chance to sedentarize pastoralists.

Another example, the Kawrital project, also in Niger, formed indigenously controlled herder associations to promote collective solidarity and to stabilize the economic situations of the members. The success of this project led to its acceptance as a model for other larger livestock projects.

Not all aspects of indigenous pastoral systems are functioning smoothly due to pressures to modernize, increased drought frequency, etc.. Some general recommendations in the literature could possibly increase chances for project success also prevent the further erosion of sound indigenous economic strategies and cultural identities. These recommendations include: [1] The participation of pastoralists should be encouraged in as many aspects of their development as practical; [2] There is a need for greater

understanding of existing pastoral systems; [3] Interventions in the livestock sector should be based on existing systems wherever possible; [4] The mobility of pastoralists' and their herds is an effective strategy for long term exploitation of the range and therefore should be ensured rather than restricted.; [5] Projects should aim at herder welfare through poverty-oriented, risk avoidance strategies; [6] Means should be found to protect pastoralists' land rights; [7] A greater emphasis should be placed upon milk production than beef production; [8] Projects should use appropriate social service provision based on mobility; [9] Greater attention should be paid to small stock production; [10] If greater offtake is desired, attention must be paid to adjusting price policies to encourage animal sales; and [11] All professional staff in the Livestock Services should be sensitized to the ecological and social realities of pastoral life in their countries.

CHAPTER 6

CONCLUSION

The emphasis for all concerned in this struggle should be upon aiding the indigenous people to struggle on their own behalf. (Bodley,1982:191)

The pastoralist example is but one on the list of development problems among "traditional" societies. Development aimed at integrating subsistence-oriented societies into the mainstream has been attempted for some time with limited success (Bodley,1982). Inequitable economic benefits, the erosion of indigenous social values and other negative impacts of modernization felt among populations such as the Native Canadians (Peters,1988), Native Brazilians (Kolata,1987) and others is also occurring among pastoral societies. Already it is evident, for example, particularly among sections of Kenya's Boran and Turkana populations (Hogg,1980;1982;1985;1986), that "development" marginalizes pastoralists rather than brings them into the mainstream: they are pushed to a place at the fringes of society, economy and environment where conditions will just allow them to survive and are excluded as a whole from the political and economic center of power (Bernard et al.,1989:400).

When development attempts aimed at subsistence-oriented societies fail, "cultural constraints" are commonly forwarded as an explanation. Charges of overly conservative behavior are frequently aimed at subsistence pastoralist societies to account for the failure of livestock-oriented projects. Planners, government officials and other non-pastoralists are sometimes even joined by modernized, re-cultured, re-educated pastoralists. A "transformed" Dinka from Sudan, for example, ridiculed his less enlightened

brethren for failing to support a canal scheme designed to fundamentally alter the Dinka livestock orientation:

> Our people (Dinka) are too lazy and will never develop. The canal will enable us to invest in irrigated agriculture, commerce and agro-industries. We shall make them work and pay them well so their standard of living will improve. Why worry about adverse environmental, social and political effects when we shall be richer? (in Lako,1985:32)

While adverse environmental, social and political effects of conventional pastoral development are abundantly evident, nowhere have the majority of herders - or even a significant number - ever become "richer" as a result these attempts. No project has yet had the effect of improving herder quality of life or increasing producer income (Horowitz, personal communication). Contrary to the hopes of that enlightened Dinka, development has often made pastoralists <u>poorer</u> by the fact that their ability to cope with their normal hazards in maintaining food security has often been disrupted by projects. Mobility restrictions, interrupted social linkages and disrupted indigenous political structures all combine to make pastoral life arguably more precarious with (conventional) development than without. In spite of such project failures, the conventional development approach continues -- indigenous ideas of development based on local cultural, social and economic values are not taken seriously.

Rather than overly conservative behavior, perhaps a more accurate general explanation of project failure is that the self-perceived needs and desires of pastoral populations are rarely addressed. Pastoralists have repeatedly shown their ability to "vote with their feet" (IDA,1980:16) and avoid compliance with unwanted plans. This unwillingness of herders to cooperate is often attributed to their perception that the project in question is designed to benefit some other segment of society (IDA,1980:16) -- the progress promised to pastoralists is often the disguised promise to urbanites of cheaply produced livestock products.

There is virtually unanimous support for a more participatory approach to pastoral development, as well as an acceptance among all authors of the failure of top-down, conventional approaches. It would seem that the participatory/indigenous knowledge approach is accepted as the sounder alternative. However, though the potential for success* by using pastoralist participation and indigenous knowledge is high, a lack of experience in utilizing this approach in pastoral situations, particularly among major donors, makes actual success uncertain. Success will largely depend on a number of factors including the degree to which pastoralists' development desires are taken seri-

* Stiles (1987:4) defines a successful project as one which "not only achieves its stated objectives, but one that can carry on once the original impetus and source of support withdraws. It is sustainable both from a human and an environmental point of view".

ously. Participatory pastoral development will undoubtedly result in a slower, more natural pace of social change with many indigenous strategies being retained while herders experiment with new innovations and cultural changes (Stiles,1987). Just how tolerant governments would be in such situations remains to be seen.

To meet national goals for pastoral development (especially herders' contributing to the national economy) a socially and economically stable base from which these goals can be pursued is necessary. This stability will most likely come about through strengthened indigenous social and economic systems; focussing on an improved subsistence base. The retention of milk production as a strategy which allows relatively large populations to survive in the drylands is considered an essential ingredient in promoting this stability.

True development <u>for</u> pastoralists should promote local self-reliance and relative economic independence; not the increased dependence on imported foodstuffs which will occur with the encouragement of beef production. Such dependence is doubly hazardous given the typically poor transport networks for supplying and distributing food imports in these regions.

At the same time, development should strengthen the social and cultural bonds of the community and affirm the historical identity and cultural dignity of the members

(Smith,1987). Such socially appropriate development can only occur when pastoralists are allowed to take greater control over the direction of their own improvements, as Smith states in reference to indigenous societies generally:

> The autonomous development of indigenous peoples recognizes and promotes the importance of each people's history of itself and of each people's particular world-view. It does so by affirming the intrinsic value of each community's cultural priorities and their right to follow those within the context of the state. But it also demands that states decolonize and divest themselves of the structures of domination which restrict pluralistic creativity and growth. Autonomous development affirms cultural variation as an important national resource and local autonomy as the means of perpetuating that resource. (Smith,1987:12)

Outsiders are not to be excluded from indigenously inspired, participatory development. Within a participatory structure, pastoralists may very well choose non-indigenous techniques to deal with problems which are beyond control by local solutions. In situations such as the land crunch in Maasailand (see Bernard et al.,1989), a marriage between the complementary knowledge of outside (government, donor) expertise and internal (pastoralist) expertise may even prove critical. Planners' expertise may be in more technical areas including access to scientific data on the local economy and environment as well as a more comprehensive view of the wider economy and national development goals. The local populations' contributions would be their intimate knowledge of prevailing social and economic systems and the local

environment as well as expressing indigenous desires for development.

At present, attempts at participation in African pastoral development and the use of indigenous strategies have generally been only in word rather than in deed (Horowitz,1986; Hirabayashi et al.,1980) and have yet to be genuinely pursued by donor and/or government agencies, in spite of nearly two decades of participation rhetoric. Until these approaches are better implemented, programs and projects developed wholly by outsiders with self-interested development goals will continue to be frustrated by pastoralists who rightfully share no interest in their plans.

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