An Analysis of Institutional Approaches for Management of Common Rangeland Resources in Sub-Saharan Africa

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AN ANALYSIS OF INSTITUTIONAL APPROACHES
FOR MANAGEMENT OF COMMON RANGELAND RESOURCES
IN SUB-SAHARAN AFRICA

by

Mohale Gabriel Sekoto

A report submitted in partial fulfillment
of the requirements for the degree
of
MASTER OF SCIENCE
in
Range Science
(Plan B)

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ABSTRACT

The purpose of this report is to address the issues that are relevant to the management of common rangeland resources in Sub-Saharan Africa. I feel that the issues presented here are among some of those which are important and need to be considered in order to understand the kind of performance perceived about the efforts to develop the range and livestock in pastoral societies.

In this report, three case studies have been reviewed, regarding institutional approaches tried to manage common rangelands. These case studies are about group ranches in Kajiado District, Kenya and in Upper Volta and the Sehlabathebe Grazing Association in Lesotho. The performance for each approach is discussed and the analysis done. The analysis may indicate the implications of the issues on the performance of these approaches. This review paper ends with some conclusions and recommendations relevant to the country of Lesotho.
CHAPTER I

INTRODUCTION

Sub-Saharan Africa is the region of Africa south of the Sahara (see Appendix A) that does not include Namibia and the Republic of South Africa (World Bank, 1982). This region is diverse. There are extreme contrasts in natural resources between countries and within countries. There are also differences in human population densities, social structures, land tenure, commercialization of production and marketing, occupational structure and income distribution, public services and access to these services, political regimes, and in government policies concerned with the rural economy. Other important social differences are opportunities available to the rural people to manage their own affairs, to influence public decisions, and to participate in activities that affect their economic productivity and quality of life (Esman and Uphoff, 1984).

Considerable homogeneity also exists in this region because the countries have small economies in terms of gross and per capita domestic product. Agriculture is the main economic sector and generates over 60% of the gross domestic product. In addition, the human population is expanding; it grows at a rate of 2.9% per year, which is considered high by the World Bank (1982). Most of the rangelands of Sub-Saharan Africa are communally used by herdsmen to produce livestock vital for their livelihood. In many countries, low
productivity in the livestock sector is reported for communal grazing of state owned rangelands (Goldschmidt, 1980).

The General Problem

The widespread deterioration of rangelands in Sub-Saharan Africa is of great concern. Several studies have documented the extent of this problem. Doran, et al. (1979) have referred to Africa as a classic example of a continent suffering from soil erosion caused by overgrazing. Some of the indicators of this degradation are bush encroachment, drying up of springs, siltation of dams and low livestock productivity.

The overgrazing problem is exacerbated by other practices which reduce rangeland areas such as expanding cultivation and village settlements. Indiscriminate burning of rangelands that occurs regularly is also detrimental to vegetation. The fires that sweep through the rangelands in Sub-Saharan Africa are considered to be too frequent by many ecologists and observers. The estimates given for Sudan have indicated that fires annually go through 34% of the rangelands. The burns are either due to carelessness of pastoralists, escape of fire used to clear the land for cultivation or intentionally for management (Obeid, 1978). The study by Deshler (1984) which focused on open country burning commonly practiced by herdsmen showed a major area of burn extending from central Nigeria to the Ethiopian highlands. The burned area ranged from 800 to 1400 km north to south, and more than half of the land surface appeared burned within this
area. The source of the basic information that Deshler used for this study was the Earth Resources Technology Satellite.

Fire is a natural factor on wildlands and it can be used as a management tool to achieve desired objectives such as suppression of undesirable shrubs; removing old, dead material and improving forage palatability; and killing insect vectors such as ticks and tsetse fly. Prescribed burning for range improvements must be followed by appropriate use practices such as protection from grazing for a full year after burning (Vallentine, 1980). When burning is too frequent and not coupled with proper management, degradation of rangelands is accelerated.

The World Resources Institute (1986) has revealed that desertification is occurring in almost 85% of Sub-Saharan Africa. Desertification is the concept that "the extent of deserts (dry areas with few plants) is increasing, usually into semi-arid lands" (Warren and Agnew, 1988). Desertification has been defined by Reining (1978) as a form of deterioration of ecosystems due to increased pressure of human use activities. The physical indicators include the decrease of effective soil depth, reduction in soil organic matter, formation of crusts on land surface, dust and sand storms, salinization and alkalization, and lowering of water tables. Observations by Otterman (1974) revealed that bared land surface such as that denuded by overgrazing, is bright and tends to have lower temperature under sunlight conditions compared to a vegetated area. Cooler soil surface temperature theoretically causes thermal depression resulting in
decreased lifting of air necessary for cloud formation and precipitation and thus leads to climatic desertification.

The deterioration of rangeland resources undermines the economic progress in this region as livestock production directly depends on the quantity and quality of the forage. Whether in industrialized or developing countries, economic development depends on natural resources and the productivity of natural systems. Development activities that are intended for economic growth should be undertaken in a manner that promotes sustenance of natural resources (Hufschmidt, et al. 1983).

Development strategies are required to restore the ecosystems on which the economies of African nations depend. Many governments have initiated programs and interventions that have been intended to improve rangeland and livestock production. Most of the programs have not been successful (Moris, 1981). One of the constraints that has contributed to poor performance of development efforts has been the conflict between the goals of national leaders (and donor agencies) and the preferences of the rural societies. Low adoption rates of range and livestock technologies by herdsmen have been due to the inappropriateness of certain interventions and the lack of management skills for intensive practices as well as effective extension services (Simpson, 1984).

It is important to understand the problems involved in the African range and livestock production system so that self-sustaining improvements can be planned and implemented. Some of the factors identified which influence outcomes of range and livestock improvement
programs are the environment in which a program operates, the techno-economic and human resources available to the program, the degree of political commitment and support, and management expertise (Paul, 1982).

Objectives and Justification

The purpose of this report is to review the issues that are pertinent to the management of common rangeland resources, to discuss approaches to solving the problems of using common rangelands in Sub-Saharan Africa, and to analyze the performance of these approaches.

The goal of this analysis is to develop suggestions for managing rangeland resources in a sustainable agriculture system for Lesotho where the rangeland condition is degraded. Widespread erosion, abundant undesirable shrubs and weeds, and low productivity of livestock are some of the current indicators of poor range condition in Lesotho. A report on policy options and action programs in Lesotho (Ministry of Agriculture, 1987) has claimed that livestock numbers are currently beyond the range carrying capacity by about 200%. As a result, the deterioration of Lesotho′s rangeland is accelerating. Lack of proper control of use of rangeland resources has been cited as one of the contributing factors to the degraded condition of Lesotho′s rangeland (Ministry of Agriculture, 1986).

Several programs have been implemented with the objective of controlling the use of communal grazing lands in Lesotho. The performance of many of these programs has been disappointing, e.g. the Thaba-tseka Grazing Association (Devitt and Oxby, 1985).
A better understanding of the approaches attempted elsewhere in Sub-Saharan Africa may suggest recommendations for developing control over range use in Lesotho.
CHAPTER II

ISSUES IN THE MANAGEMENT
OF COMMON RANGELAND RESOURCES

The issues that are pertinent to common rangeland resource use and management are diverse. They include implications of social, economic and ecological values of the African livestock production system; aspects of land tenure; and kinds of designs, approaches and interventions or programs previously undertaken in the range and livestock sector of various Sub-Saharan African countries. This section is directed at reviewing these issues so that an understanding can be attained about their implications upon the performance of previous as well as current programs on rangeland conservation and improvement of livestock productivity.

The Fit Between Management System and Context
--Social, Economic and Ecological

In Sub-Saharan Africa, the livelihood of rural populations is based on agriculture and livestock. The livestock depend on forage and water resources provided by rangelands. Herdsmen have to make decisions concerning the use of the rangeland resource as well as the management of their livestock. The value attached to rangelands seems to be one of the factors that influence their management. Historically, pastoralists have had excess land on which to run their livestock, and they had unrestricted rights to their communal use of the land within certain jurisdictions. They have always placed more
value on their livestock which provided food, clothing materials, ritual purposes and many other social values than the abundant land. Thus, it is not easy for pastoralists to abandon their long-established beliefs and customs that have developed over centuries of social evolution. Interventions aimed at improving the pastoral sector should take into account the historical aspects of pastoralists.

Management Objectives. Herdsmen love their livestock and are always prepared to work and make sacrifices for them. Strange (1980) thinks this can be in favor of rangeland management. However, this may not be the case when considering the widely documented view of the degraded condition of rangelands in Sub-Saharan Africa. I know of situations in Lesotho where portions of the rangelands declared closed to grazing during the growing season actually experience no rest. Herdsmen usually steal grazing from such reserved areas by grazing their livestock during the night or whenever they are not watched by the chief or reserve grazing wardens. It is also common for the herdsmen to forcefully graze their livestock on reserved areas because they are able to resist impoundment if cited as trespassing. This is one of the causes of range wars that sometimes result in serious injuries and loss of life. The ultimate goal of each herdsman is to have his livestock do well by leading them to the best forage he can possibly find.

Since herdsmen keep livestock so they can sustain their well-being, livestock can be considered a form of capital asset. Livestock produce other capital goods in the form of new animals and they provide a variety of consumptive goods such as milk, meat, draft power for
hauling and plowing, payment of bride price, and are used to perform a unit-of-account function of money (Konczacki, 1978). These are some of the economic reasons why livestock are so highly valued in most of Sub-Saharan African cultures.

Some analysts assert that livestock in Sub-Saharan Africa are mostly a store of wealth. According to Doran, et al. (1979), cattle in southern and eastern Africa are regarded as a store of wealth as indicated by the holding of high numbers of males and animals too old and no longer productive, as well as by offtake being inversely related to price. This study indicated that cattle were sold only to meet specific cash needs, not necessarily to generate income. If cattle had to be sold to meet specific cash needs the minimum number was sold. The factors that increase the market value of cattle would enable the owner to meet his cash requirements by selling fewer animals. A cattle owner may therefore be interested in improved production and will seek the highest priced markets precisely because this means he can sell less cattle and thereby maximize his relative wealth by retaining more livestock.

If the above observations hold, it can be expected that livestock in excess of the rangeland carrying capacity will always be retained and the overgrazing problem will continue.

A survey of cattle owners in Lesotho (Lawry, 1986) revealed that 44% kept cattle mainly for draft, 35% kept them for milk, 11% cited sale as a primary reason for keeping cattle, and 10% mainly kept cattle for a combination of numerous purposes. This survey indicated that the production of goods and services for home consumption was the main
reason for keeping cattle, and that production of beef or other products for market were not among the basic goals of cattle producers. As far as sheep raising is concerned, 50% of the herdsmen said they kept them primarily for wool production, 23% raised them to provide meat for home consumption, while 20% indicated selling as the primary reason. As the survey on cattle and sheep indicated, the primary reasons for keeping livestock encourage their retention, hence, there will always be less offtake of livestock from the range than is actually necessary to reduce overstocking. These observations give an indication that the livestock raising objectives work counter to the efforts of rangeland destocking programs.

Livestock Transfers. In many Sub-Saharan African Societies, livestock are involved in mutual exchanges of loans. In Lesotho and Botswana this kind of arrangement called mafisa is very common. Mafisa is a system of livestock loaning between individuals. The length of period for which livestock stay on mafisa is variable, ranging from less than a year to several years. There are several reasons for this. Mafisa (a loan) can be made to one without or with few livestock so that he can manage them on behalf of the owner and in return, reap the benefits such as milk, draft power, dung for fuel, and transportation in the case of horses and donkeys. Some producers with large herds sometimes mafisa some of their livestock out to relatives or friends to spread the risk and ensure against forage shortages within their jurisdiction, theft, and disasters such as storms. Lawry (1986) notes that in the case of small-stock (sheep and goats) in Lesotho the typical mafisa pattern is for smallholders, who lack labor, to loan
their holdings to large holders, who have adequate labor and own or have easy access to a cattle post. The producer who keeps mafisa is entitled to the wool and mohair clip in exchange for the management services that he provides.

The task of regulating livestock is made difficult by the practice of mafisa. Survey information from the Thaba-tseka Mountain Development Project in Lesotho (Bredemeier, 1978) indicated that 75% of farm households had livestock out on mafisa and 26% managed mafisa livestock. This form of livestock exchange and movement makes control of use difficult, especially if stocking rates have to be regulated.

Other forms of livestock transfers include sales and purchases transactions between individuals in the same community or different localities. Such sales of livestock do not have an immediate contribution to the meat market, and do not contribute to a net reduction of livestock on the range. In Lesotho, the payment of herders is in most cases in the form of livestock. The herder would normally accumulate such livestock earned as wages to establish his independent herd in the future. Transfers of livestock are also involved in the payment of bride prices. This practice is quite common in many cultures in Sub-Saharan Africa. These forms of livestock transfers which encourage the net increases in livestock populations have great implications on programs intended to control livestock numbers on communal rangelands.

Ecological Constraints. Most of the rangelands in Sub-Saharan Africa are in semi-arid and arid environments. The key ecological constraints in the use of these rangelands are low rainfall, long dry
seasons, and spatial and temporal variations of precipitation. To thrive in such harsh and uncertain environments, herdsmen keep several kinds of livestock. They also spread their livestock over large areas to take advantage of the patchwork ecosystem of arid lands where topographical variety yields good pasture only here and there. Therefore, they are mobile, they traverse great distances to reach seasonal pastures (Secretariate of the U.N., 1977). The ecological variability is clearly one of the factors that render livestock production and the communal use of rangelands inseparable in most parts of Africa, hence, implementation of management strategies that restrict livestock movements may be unfavorable.

**Implications of development.** The results of previous efforts to improve the range and livestock in pastoral areas can be attributed to the manner in which they were implemented. Most of the previous interventions were undertaken without genuine understanding of the pastoralists and their environment. The deterioration of the rangeland in most of Sub-Saharan Africa has been blamed on ignorance or short-sightedness, stupidity and perversity of pastoralists. Also, pastoral nomadism has been associated with mere cultural behavior and not a need imposed by ecology (Sandford, 1976).

The biases and stereotypes held against pastoralists have led to misunderstandings in previous programs and hence their performance was not satisfactory. A good example is the case study of the Karamoja area in Uganda presented by Baker (1975) which showed that the actions undertaken in the name of development created problems instead of making improvements. In Karamoja, the herdsmen burned parts of the
range to induce a "green flush", kill ticks and control bush and tsetse fly. They moved their livestock to cope with seasonal variability of forage and they kept mixed kinds of livestock for their various needs. Baker revealed that unfavorable consequences occurred as a result of interruptions of the pastoral system by the colonial government. Prohibition of burning caused a reduction in the nutritional value of dry-season grazing; promoted the infestation of ticks that increased incidences of east coast fever; and gave chance to bush encroachment that provided ideal environment for the tsetse fly. The reduction of goats which were considered destructive to vegetation also promoted bush encroachment. Livestock marketing opportunities provided were unsuccessful because of low prices offered. Other interventions undertaken were water development, veterinary care and restriction of movement of pastoralists and their livestock. The Karamoja development efforts which Baker referred to as "treatment of the symptoms of a problem rather than the problem itself", ended with a conflict between pastoralists and the government, and more destruction on the environment instead of the intended improvements.

The governments in many African countries have initiated developments such as water and veterinary care. In most cases these interventions were assisted by donor agencies. The water developments have resulted in overuse of areas that would have otherwise been conserved by lack of water during dry seasons. The pastoralists normally held back their livestock from wetter areas to conserve the grass for the dry season. As a result of water developments the pattern of economizing the forage was broken (Goldschmidt, 1980).
The control of livestock diseases through veterinary care interventions has been widely accepted by pastoralists and hence deemed successful in most Sub-Saharan African countries mainly because it ensured survival of their livestock. This intervention has also had effects beyond those intended. Veterinary care has decreased mortality rates and the rangelands continued to be overstocked, because in most cases veterinary care had no complementary marketing program to accommodate extra surviving livestock (Handulle and Gay, 1987).

Some analysts assert that the divergence of objectives held by pastoralists and those held by developers have great implications on the performance of development efforts. The typical situation may be that the pastoralists usually want to have more livestock; to exclude the intruders, to receive services and jobs; and to improve their own kind of welfare. On the other hand, development efforts, usually in the form of projects, require that livestock numbers be consistent with the rangeland carrying capacity and that the range condition should be improved. They also strive for land use reforms and many other developments and prescriptions which the pastoralists may not perceive as beneficial.

The poor performance of earlier range and livestock development programs has generally been attributed to poor fit between the interventions and the African recipient systems. The disagreements have included emphasis on one kind of livestock to the exclusion of others, and promotion of new grazing systems in environments where they increased risk and were not necessarily better than the indigenous grazing methods (Moris, 1988). An understanding of the entire context
of the African livestock production system would help in the implementation of successful programs.

Aspects of Land Tenure

The communal use of rangelands is a major concern and it is a type of land tenure regarded as responsible for rangeland degradation in many Sub-Saharan African countries. In this common property situation all livestock owners within a given jurisdiction have an equal right of using the rangeland, but because of different herd sizes of private livestock holdings, the actual quantities of the rangeland resource used by individual herdsmen are not necessarily equal. This inequality is a motive for those with fewer livestock to build up their holdings and hence there is competition for all to increase livestock numbers on a limited rangeland resource. The debates about individual versus common property rangelands has been dominated by the tragedy of the commons paradigm popularized by Hardin (1968). Hardin argued that overgrazing and degradation of rangeland resources were inherent in situations where such resources were held and used in common. The paradigm of the tragedy of the commons indicates that because the limited rangeland resource is affected by separate acts of users, each pursuing his own best interest, the tendency is toward an absence of a motive for conservation. The incentive to each herdsman who has access to the communally grazed rangeland is that marginal benefits of grazing an additional animal exceed marginal costs, because part of the cost is incurred by the entire group of herdsmen.
Hardin thought of private property rights as an option to promote conservation of resources such as rangelands. When property rights are established, the benefits and costs are internalized. However, the evolution of property institutions is determined by the social arrangements, laws and cultures which regulate asset ownership and allocation in a particular economic system. Also, there is little incentive for individuals to define and enforce private property rights if the benefits of eliminating the commons are low relative to the costs (Anderson and Hill, 1977).

The divergence between private and group interests in holding livestock results in overgrazing. If an individual restricts his own livestock in order to conserve the grass, but the rest of the community does not follow his example, there will be no significant effect on the total number of livestock being grazed on the particular communal rangeland, and that individual will personally lose (Livingstone, 1977). This is true even if failure to restrict livestock numbers threatened the existence of livestock as well as the human population. Because people are motivated to protect self-interests, rationally they do not act to achieve their group interests.

Overgrazing is perceived to be the result of inefficient common property rangelands. It is therefore a central issue in range and livestock development policies in Sub-Saharan Africa. Land tenure reform is regarded as a necessary tool for rangeland conservation. Introduction of tenure reforms includes the reduction of multiple claims to specific grazing areas. Privatization of land is also being promoted such as for large herd owners in Botswana (Bennett et al.,
This is in accordance with the argument that only under individualized tenure will the individual herdsman be assured that self-restraint to proper stocking will not be exploited by the actions of other herdsmen (Lawry et al., 1984).

Some analysts see limiting the available grazing territory as an essential starting point to limiting the numbers of livestock. The belief is that an individual herdsman will be able to comprehend the consequences of overstocking what would presumably be his only possible range area (Lawry et al., 1984). This way the negative externality of a degraded rangeland due to overgrazing does not affect a prudent herdsman.

Lawry et al. (1984) have also indicated that the assignment of leasehold rights to individuals or small groups is also a common approach to tenure reform. However, the observation is that livestock limitations specified on leases are never enforced due to political problems, and therefore overgrazing still remains a problem in many places.

Other types of tenure reform that give specified groups exclusive rights to defined areas include group ranches and grazing associations. These reforms which are common in eastern and southern Africa aim at institutionalizing management of common rangelands as well as securing the land rights. Reforms are established to undertake three main and complex responsibilities simultaneously. Associations are expected to be capable of group decision-making, group control over the use of a specific grazing area, and implementing a specific grazing plan. One example with which I have experience is the Sehlabathebe Grazing
Association in Lesotho. It was set up to facilitate formulations of rules and regulations for livestock control on the use of rangelands. The hope was that all rules and regulations were mutually agreed upon and therefore mutual enforcements would be possible. My experience while working with the grazing associations in Lesotho was that the control of access and regulation of use was difficult due to realities of the complex social aspects of the community. Also, there were always individual herdsmen who did not abide by the local grazing associations's rules and regulations, and in fact wanted to challenge the legality of that new system. Unfortunately, the national law on grazing management and control of livestock did not provide specifics for such institutions like the grazing association.

The sustenance of these new settings is therefore doubtful, unless all livestock holders act as organized groups of participants that control range use and improve management and development of communal rangelands. The need to do this is critical to all livestock owners. To strive for successful programs requires that livestock producers recognize the problems that are important to them and desire assistance, and numerous alternatives (some of which may be appropriate to all regardless of scale) need to be developed in order to address the problems (Banner, et al., 1987).

A grazing fee or tax is another alternative policy tool that may help to regulate stocking rate on common rangelands. The argument, relevant at least to the Western United States ranching, is that establishment of a grazing fee as a pay-as-you-go variable cost per animal unit would provide a livestock producer with a strong incentive
to run fewer livestock on the range (Workman, 1986). The idea of the grazing fee is that it would force the common rangeland resource into the market economy. As a grazing price, the fee will influence the demand for the use of common rangelands, and if coupled with efficient management, the deterioration on rangelands can be halted.

Stryker (1984) suggested that imposition of a grazing fee or tax on livestock could be according to the number, age, or sex of animals. As an example, animals past their productive usefulness could have a higher tax per head. The tax system is seen as feasible if out-migration to other grazing areas can be restricted (Simpson and Sullivan, 1984). The revenues accumulated through this system could be invested in range and livestock improvement programs as an incentive to herdsmen. However, the implementation of this policy is difficult. The group decision making and high administrative costs are cited as constraints (Simpson and Sullivan, 1984).

A grazing quota can be an alternative with about the same incentives as a grazing fee. The paid quota would allow each household the right to graze a specified number of animals, with the aggregate number set according to the rangeland carrying capacity. This way all individuals are equal beneficiaries of the land. Even the households with no livestock of their own could rent their grazing rights to those who have more livestock than permitted under the system. Renting of quotas among individual households could be payable in kind or some other benefit. If excess livestock are effectively excluded, a market and a price for a grazing quota would evolve. The quota system so set
up would allow each individual to benefit from the land without necessarily having to keep livestock (Hopcraft, 1980).

Under the quota system the traditional communal use of rangelands is retained, but the incentives provided would open an opportunity for better regulation of use. To make the system work, extensive inventories of livestock and the land would be necessary. Also, effective communication and collaboration between the government and rural communities would help provide legitimate delineations of the land and viable plans for rangeland use. Effective planning for an intervention should pay attention to the perceived needs of the rural communities and understand the diversity of pastoral systems and herdsmen's management rationales. This may ensure high levels of consensus, cooperation and acceptance. Identification of critical social variables and their incorporation into planning could help to extend and realize the technical potential of range science in developing countries (Artz, et al., 1986). Revenues collected through sales of quotas could be put in a special fund for developments and improvements in the range and livestock sector as well as for the administration of the quota system program.

In regard to the complex social, economic, and ecological problems in Sub-Saharan Africa, many analysts support communal tenure. Odell (1982) felt that common rangelands promote a measure of equity than private or state management. For communal land use to work it must be provided with policies of common property law and regulatory and community management institutions.
Control of Rangeland Use

It has already been indicated in previous discussions that within each community or jurisdiction herdsmen recognize grazing land as a public resource available to all. The general view that in Sub-Saharan Africa most of the rangelands are overstocked has been predicted on the principle that people are basically self-interested and rational, and on the fact that they do things because circumstances oblige them to do so, even if it is destructive behavior (Catterson, 1988). Most of the households need livestock to sustain their livelihoods. Increases of livestock holdings are in accordance with survival and competition demands, hence overstocking of common rangelands.

**Determination of Proper Stocking Rates.** Within the discipline of range management it is well understood that proper stocking rate is essential for sustained yield. This is because rangeland ecosystems have limits to their ability to withstand grazing and support foraging animals. Determination of proper stocking rate is therefore the most important of all grazing management decisions for the perpetuation of the range resource, the well-being of livestock, and the economic stability of the herdsman (Stoddart, et al, 1975). Determination of optimum stocking rate is complicated by extreme temporal and spatial variability of forage from rangelands and this is a challenge with which herdsmen and/or planners must cope (Holechek, et al., 1988).

**Constraints Regarding Control of Use.** Lack of land tenure regulations as well as institutions to control use are generally perceived as some of the factors contributing to overgrazing. The power to control livestock is not combined with an equal and effective
managerial power over the rangeland resource. Land use is uncoordinated because owners of livestock do not at the same time have personal responsibilities for the land and vegetation (Strange, 1980). Many kinds of controls have been suggested and some tried as discussed in the previous section on aspects of land tenure and the next chapter on approaches to solve range use problems.

Controlling All Rangeland Versus Specific Grazing Areas of High Value. Since rangelands are extensive ecosystems having various range sites with varying productivity potentials, the question of selecting areas on which to initiate improvement programs and reforms is usually difficult on the part of governments and/or donor agencies. Since attention is needed on all rangeland in any country it would be beneficial to have a country-wide program on rangeland conservation and livestock improvement. Unfortunately, limited financial and qualified manpower resources determine the scope of interventions. Specific areas, sometimes of high potential, are therefore selected where efforts are undertaken to institutionalize the control of rangeland resources use. The justification of choosing high potential range areas is that implementation of adequate management practices on such sites would save them from predicted overuse, and that their potential for rapid response to rest and other improvements would set a valuable model within a short time. This justification was used in Lesotho when selecting range management areas under the Land Conservation and Range Development Project.
When specific areas are selected and enclosed, the question of equity arises. Where the arrangement is to limit access to a specific group, other historic users with the right of use of the communal rangeland are squeezed out and their livestock overcrowded onto a smaller area where severe overuse can be expected.

Some enclosures may favor largeholders who are able to qualify for individual rights because their holdings satisfy the economies of scale necessary for private investment feasibility. The smallholders are disadvantaged because they cannot qualify, and have to remain confined on degraded areas that are still being communally used, such as was the case with Botswana's tribal grazing land policy as reported by Bennett, et al. (1986). Sometimes the elite and most politically powerful are able to acquire private allocations and the rest of the herdsmen are excluded.

Enclosures usually cause conflicts and opposition on the part of the disadvantaged. The legal devices to make such allocations on communal land, although sometimes ambiguous, are available in many Sub-Saharan African countries. This land has been declared the property of the state, which it can then dispose of it as it wishes. An enclosed area has to be defended and policed against trespass, an undertaking which is costly as well as risky. The cost associated with patrolling and/or fencing is quite high. If those excluded tend to purposely permit their livestock to encroach into an area from which they have been excluded, any attempt to impound such livestock can be defended, hence the risk of conflicts. The relationships between neighboring communities may be strained and the many social links of
mutual reciprocity and cooperation impaired. This is a great social cost (Devitt and Oxby, 1985). The enclosure movement should be carefully assessed and undertaken in an equitable and open fashion with the close collaboration and initiative of the local people (Hopcraft, 1980). Great consideration should be given to those excluded and the limited area that remains to them.

Enclosures also create internal conflicts due to the difficulty of securing a consensus or some kind of binding commitment on such issues as control of livestock numbers (including restriction of livestock transfers through loans, purchases, and bride price receipts), delineation of pasture boundaries, and deferring grazing on certain pastures. Maintaining cooperation and discipline among a big decision-making group of several hundred households is a difficult task. A remarkable degree of unanimity or a certain amount of coercion is necessary to ensure that all those with communal grazing rights in an enclosed area abide by the formulated agreements or constitution (Devitt and Oxby, 1985).

Use of Existing Producer Organizations and Structures Versus the Development of New Organizations and Structures

In planning and managing developments in pastoral areas there are various organizational options available as elaborated by Sandford (1983). Organizations can be large or small in terms of area of jurisdiction or population (membership). They can be based on residence or right of use of an area, on kinship, on occupation (sheep-raising versus cattle-operation), on voluntary association, or on some other principle. Organizations may require membership of everyone or
may have criteria for exclusion. They may be single purpose or multipurpose in scope. The style of management in organizations can be mandatory, relying on rules, or liberal, relying on offers and incentives. The decision has to be made on whether to make use of existing organizations, assigning them additional tasks and operating procedures or to establish new organizations.

The considerations on whether to make use of existing or new organizations are also revealed by Sandford (1983). Existing organizations have the advantage in defining rights of access to the land and facilities because they will have already built up a body of precedents and case law relatively well known among society’s members. In regard to new access regulations, they can apply the past experience especially in assessing unforeseen consequences of the new regulations. Existing organizations will reflect the existing balance of power. Also, the poor may not be disadvantaged if the service is provided by an existing organization whose procedures are better rooted in the pastoralist culture, perceptions, and objectives compared to new organizations whose constitutions and procedures are usually tailored to the convenience of government’s legislation and bureaucracy including donor agencies.

Sandford argued that new organizations will be relatively unpredictable because even if many of the same individuals from the existing organization are involved, they may be less confident about new procedures and functions and less bound by old rules and obligations. New organizations require a long time to be established. One of the critical factors influencing speed of establishment is the
extent to which herdsmen see a new organization as the only way to get or retain secure title to the use of land or secure other advantages. Sandford claims that new organizations usually fail to carry out new responsibilities expected of them because they are established with new constitutions, new tasks, new procedures, new ways of selecting membership and leadership, and have no successful model to copy. When new organizations are formed, relative strangers and rivals are expected to co-operate with each other, and this is another factor that causes difficult implementation of activities.

According to Sandford, new organizations are usually established because the procedures and leadership of existing organizations are believed to be ill-adapted and inadequately skilled to cope with the managerial and technical requirements to implement programs, and that the establishment of entirely new organizations furnished from the beginning with appropriate procedures and skills, is much easier than the reform of the existing ones. Also, new organizations may provide an opportunity for new and growing interests and pressure groups, for whose progress the old provided no avenue.

Sandford urges that the design and management of new development should not be undertaken without consideration of the aspects of pastoral life which already exist. A sensible range management program cannot be run based on the construction of new facilities if the old ones are ignored. For the success and sustenance of new activities being initiated, the governments should provide a framework of laws, incentives, and organizations in which individuals and non-government organizations can effectively manage all aspects of pastoral life.
Education and Extension to Enhance Producers' Individual and Organizational Capabilities

It is generally believed that lack of substantial success in African agricultural development programs can be attributed to lack of education and inadequate dissemination of available information. Historically, it seems access to formal education was difficult, and according to Senock (1987), under colonial government rule, educational opportunities were limited or non-existent, especially to pastoral peoples.

A foundation in education is essential to the development of human resources as a basis for success and sustainability in rural development efforts in any country. Education increases people's knowledge and awareness. People should have the capability to select and choose from alternative technologies, skills and strategies with a view toward self-reliance (Senock, 1987). Education and extension services should be considered as integral components of development programs so that adoption rates of known technologies can be improved.

Extension is described by Catterson (1988) as an "outreach" function of a technical program, which allows a dialogue between the producers and the services. The extension approach should be based on the notion that the people themselves (their needs, aspirations, and opportunities) are the major elements of a people-oriented strategy. Catterson emphasized that two-way interaction in a legitimate extension program is an effective way of blending the technical knowledge of the government services with the local know-how and inherent capabilities
of the rural people, thereby adapting interventions to meet their needs and to mitigate their problems.

When people are literate and at the same time have access to information through efficient extension services they are likely to develop interests in activities that would promote their self-reliance. Their likelihood for participation can also be enhanced through effective extension programs that employ a variety of means to disseminate information. Popular participation is the philosophy that people should have the right to urge their government to provide the policy framework, services and assistance necessary so that their basic needs can be met and their problems alleviated. When popular participation is in place, people, through consensus or some form of majority rule are able to become involved in the aspects of development that include identification of problems and their causes, assessment of interventions needed, determination of inputs required, analysis of risks, monitoring, evaluating and adopting activities to achieve objectives, and establishing feedback and constant interaction with the government as necessary (Catterson, 1988). The essence of popular participation is that the development activities can be sustained and creatively proliferated as opposed to the government-driven, top-down approach which has largely failed.

Participation of field staff in planning development projects is important for their success. Gay and Bartel (1986) have argued that plans need to be operational programs for actors to follow and be designed as tools to guide the actions. Therefore, planning should not be the privilege of only those high in the structural hierarchy of
organizations, but should involve field workers because they are responsible for action, hence, must be part of the planning process. Gay and Bartel have also indicated that the field cadre’s participation in planning programs allows them to appreciate the decisions made and responsibilities involved, and that success flows from the bottom upwards.

The Recurrent Costs Problems

The rangeland conservation and livestock improvement interventions in most of the countries in Sub-Saharan Africa have been initiated with assistance of foreign donors such as the United Nations, World Bank, U.S. Agency for International Development, and many other international organizations and individual countries. The initiatives have been undertaken in good faith to help poor African countries save their natural resources from ruination, and to help them increase livestock productivity and attain secure economies for the well-being of their human populations.

The interventions implemented so far are in the form of facilities, machinery and equipment, pastoral organizations, and structural reforms of government institutions. The major question raised regarding the sustainability of these interventions has been that of recurrent costs. Heller and Aghevli (1985) have defined the recurrent costs problem as "a failure to provide adequate funds to operate and maintain a project or program". Therefore, the intended level of operation cannot be sustained and the result is noticeable loss in output, inefficiency and an obvious deterioration in equipment
and facilities. According to Howell (1985), the countries which are most seriously affected by recurrent cost problems are those where there is a high level of foreign assistance from several sources, high capital to recurrent cost ratio in public spending, poor budget control and planning, and a weak tax effort.

Rangeland conservation and livestock improvement programs in many African countries are facing the recurrent costs problem. In Lesotho, evidence of this problem is the lack of maintenance on facilities installed by earlier projects. Some of the current projects have made more installations that will require recurrent cost budgets. As an example, at Sehlabathebe in Lesotho the items that will require a recurrent cost budget are: small-stock dipping vat, livestock handling and saleyard structures, barbed wire fences, shearing shed, workshop, staff housing, water supply installations, vehicles, tractors and equipment, the livestock identification and culling program, and the general extension program devoted mainly to keep the grazing association operating. All these undertakings imply that there will always be a set of recurrent outlays which must be funded to ensure continuity. It may not be easy for the government to assume the funding when USAID funding ends. It is also doubtful if the grazing association can afford to assume the financing on its own. The implication of this analysis is that all programs being initiated should one way or another be able to generate revenue for their own sustenance.
CHAPTER III

APPROACHES THAT HAVE BEEN TRIED TO SOLVE

COMMON RANGELAND RESOURCE PROBLEMS

The general literature on African pastoralism indicates that the control of use on common rangelands has in most cases been dictated by the ecological constraints and that the pastoralists in most parts of Africa adapted to the nomadic way of life; their mobility driven by demands for water and forage for their livestock. Pastoralists' movements were to some extent restricted to the land areas which they could claim as theirs according to their ethnic groups, and each group defended its territory. Permission to use forage and water resources were granted by one group to another when it was necessary. In some cases local traditional controls on the use of rangeland resources were exercised through customary leaders. Along with the colonization of the African continent there came numerous changes that interrupted pastoral systems and restricted their access to certain areas such as settlement and agricultural areas and wildlife parks. Some efforts to develop and improve pastoral systems have been tried during the colonial era in many parts of Africa, but the results have largely been deleterious as was indicated with the example of Karamoja in the previous chapter.

With the growing concern that rangeland ecosystems are facing serious degradation due to the pressure of human activities, more
efforts have recently been undertaken to try to curb the land degradation problem and to improve livestock productivity. The ultimate goal is to attain self-sufficiency in the pastoral sector as well as the agricultural sector as a whole. Most of the efforts that have been tried recently were assisted with foreign funds and expatriate administrative and technical manpower. These recent institutional approaches which have been tried in many African countries go under different names such as grazing associations, blocks, schemes and reserves, and ranches: i.e., group, individual, government, cooperative and commercial. This chapter presents a review of selected case studies relating to these approaches from three African countries. The performance of these approaches is also provided.

Group Ranches in Kajiado District, Kenya

In Kenya, the establishment of some kind of land reform started in the mid-1940's when the colonial administration organized pastoralists according to their ethnic groups and initiated grazing schemes. These schemes were granted funds to develop water and dipping facilities. The pastoralists were not in favor of colonial enforcement, they ignored scheme boundaries and still followed their nomadic patterns especially when it was necessitated by periodic variations in forage production (ole Sadera, 1986).

The establishment of group ranches started in Kajiado District in 1964. The ranches were first adjudicated to decide who was eligible for the land in question based on customary rights. They were then
registered and given freehold titles under the Land (Group Representative) Act. Each group ranch was also allotted a grazing quota that would allow optimum stocking rate. Group ranches were established in order to consolidate the rights of the majority of pastoralists on the limited rangeland resource. It was hoped that rangeland conservation could be encouraged within each demarcated group ranch to which freehold titles were granted and the names of users registered. The incentive to protection and conservation of land was that property rights were made to be specific to the title holders who could not afford the misuse of their only possible rangeland and lose the return to investment in future productivity (Devitt and Oxby, 1985). Another objective was to develop a system that would allow commercialization of livestock production while still preserving most features of the traditional way of life (ole Sadera, 1986).

Each group ranch had to elect three to ten individuals as group representatives, the legal trustees of the ranch. Also, the ranch executive committee had to be elected, representatives were to be members, and this committee was to be the managerial body of the ranch. All members of the group ranch would form a general assembly that would then adopt a ranch constitution which was based on the Land (Group Representatives) Act in which each group ranch could then include its by-laws. It has been reported that by the end of 1980, 15 group ranches had been established and were receiving loans (ole Sadera, 1986).

Performance. It is perceived that the group ranch concept has been beneficial. It has been instrumental in securing the Maasai land
rights by effectively preventing further incursions by other tribes. The concept has provided a medium of transition from communal land tenure to individual tenure. Also it has been possible to sedentarize the Maasai because they developed a sense of group ranch identity especially during years of average precipitation. The improvements in livestock management and productivity due to interventions such as water, dips and genetic upgrading of livestock are considered worthwhile (ole Pasha, 1986).

There have been problems with the operation of group ranches as reported by Oxby (1982), Evangelou (1984), Devitt and Oxby (1985), ole Sadera (1986) and ole Pasha (1986). Group ranches are characterized by lack of sanctions, so much that they are generally accepted as more of an exercise in acquiring land title than an effective means to commercialize beef production. Generally there has been inability to assign liability to the group ranches by the Government and by the ranch to its members. The evidence is in the history of development loans and livestock quotas. The members have mostly been unable to contribute the expected 20% equity to development funds. Repayment of loans has also been a problem regardless of the point that land is officially held as collateral. It is realistically admitted that foreclosure and sale of a ranch because of unpaid loans is a political impossibility.

It has been observed that the executive committees of the ranches could not enforce stock controls. Generally there has been lack of grazing management. There is uncoordinated use still in practice whereby each household uses the rangeland according to its needs and
convenience. The agreements reached about stock quotas were not enforced. The action at some point, when fattening steers were given to pastoralists when the estimated optimum carrying capacity was exceeded, indicated to the pastoralists that stock quotas could be neglected.

On some ranches it has been difficult to remove squatters. Also, high numbers of wildlife on many ranches have contributed to declines in enthusiasm, especially when compensation for damages were rarely made. It is envisaged that some ranches are not viable units of rangelands in years of below average rainfall, hence permanent and strictly enforced boundaries have not been possible in some cases. The sharing of resources following traditional patterns still goes on, and in some cases without consultation for permission.

The involvement of politicians in the operation of group ranches is also reported to have contributed to the failure of many group ranches (ole Pasha 1986). Politicians began to divide group ranch participants to form small splinter groups according to age group, clan, etc. Compulsory registration of new members was then started against the wishes of the majority of previously registered members. Sub-divisions into individual ranches, creating even less viable land units started to occur.

The general failure of group ranch executive committees to manage the affairs of ranches is regarded to have contributed to the evolution towards individual ranches (Evangelou, 1984 and ole Pasha, 1986). Also when individual title deeds were held on the land it was easier to procure loans for improvements, and the Agricultural Finance
Corporation found it better to deal with only one individual per loan, rather than having to chase after several individuals under the group ranch system. It has been reported by ole Pasha that in 1984, 7 out of 54 ranches in Maasailand had sub-divided and 22 out of the remaining group ranches had passed a resolution to sub-divide. However, there are many individuals who are against the sub-divisions. They fear that there will be an influx to buy land from the Maasai, hence alienation of land to non-Maasai. This influx would lead to loss of Maasai culture. Cultivations that are likely to expand will render the land prone to erosion. Also, private protection to individual land units will restrict movements of livestock and people when necessary. Sub-division to individual ranches seems to be the highly advocated move anyway.

Group Ranches In Upper Volta

The country of Upper Volta is now officially known as Burkina Faso. Since the information provided here pertains to the time before this new name was adopted, the former name will be used in this report.

The information on Upper Volta's approach to the group ranch was drawn from the report by Gooch (1979). The group ranch program being reviewed here was a component of the West Volta Livestock Development Project prepared by the World Bank and another unspecified agency, and was financed by International Development Association. The program was implemented in 1976 on an area that had low human populations and had no developments.
The planners put forth several objectives regarding this program. The program was aimed at settling semi-nomadic Fulani pastoralists on land reserved for livestock development. It was hoped that there would be no need for transhumance since sufficient water and pasture would be provided. The security of land rights was to be made for the pastoralists and access to loan service would be possible in order to make necessary improvements. Through this program, rangeland productivity was to be improved by controlling fires and introducing improved pastures. Livestock production was to be increased through improved infrastructure and veterinary care, and efficient management.

The target was to establish nine group ranches, each about 15,000 ha. The membership was to consist of up to 40 pastoral households and up to 150 crop farming households whose ownership of livestock entitled them to membership. Once each ranch was demarcated, a 50-year lease was to be granted to its members collectively. The cattle were to be marked and collectively managed with the exception of lactating cows and their calves. Management of each ranch was to be under a ranch manager who would be trained and supervised by the Ranch Development Center. A committee of five individuals, mainly Fulani were to be elected to represent the community in ranch management decisions.

A detailed investment and financing plan clearly showing the profitability of the ranch had to be made. This done, the National Development Bank would provide a loan to finance ranch developments which would include water, firebreaks, tracks, stock handling and dipping facilities, fencing, pasture improvements (with *Stylosanthes gracilis*), veterinary supplies, breeding stock, and steer fattening.
The steer fattening component was to be the key to profitability of the ranch. The costs of running the ranch were to be divided among the members in proportion to their cattle numbers, and profits similarly passed. The other anticipation was that there was potential to double the stocking rate once each ranch was fully developed.

**Performance.** The first ranch was established in 1978, and had about 2,000 cattle registered to it at one point. By May 1978, twelve Fulani pastoralist families were enrolled and settled. The committee was formed and signed a 50-year lease, and individual members were required to sign for acceptance of the ranch statutes which were prepared by the Ranch Development Center. Gooch's report indicates that some developments such as water, firebreaks and tracks were initiated. The dip was constructed and became operational. Also the first lot of steers was purchased for fattening within the ranch.

There were several problems associated with the implementation of the ranch program. Land surveys conducted revealed that there was more farming land more widely distributed than was originally estimated, and this made placement of ranches difficult. The neighboring farming villages were unhappy with the ranch program for fear of crop damage by livestock, and therefore there was potential conflict. The Fulani were unwilling to transfer their livestock for collective management. The firebreaks constructed could not serve their purpose as the neighboring communities set fires within areas surrounded by firebreaks to ease their hunting efforts. Historically, they had been hunting in this particular area.
Other problems reported by Gooch were that about 30% of the steers purchased for fattening died shortly after arrival due to stress and diseases prevalent in the area. Mortality rates of the herds were still high (13.6% for adult cattle and 22.2% for calves p.a.) regardless of veterinary services already in place. Pastoralists from outside the ranch grazed their livestock in the ranch area, and this was not resolved. The settled Fulanis had come from different areas, and lack of social cohesion was realized. Members agreed to pay the full costs of veterinary care but declined to support other ranch operating costs. The survey that was conducted later revealed that the Fulani were not aware of how the ranch would benefit them, including the advantages of owning the land.

Sehlabathebe Grazing Association - Lesotho

Sehlabathebe was designated as a "Range Management Area" (RMA) by the Range Management Division of the Ministry of Agriculture in 1982. This was in accordance with the USAID funded Land Conservation and Range Development (LCRD) project which according to its project paper, required the selection of a rangeland area in which a grazing association would be organized and established, a range reconnaissance survey completed, a grazing management plan developed and implemented, an animal health program developed, and a marketing program promoted for the grazing association (USAID/Lesotho, 1980).

The criteria used in selecting the RMA were that the area was to be of relatively high potential in order to demonstrate the effects of improved management within a short time, the majority of the residents
in such an area were to be known as relatively receptive to interventions, the area was to be accessible by motor vehicles, and that the area should have previously had no major projects under the Ministry of Agriculture. After Sehlabathebe was selected, it was found to be more unique compared to the other three areas that were considered for RMA establishment. Sehlabathebe has both village grazing and cattle post area adjacent to each other.

A cattle post area (Meraka) is a grazing area other than village grazing, usually remote, at high elevations and valleys where livestock are grazed, mostly during summer months. A cattle post hut (motebo) is a living quarters for the herder(s), and consists of a kraal for bedding down livestock at night, and is a base of operations for utilizing cattle post areas which are communal. The term cattle post is generally used in a way that includes both contexts--the rangeland and the base. Cattle post areas are administered by principal or ward chiefs whose jurisdictions encompass such areas.

Sehlabathebe also has advantageous boundaries as an enclosure. The northeast is a frontier with the Republic of South Africa, on the east it borders with the Sehlabathebe National Park, there is a perennial stream forming the boundary in the south, and a high mountain range (though with several passes) on the north to the west. The Sehlabathebe RMA is a naturally delineated catchment area of about 30,720 ha.

The review of Sehlabathebe Grazing Association (SGA) is based on its study reported by Lawry (1986 and 1988) and on my knowledge since I helped in its initial establishment and operation. In preparation
for the implementation of the SGA program, the first contacts with the chiefs and leading herdsmen were started in September 1982. Explanations were made to them about the project's broad objectives of improving the rangelands and livestock productivity. More extensive contacts with the general public resident in the area were made concerning these objectives and emphasizing the need to establish a grazing association as an institutional device for community management of the rangeland resource. Lawry has indicated that the project paper had offered little guidance on the organization and structure of the grazing association. The questions concerning membership, leadership and management, legal status and legal standing on land and regulatory matters, responsibilities of chiefs and relationships between project staff and the grazing association remained to be worked out.

The initial extension work was mainly directed at paving the way for the formation of a grazing association. The grazing association committee was to be formed. It was to be composed of herdsmen popularly elected by the people in each of the eleven villages within the area. Two individuals had to be elected from each village. The chief or headman from each village was to be automatically included in the committee. The association's constitution and by-laws were drafted in collaboration with the committee with feedback from the general community, until it was completed, and in January 1983 the grazing association was registered under the Societies Act of 1966.

The constitution provided that the membership to the grazing association was to be open to all livestock holders resident within the area and was inclusive of all kinds of livestock. The constitution
emphasized that active participation of all resident livestock holders was necessary for the success of the association. Annual membership fees were agreed to be Luti 1.00 (or one rand in South African currency) per animal unit, payable up to a maximum of Maluti 10.00. Only those who had paid would be eligible for grazing rights within the area. Non-residents were to lose their customary grazing rights because they would no longer be allowed to use cattle posts within the Sehlabathebe catchment area. This exclusion was estimated to contribute to a 30% reduction in stocking rate. Mafisa livestock originating from outside this area were also to be prohibited.

The project staff in consultation with the association committee drafted a grazing control plan. The range area was delineated into pastures to allow some kind of rotational grazing which was to be followed by all herdsmen. Demarcations of pastures was done with rock beacons (markers) painted in white. The enforcement of the grazing plan and the general policing was to be effected through the "range riders" who were the residents, each elected by his village people. The adoption of the grazing plan was to be complemented by other activities and services directed toward the improvement of livestock productivity and rangeland condition. These included the culling of poor quality livestock, genetically upgrading cattle sheep and goats through the use of stud sires, construction of a new wool and mohair shearing shed and small stock (sheep and goats) dipping facility, cattle handling and sale yard facility; and a fodder production program aimed at providing winter feed. Access to some of the services and new facilities was to be provided only to members (those who have paid
an annual subscription) as an incentive to join the grazing association.

The Principal Chief of the district, the highest ranking traditional authority over Sehlabathebe and the ultimate authority on all grazing matters within his area of jurisdiction, supported the project and the grazing association idea. He made a public proclamation at the general community meeting held in January, 1983, at Sehlabathebe, that the whole catchment would be treated as a special range management area, that non-residents would lose their customary rights to graze, and strongly implied that the grazing association, working hand in hand with the project, would be the authority for range management matters within the whole area. The Principal Chief has the authority to restrict grazing to a particular group of people or to people living in a particular area (Range Management and Grazing Control Regulations, 1980).

Performance. Lawry (1988) has reported the survey information regarding the performance of the S.G.A. Grazing management was the major area of activity for the project and the association. A new system of rotational grazing began to gain acceptance. About 92% of livestock owners interviewed appreciated rotational grazing. However, the aspect of the plan requiring all smallstock to be in the village pastures during winter months was never adopted. The main reasons presented by respondents were that smallstock were difficult to control and would damage gardens, and that there was not enough grazing area in the village pastures (see Appendix B - RMA Management Plan).
The improved general grazing conditions were observed by many livestock owners, and they commended the project for that situation, especially for having been able to exclude non-residents. The prohibition of access by outsiders was widely supported by the resident livestock owners and was cited frequently as the most important achievement. About 84% of the respondents regarded the exclusion as a good idea while 16% had no opinion (Lawry, 1988). The recent inventory of Sehlabathebe rangelands showed an improved carrying capacity of 7279 animal units in 1988 compared to 5257 animal units at the beginning of the program (Range Management Division, 1988).

The apparent range condition trend was reported as stable by the Range Management Division (1988). The improved carrying capacity may have been due more to climatic influences than a result of new management. 1983 was a dry year and precipitation was below average, while 1987/88 was about normal. The total livestock units seem to have increased from 1983 to 1988 by about 37% as estimated in Table 1. However, the total livestock units are almost consistent with an estimated carrying capacity.

The performance of Sehlabathebe Grazing Association as a community based, cooperative range management institution was reported by Lawry (1986). He has stated that the emphasis of the LCRD project and the Division of Range Management was that the grazing association should become a more or less independent institutional base for community management of rangelands. The aim was to provide technical assistance to an organization that would eventually make key management decisions and exercise control over rangeland use on its own. Conventional
Table 1. Sehlabathebe RMA Livestock Population Trend.

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<tbody>
<tr>
<td>Cattle</td>
<td>2,100</td>
<td>2,739</td>
<td>3,088</td>
<td>2,779</td>
</tr>
<tr>
<td>Sheep</td>
<td>16,400</td>
<td>18,504</td>
<td>23,302</td>
<td>3,029</td>
</tr>
<tr>
<td>Goats</td>
<td>2,400</td>
<td>3,991</td>
<td>4,017</td>
<td>522</td>
</tr>
<tr>
<td>Horses</td>
<td>900</td>
<td>924</td>
<td>1,108</td>
<td>776</td>
</tr>
<tr>
<td>Donkeys</td>
<td>440</td>
<td>489</td>
<td>545</td>
<td>272</td>
</tr>
<tr>
<td>Total Animal Units</td>
<td>5,364</td>
<td>7,378</td>
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</table>

a 1983 Livestock figures obtained from Kamine and Weaver (1989)

b Lesotho animal unit equivalents: cattle = 0.90, sheep and goats = 0.13, horses = 0.70, donkeys 0.50 (Range Management Division, 1988).

c 1985 livestock numbers from Lawry (1986).

extension assistance has been in the form of advice on range management and animal production.

The constraints and prospects associated with this new organization are presented in the following discussion. Despite the goal of universal membership, not all livestock holders chose to pay annual membership fees. The enrollment for membership since the association was established, up to 1987, has been varying between about 50% and 65% of total livestock holders representing between 80% and 90% of the total livestock population within the area. The services and access to new facilities were not to be provided for livestock owned by non-members. There is no national law that compels membership, so such livestock have the right of access to grazing. However, they still have to follow the grazing plan.

The level of preparedness to adopt the grazing plan was variable. Lawry reported that some groups were better positioned than others to adopt the grazing plan. Those owning cattle posts (usually large-holders) had less difficulty adjusting. Small-holders who used to keep their herds around the villages year round had to make new arrangements, incur new costs (such as paying herders) and new worries about stock theft, and many other inconveniences. The adoption of the grazing plan has in large part been due to involvement of the project in the enforcement because the executive committee of the association appeared unable to exercise a consistently ruled enforcement program. This committee showed more enthusiasm for impoundment of livestock trespassing from outside, and inaction in enforcing rules on resident livestock owners, maybe for fear of internal conflicts. Impoundment
of livestock originating from outside has been a major exercise since the initiation of the association. However, violent resistance to such impoundments has occurred many times. Exclusive grazing rights have remained controversial, outsiders continue to graze their livestock in higher cattle post areas. Also, some resident livestock owners have not abandoned their former cattle posts in order to follow the new grazing strategy.

Other controversies concern mafisa arrangements and "temporary purchases" of livestock from outside. Many residents have been alleged to be keeping mafisa livestock belonging to either relatives or friends who live outside Sehlabathebe. Some have made arrangements to obtain livestock sales documents while the livestock from outside have not actually been exchanged for cash. The idea is that such livestock would then have access to the enclosed area even though they still belong to the herdsmen living outside. The efforts to police these activities have not been successful and have raised conflicts wherever attempted. Some herdsmen living outside this area found another approach in order for their livestock to have access. They asked for permission to establish residence within Sehlabathebe. This was granted to many by several chiefs, but they have never established new homes. Legally they have the right to graze and they continue to live at their respective villages outside Sehlabathebe. This is another squatter access ploy with which is not easy to deal. Some livestock owners have hired herders who come from outside Sehlabathebe. The question of their livestock's right of access in this area has been a
controversial one also. Attempts to drive out such livestock have raised unhappy feelings about the association and the project.

Since the project was implemented, cattle auction sales have been organized and held at least two times a year. This exercise has helped to facilitate a marketing channel. However, according to Lawry’s observation most of the participants in auction sales tend to be larger holders, who own more cattle beyond their subsistence needs and are in a better position to make sales in a planned and deliberate manner. As far as I know, auction sales for sheep were held separately. Whenever organized sheep auctions were successful, except at one time in early 1987 when extensive publicity was generated, resulting in over 2,000 sheep and goats showing up for sale. The buyer could only afford to take 300 head. One abattoir in South Africa offered an open quota for livestock originating from Lesotho. This arrangement was well appreciated by the project. Interested livestock producers were consulted and several collective shipments of sheep and goats have been made. The Division of Range Management (1988) has reported that livestock sold at Sehlabathebe through auction sales during the 1987/88 reporting year were 380 cattle, 788 sheep, and 192 goats. These figures represent the offtake rates of 12% of cattle, 3% for sheep and 5% for goats. These calculations are based on total livestock numbers presented in the same report. The report considered this marketing activity as positive. Since 1983 when the association was established up to 1988, the cash income acquired by livestock producers through auction sales of livestock (mostly cattle) was estimated at about Maluti 700,000 (Kamine and Weaver, 1989). Although the livestock
marketing opportunities have greatly been improved, the cattle and small stock that have been identified as culls are still held, and it is not easy to enforce their sales.

The association’s stud service aimed at improving the productivity of livestock has held fairly well although in some years the project staff observed that the studs were not being utilized to their potential. The Sehlabathebe Grazing Association obtained a loan and purchased nine Drakensberger and two Afrikander bulls, ten Dohne Merino and twenty-five Merino rams, and five Angora bucks. The cattle breeds were selected for their abilities to produce quality draft oxen with better growth potential when compared to the indigenous cattle, and were known to be adaptable to Lesotho conditions. Sheep and goat breeds were chosen for their commercial values concerning wool and mohair income. The LCRD end of project report (Kamine and Weaver, 1989) has indicated that the livestock upgrading program was the single, most popular element of the RMA Management plan. Since the initial breeding season of 1984/85 up to 1987/88, 951 cattle, 2,649 ewes and 560 does were bred by the stud sires mentioned above. It is believed that this program will continue to have positive impact towards the improvement of livestock productivity. By the end of the project, the association had completed the loan repayment service.

The management of stud sires and the breeding program as well as maintenance of facilities are important for the success of the association stud service. The activities involved here are as follows: monitoring of the physical condition of the studs and provision of supplementary feeding and veterinary care whenever necessary;
maintenance of developments such as stud pasture fences and water; supervision of the breeding program which includes registration of females to be bred, allocation of sires, and collection of breeding fees; and supervision of herders. All these activities have largely been performed by the project staff and not the grazing association executive committee. The committee members have been unable or unwilling to undertake these responsibilities.

The project has provided new facilities for livestock services, as well as numerous amenities that are an incentive for cooperation and sustenance of the grazing association. The cattle working facilities and the smallstock dip are always fully utilized. The new woolshed had to be staffed, and this is still a problem. Also, some members of the grazing association preferred to use the woolshed that was already existing before the new one was built. The new woolshed appeared to be controversial since the local wool and mohair grower’s association thought the method of its operation was not consistent with the constitution of the National Wool and Mohair Grower's Association. Most of the misunderstandings about the new woolshed were later resolved.

The Sehlabathebe Grazing Association can be considered to be a model, though not an ideal one. More still has to be learned about this institutional community management of rangelands and livestock improvement.
Analysis of the Approaches

The issues discussed in Chapter II have depicted the pastoralist-rangeland-livestock as a complex system in Sub-Saharan Africa. The case studies just reviewed also show the complexity of the pastoral sector context in specific countries. Table 2 is an analysis of these case studies based on the issues that have implications on the performance and sustainability of these institutional approaches. This analysis is based on the reports that were available for review as cited in discussion of these approaches.

The analysis in Table 2 has implications on the performance that may be perceived about these institutional alternatives. Since these approaches are very recent it is difficult to be conclusive on whether they are a failure or a success. However, this is more or less a systems analysis; how component parts interact and contribute to a whole (Sidahmed and Koong, 1984). The argument presented by Sidahmed and Koong is that lack of success in development programs in Sub-Saharan Africa is due to absence of integrated strategies which encompass the different environment, social, economic, biological and other variables that govern the pastoral production system. A systems analysis approach helps to unify and summarize information and concepts for better understanding of a particular system; identify critical knowledge gaps and reduce conceptual difficulties; and also helps in the planning and policy decision making process.
Table 2. Analysis of the Approaches.

<table>
<thead>
<tr>
<th>Issue Items</th>
<th>Kenya</th>
<th>Upper Volta</th>
<th>Lesotho</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intervention proposed by....</td>
<td>Government and Project</td>
<td>Government and Project</td>
<td>Government and Project</td>
</tr>
<tr>
<td>2. Objectives determined by....</td>
<td>Government and Project</td>
<td>Government and Project</td>
<td>Government and Project</td>
</tr>
<tr>
<td>3. Innovations and developments involved or planned:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. sedentarization</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>b. exclusive land rights</td>
<td>yes</td>
<td>yes</td>
<td>none</td>
</tr>
<tr>
<td>c. perimeter fence</td>
<td>none</td>
<td>not mentioned</td>
<td>seasonal rotation</td>
</tr>
<tr>
<td>d. grazing system</td>
<td>rotational</td>
<td>none</td>
<td>membership fees</td>
</tr>
<tr>
<td>e. fees or taxes</td>
<td>none</td>
<td>none</td>
<td>culling</td>
</tr>
<tr>
<td>f. livestock limitations</td>
<td>stock quota</td>
<td>stock quota planned</td>
<td>not applicable</td>
</tr>
<tr>
<td>g. water developments</td>
<td>boreholes and dams</td>
<td>boreholes and dams</td>
<td>prescribed burns</td>
</tr>
<tr>
<td>h. rangeland improvements</td>
<td>none mentioned</td>
<td>re vegetation and fire control</td>
<td></td>
</tr>
<tr>
<td>i. livestock improvement</td>
<td>upgrading</td>
<td>upgrading</td>
<td>upgrading</td>
</tr>
<tr>
<td>j. veterinary services</td>
<td>inadequate</td>
<td>inadequate</td>
<td>inadequate</td>
</tr>
<tr>
<td>k. livestock marketing</td>
<td>not as favorable</td>
<td>so far low offtake rates</td>
<td>active, but seasonal</td>
</tr>
<tr>
<td>4. Sources of funds for developments, improvements and management</td>
<td>loan</td>
<td>loan</td>
<td>project, loan, fees on trespass and membership</td>
</tr>
<tr>
<td>5. Performance on loan repayment</td>
<td>poor</td>
<td>poor</td>
<td>successful</td>
</tr>
<tr>
<td>6. Legal device to exclusive land rights</td>
<td>Land Act, Freehold title</td>
<td>Group ranch statute, 50-year lease</td>
<td>Range Management and control regulations</td>
</tr>
<tr>
<td>7. Organization’s constitution developed by ....</td>
<td>government</td>
<td>government and project officials</td>
<td>officials and community</td>
</tr>
<tr>
<td>8. Legal authority to enforce constitutional by-laws</td>
<td>clear</td>
<td>ambiguous</td>
<td>ambiguous</td>
</tr>
</tbody>
</table>
Table 2. Analysis of the Approaches (continued).

<table>
<thead>
<tr>
<th>Issue Items</th>
<th>Kenya</th>
<th>Upper Volta</th>
<th>Lesotho</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Whether voluntary or forced membership</td>
<td>motivated by desire</td>
<td>motivated by desire</td>
<td>voluntary</td>
</tr>
<tr>
<td></td>
<td>for secure land rights</td>
<td>for secure land rights</td>
<td>compliance</td>
</tr>
<tr>
<td>10. Ability of an organization’s committee to</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>enforce rules, make sanctions and manage the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>affairs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Committee member’s level of education</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>12. Level of government or project involvement</td>
<td>moderate</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>in decision making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Level of extension assistance</td>
<td>adequate</td>
<td>adequate</td>
<td>adequate</td>
</tr>
<tr>
<td>14. Previous model to learn from</td>
<td>grazing schemes</td>
<td>none</td>
<td>Thaba-tseka</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grazing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Association</td>
</tr>
<tr>
<td>15. Level of anticipated recurrent cost problem</td>
<td>low</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>16. Developmental status</td>
<td>towards</td>
<td>too early to judge</td>
<td>committee turn</td>
</tr>
<tr>
<td></td>
<td>individualization</td>
<td></td>
<td>over three</td>
</tr>
<tr>
<td>17. Ecological viability of the enclosure</td>
<td>not viable</td>
<td>not viable</td>
<td>viable</td>
</tr>
<tr>
<td>18. Range condition trend</td>
<td>no evidence of degradation</td>
<td>not yet assessed</td>
<td>stable</td>
</tr>
</tbody>
</table>
CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS RELEVANT TO LESOTHO

The institutional approaches reviewed in the previous chapter have many characteristics in common, such as that they were suggested by the governments and projects, and their objectives similarly determined. Some of the interventions such as sedentarization, new grazing controls and exclusion of other groups had problems being widely accepted. Other interventions were welcome. Although it is necessary for the governments to create awareness towards needed development, it is also important that participation be sought from communities in determining the objectives and planning for their future. The legal devices that are more certain such as for group ranches in Kenya are important in the acceptance of these new institutional approaches. It is also necessary to embark on intensive education of rural communities so as to enhance better understanding of development efforts.

In Lesotho, grazing associations are an alternative approach towards proper management of rangelands and improvement of livestock productivity. The traditional controls by chiefs at various levels are still important and have to be supported with appropriate policies and more elaborate national laws. Policy formulations should be undertaken in collaboration with the general public.

The allocation of grazing in Lesotho using the grazing permit system is cumbersome and inefficient. Grazing permits are to be distributed by ward or principal chiefs. The logistics involved and
distances to be traveled to obtain the permits are usually discouraging to livestock owners. Usually these chiefs do not have enough personnel to administer a grazing permit service. The carrying capacities for the areas for which permits are allocated are never considered because the chief normally does not restrict his people access to grazing areas. Grazing permits in Lesotho lead to unrestricted access and continued rangeland deterioration (see grazing permit form, Appendix C).

Another alternative for grazing control in Lesotho can be a grazing quota system as previously discussed in Chapter II under aspects of land tenure. After the determination of carrying capacities in chieftainship jurisdictions, all households interested in livestock rearing may be allotted equal grazing quotas to pay for. The grazing quota could be rented out by those without or with fewer livestock to those with more livestock than permitted by their quotas. This way, all get the benefit from the land, exclusions from customary grazing areas would be avoided, but the optimum stocking rates would be maintained. This system would require high administrative costs and extensive information on livestock populations and ownership; especially during the early stages of implementation. Range inventorying and monitoring work would have to be competent so as to decide on proper stocking rates and allow flexibility of livestock population in accordance with variations in forage production as influenced by climatic fluctuations. The development of statutes regulating this system would have to involve the public at large.
Grazing associations are highly advocated in Lesotho. This approach as is now in progress at Sehlabathebe avoids the problem of coordinating use between too many villages that are geographically isolated. However, this approach has problems associated with reassigning grazing rights to cattle post areas, especially when historic grazing patterns are interrupted. The Sehlabathebe approach of membership that is open and based on the livestock holding community at large was considered fair and just, and that it has a better chance of success (Ministry of Agriculture, 1986). It is recognized that livestock in some communities are displaced as a result of forming grazing associations, and the question of where they should graze remains difficult to answer. It is recommended that adjudication of land use or grazing rights be pursued to minimize conflicts. Also, village communities should be educated on alternative agricultural enterprises on which they can make a living without relying on range livestock.

The grazing association’s legal standing on land in Lesotho is not certain. The legal authority for Sehlabathebe Grazing Associations’s enforcement of its constitutional by-laws is not quite clear. If the grazing associations are a valid recommendation, national statutes regarding this institutional approach should be developed. A formulation of such statutes if done democratically is likely to incorporate all critical aspects of the community context, and may be widely accepted.

The characteristics and objectives of livestock producers have implications on livestock and rangeland improvements. The study of
Lawry (1986) reported the heterogeneity of the livestock owning population in Lesotho. The cattle owners without smallstock were less likely to own cattle posts and tended to have difficulty in adopting a new grazing strategy that required movement of all livestock to cattle post areas during summer months. Cattle post ownership is associated with ownership of large holdings of smallstock; about 80% of all small stock are held by operators owning cattle posts. Livestock owners having small holdings of sheep and goats are likely to mafisa their stock to large holders who would keep such livestock at cattle posts under large herd management. Lawry reported that a minimum of about 300 head of smallstock would have to be maintained to compete with other income opportunities and to meet required costs.

Since smallstock are concentrated in a relatively small number of large holdings (90 livestock operators out of 475 livestock owners at Sehlabatethebe), more extension efforts should be directed to this group. This largeholder group is more likely to own the assets and control inputs such as labor necessary to improve management (Lawry, 1986). Universal membership in the association is not a realistic goal. In order to maintain the associations credibility as a management authority, core support from influential stockholders is adequate.

The enthusiasm by government officials to promote livestock marketing should take into account livestock producers' objectives for keeping livestock. Meat market is not their main objective. Livestock are capital assets that provide a variety of economic and social needs. Also, the availability of livestock for auction sales is seasonal; producers participate in auction sales more in autumn than in any other
season. In preparing for auction sales problems of obtaining proof of livestock ownership documents (*babeisi*) are often encountered. In many cases livestock owners fail to sell their livestock because of *babeisi* unavailability. The logistics for availability of *babeisi* should be sought out by the government for smooth organization and success of livestock marketing arrangements. Livestock marketing should also have less government involvement, but encourage private trading. The Livestock Produce Marketing Services (LPMS) and the National Abattoir and Feedlot Complex (NAFC) auctions have largely disrupted the established rural marketing patterns and have raised unrealistic expectations of high prices. The inflated prices of livestock in Lesotho have been caused by LPMS and NAFC. The current situation in Lesotho is that livestock producers refuse to offer their livestock for sales if the prices given are less than those set by LPMS and NAFC.

If grazing associations have to be promoted in Lesotho, the Cadre well trained in disciplines relevant to management of community based associations, range and livestock management, and willing to stay and work in rural areas should be available. Our experiences at Sehlabathebe have indicated that the committee in this new institutional approach will take a long time before it is able to manage its affairs. Hence, a sustained government support is recommended. In October, 1987, another grazing association was registered and is now operating adjacent to Sehlabathebe. This grazing association, called Moshebi/Ramatseliso encompasses an area of about 10,000 ha. So far two more grazing associations have been established in north eastern Lesotho: Pelaneng/Bokong 35,000 ha and
Sanqebethu/Mokhotlong 50,000 ha. The Division of Range Management should be aware of and plan for recurrent costs associated with these new establishments.


APPENDIX
Appendix B. Sehlabathebe RMA Pasture Sites and Rotation Dates.
<table>
<thead>
<tr>
<th>Letshwotse</th>
<th>Linku</th>
<th>Lambs</th>
<th>Goats</th>
<th>Kids</th>
<th>Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Livestock Improvement Centre

Name of Inspector: ___________________________

First Dipping No: ___________________________

Second Dipping No: ___________________________

4. Lesana la thabdisho le hlahl briefeg
Number of stock inspected

<table>
<thead>
<tr>
<th>Lesena la thabdisho</th>
<th>Number inspected</th>
<th>The Missing</th>
<th>Number killed</th>
<th>Official Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Sheep</td>
<td>Goats</td>
<td>Sheep</td>
<td>Goats</td>
</tr>
</tbody>
</table>

5. Lesana la thabdisho le haltheung
Number of stock counted

<table>
<thead>
<tr>
<th>Lesena la thabdisho</th>
<th>Number of Livestock</th>
<th>Sesaba sa philana</th>
<th>Number killed</th>
<th>Lesena la thabdisho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Sheep</td>
<td>Goats</td>
<td>Sheep</td>
<td>Goats</td>
</tr>
</tbody>
</table>

Grazing Control Supervisor/Ranger Officer: ___________________________