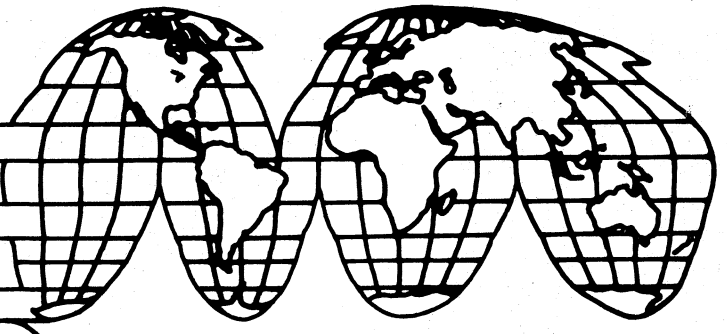
A RESEARCH PAPER

Number 78
March 1983

LAND TENURE, LAND POLICY, AND SMALLHOLDER LIVESTOCK DEVELOPMENT IN BOTSWANA

by
Steven W. Lawry

LAND TENURE CENTER



AN INSTITUTE FOR RESEARCH AND EDUCATION
ON SOCIAL STRUCTURE, RURAL INSTITUTIONS,
RESOURCE USE AND DEVELOPMENT

LAND TENURE CENTER
1525 OBSERVATORY DRIVE
310 KING HALL
UNIVERSITY OF WISCONSIN-MADISON
MADISON, WISCONSIN 53706

U.S. ISSN 0084-0815

March 1983

R.P. No. 78
U.S. ISSN 0084-0815

LAND TENURE, LAND POLICY, AND SMALLHOLDER LIVESTOCK DEVELOPMENT IN BOTSWANA

by

Steven W. Lawry*

* Research Assistant, Land Tenure Center, and Ph.D. candidate, Land Resources, at the Institute for Environmental Studies, University of Wisconsin-Madison.

LAND TENURE, LAND POLICY, AND SMALLHOLDER LIVESTOCK DEVELOPMENT IN BOTSWANA

by

Steven W. Lawry*

* Research Assistant, Land Tenure Center, and Ph.D. candidate, Land Resources, at the Institute for Environmental Studies, University of Wisconsin-Madison.

LTC Research Paper 78

Land Tenure Center
University of Wisconsin-Madison
March 1983

TABLE OF CONTENTS

Preface

This paper was written as a contribution to the Land Tenure Center project on land tenure and African pastoral systems. A large portion of this paper will appear in the project's final report to the U.S. Agency for International Development, which has supported the work of the project through its Cooperative Agreement with the Land Tenure Center. The considerable attention that the Botswana case has received in our research is an indication of the extent to which Botswana's experiences with livestock development and range management, and especially with land tenure reform, offer potentially valuable lessons for similar efforts elsewhere in Africa.

The paper is in two, more or less separate parts. Part I provides a history of the evolution of present-day livestock and grazing policy, from its antecedents in the colonial era through important post-independence economic and political developments. Part II provides a more detailed analysis of policy toward the smallholder livestock sector, with particular attention given to recent proposals for improving smallholder land use practices under communal tenure. Though the paper concludes with some of my own views on the main issues, I wish to emphasize the intrinsic difficulty, and at this stage in our understanding, undesirability, of reaching definitive conclusions on the sorts of policy issues with which Botswana is attempting to grapple. The problems of smallholder livestock development under circumstances of rapid social and economic change and institutional uncertainty draw the analyst toward awkward and in some respects seemingly contradictory conclusions. I hope that readers will see this paper more as an attempt to clarify issues and better delineate realistic policy options than as a vigorous assertion of strongly held views.

I am grateful for the assistance of many friends and colleagues in helping me see this paper through to completion. My pastoralism project colleagues and co-authors, John W. Bennett and James C. Riddell, have been a source of great stimulus and encouragement. An early draft of Part I of the paper was developed in John Bruce's African Law Seminar. His guidance and support throughout is very much appreciated. Several others provided specific comments on earlier drafts, or helped me develop and refine my thinking by listening and reacting to nascent ideas and speculation. For this, I wish to thank Julie Fischer, Louise Fortmann, Paul Heisey, Robert Hitchcock, Don Kanel, Steve Morrison, Malcolm Odell, Kenneth Parsons, Ford Runge, Andrew Seager, Chris Sharp, and Stephen Turner. I am grateful to Kathy Torok and Jane Dennis-Collins for patiently typing, and retyping, various drafts of the manuscript.

Steven W. Lawry

Madison, Wisconsin
March 1983

Precis

The paper is in two parts.

Part I describes the evolution of public policy toward livestock and grazing land, from its antecedents in the colonial period (1889-1966) to the framing of the Tribal Grazing Land Policy (TGLP) in 1975. Since the 1920s, dual livestock economies have evolved in Botswana: a dynamic commercial sector characterized by large holdings, superior access to markets, technology, and financial resources, and possessing a commercial production orientation; and a smallholder sector using livestock for a variety of purposes, such as for draft power in agriculture, as a form of savings, and also as a marketable commodity. Economic and political changes have consistently enhanced the position of largeholders, due to the cumulative but differential effects of the increasing importance of market relations in cattle, the widespread introduction of deep borehole-drilling technologies, and colonial and post-independence government policies which generally have favored the commercial, largeholder sector. The TGLP primarily supports the interests of the commercial sector, by extending loans and credits for the development of large-scale ranching enterprises. The policy also provides for the conversion of land tenure from a communal grazing basis to the granting of exclusive leasehold rights to qualified stockholders in designated commercial zones. The policy is effectively silent on the production, resource use, and tenure problems of the majority of stockholders who constitute the smallholder sector.

Part II of the paper reviews some more recent ideas for promoting the smallholder sector, mainly through improving the management of communal grazing resources. An important area of policy study has recommended reinstilling local-level traditional authorities with their former prerogatives to regulate resource use. Failing action by traditional authorities, other forms of local-level regulation of communal grazing have received considerable attention.

It is argued in this paper that most conventional approaches to local institutional development do not account for the extent to which the potential authority of local institutions for regulating resource use has been irretrievably undermined by changes in the structure of the rural economy. The changing role of livestock in household income strategies also militates against many forms of local-level action. It is argued that decreasing reliance on livestock as a source of current income contributes, along with other factors, to increased resource degradation.

The paper presents an alternative approach to considering the tenure and resource use problems of smallholders. While the preservation of communal tenure is essential to the maintenance of smallholder production, tenure rules must be better defined in terms of individual rights to common property. A distinction is drawn between "common property" and "open access," as the situation that prevails now on most communal range. Over the long term, district land boards, and not traditional institutions, provide the greatest potential for beneficially influencing resource use patterns, and for translating national policy for resource development into local-level programs. Policy toward communal grazing land management should be approached from a public

lands management perspective, and less in terms of the range management perspective. The latter is essentially an agronomic tradition, while the former focuses more directly upon those economic and institutional aspects of resource use most relevant to Botswana's resource management problems.

PART I.

THE EVOLUTION OF LAND POLICY AND LAND TENURE REFORM: THE TRIBAL GRAZING LAND POLICY

Introduction

Botswana's approach to problems of pastoral change and development has taken a distinctly different path from strategies found elsewhere in sub-Saharan Africa. This is particularly the case with respect to land tenure, or in the extent to which land tenure is seen as an important contributing factor to the realization of policy objectives in agriculture and rural development. Botswana offers a rare case where, both in the analysis of constraints to development goals and in the design of prescriptive policies, land tenure considerations have played a central role.

A major focus of attention in the livestock sector has been upon the supposed inhibitory effects of communal tenure, or the perceived unrestricted grazing of individually owned herds upon open range, in contributing to low levels of animal productivity, in acting as a constraint to investment, and in leading to the cumulative deterioration of the land resource. The corrective for these problems was to be the Tribal Grazing Land Policy (TGLP), first announced in July 1975, after a long period of what proved to be only preliminary planning, and negotiations with donor agencies, including the World Bank and USAID.

The TGLP is a complex policy and program for the development of commercial livestock production in Botswana. At the heart of the policy is the granting of exclusive, long-term, leasehold rights to extensive areas of previously communal range land to cattle owners commanding sufficient capital resources and management expertise to engage in strictly commercial cattle ranching enterprises. The policy aims to correct many problems that in large part have been attributed to communal tenure, including uncontrolled overgrazing, susceptibility to high stock losses during drought, and low land and livestock productivity. The grazing policy included a strong rhetorical commitment to equity and fair income distribution, and at least initial program plans provided that rents generated by ranch leases would be invested in projects to improve the management of the remaining communal ranges, still occupied by smallholders.

Nearly eight years have passed since the announcement of the policy to the Botswana Parliament by the late President Seretse Khama. The intervening

years have been marked by the execution of an elaborate and on the whole quite professional planning exercise which, though initially undertaken as contributory to the smooth implementation of the grazing policy, is more noteworthy for providing the first indepth understanding of the workings of the contemporary pastoral system. Much of the applied research associated with the planning exercise has suggested conclusions that challenge the validity of many of the assumptions upon which the policy was built, including those related to land tenure. In some instances research conclusions have gone beyond the cautionary, and pointed to alternative models for tenure change based upon a perceived better understanding of the social, economic and ecological interrelationships that underpin pastoral production.

Although the tenure debate in Botswana tends to be characterized by a confusion of goals, and by the quiet clash of clearly different long-term policy objectives, the Tribal Grazing Land Policy provides a particularly rich example of the role of land tenure change as an instrument for rural transformation. Part I of this paper provides a case study of the TGLP. The historical antecedents and contemporary assumptions that contributed to the formulation of TGLP as a policy for tenure change are given close attention; for these bear similarity to many of the assumptions that inform thinking on tenure reform elsewhere in Africa, and particularly in those countries experiencing rapid commercialization of livestock production.

The Colonial Era

The antecedents to Botswana's present day approach to pastoral issues took shape in the colonial period, from 1889 to 1966. The colonial period saw the necessary modifications and evolution of the social relations, and the establishment of the market and infrastructure conditions, which created the logic for present day policy toward livestock development. But unlike the experience in East Africa, colonial policy toward livestock generally favored pastoral production. The territory was occupied and governed by pastoral tribes, and the relatively low rainfall, lightly populated savannas that constituted much of the country favored livestock production from an ecological point of view. According to Issac Schapera (1943) "The country is notoriously more suitable for ranching than for the cultivation of crops, which, indeed, is possible only in certain regions" (ibid.:209).

Recent histories of colonial policy toward livestock (Roe, 1979, Odell, 1980, Colcough and McCarthy, 1980) emphasize the widely held perception of colonial officers of the 1920s and 1930s that Botswana's comparative advantage in export markets lie in livestock production - and that government policy should be directed toward promoting that advantage. As one example, Schapera (1943) notes the recommendation, "highly unusual in the history of animal husbandry among African peoples," (ibid.:213) of the influential 1939 Walker-Hobday report on the Protectorate cattle industry, that "every effort should be made to increase the cattle population of the country to safe limits, so that the capital resources of the country can be improved" (ibid.). The recommendation was in part advanced because the cattle population had actually decreased from about 1,200,000 in 1935, to 640,000 in 1939. "Losses from

drought accounted for a high proportion, but almost three-fifths of the decreases was due to smuggling and legal export" (ibid.).

Schapera further observed that "the Tswana do not hoard cattle for mainly social and ritual ends," but rather produce for a variety of mainly subsistence or market and on the main economic purposes. Although cattle as social currency continued to play a role, particularly for purposes of bogadi, or bridewealth, these customs did not contribute to what writers of the time would characterize as "hoarding," or undue accumulation and retention of cattle for mainly social purposes. On the contrary, evidence given by the regent Chief of the Ngwato, the largest Tswana tribe, to the Pim Commission on Protectorate development in 1933 underlines the early importance the traditional leadership attributed to cattle production for market.

> Pastoral development is the only real development for a native of the Bechuanalard Protectorate. The Native is still largely dependent for his subsistence on his pastoral pursuits, and in this connection cattle are indispensable to him. He has no capital except in the shape of stock, and there are no other effective development industries within his country upon which he can depend for a living. It is the ambition of every Native to increase his stock, and he is greatly concerned with his yearly income which is derived from the ordinary and natural increase of his stock. . . . He is not like the primitive Native, but he increases his stock for commercial purposes (Schapera, 1943:211).

Schapera, an acute observer of Tswana society, is quick to point out that Chief Tshekedi's broad characterization of the Tswana as predominantly commercial cattlemen was not wholly correct. Most cattle owners sold only one or two head at a time, to purchase essential goods, and particularly grain during deficit years and to pay taxes; in other words, "the primary motive was to secure a means of livelihood" (ibid.:213).

Nonetheless, Tshekedi's testimony provides evidence that the notion of cattle as a commercial commodity had taken root early on in modern Tswana culture. More specifically, Tshekedi's testimony reflected an interest on the part of the traditional leadership in advancing market relations in cattle generally, and in enlisting the assistance of the colonial government in developing commercial opportunities. By virtue of their traditional authority, chiefs had become owners of large cattle holdings, but on the main, for purposes other than sale or commercial profit. Parsons (1977) characterizes pre-market relations in cattle in terms of a semi-feudal system, whereby chiefs granted usufructuary rights in cattle to kin and close associates in return for their political loyalty. Ultimate ownership rights, however, continued to reside with the chiefs.

Parsons traces the foundations of the Ngwato (the largest and politically most important of the Tswana tribes) economic system to the rule of Kgari, from c. 1817-1826/8:

> Kgari is credited with creating or rationalising the system of socio-economic stratification that tied together the political structure of the Ngwato state. It was based on the mafisa system characteristic of Tswana

> and Sotho societies, whereby the ruling class farmed out cattle to client clans or families, who became herdsmen holding royal property in a sort of feudal system. Mafisa cattle formed the contractual basis of political relations between the rulers and the ruled (Parsons, 1977:114).

Relatively tight political control exercised through the medium of agricultural property fueled the rapid extension of territorial control by subsequent Tswana chiefs. It also formed the basis for rather vigorous settlement and agricultural "zoning" controls, that led to the establishment of what became the largest traditional settlements in Africa. Within a generation, however, internal tribal disputes (usually instigated by larger cattleholders) over rights of ownership to cattle came to constitute "the main internal threat to the stability of the kingship" (ibid.:117). The claims on the part of successive chiefs to ultimate rights to mafisa cattle were seen by "vassals" as undue interference in their freedom to take advantage of new trading and commercial opportunities afforded by the extension of the Cape mercantile economy into Tswana territory. Chief Macheng (the immediate successor to Kgari) was believed by Khama to have "precipitated his own downfall at the hands of a small group of large cattle-holders in 1859" because he attempted to claim indiscriminate rights to all cattle (ibid.).

It was Khama himself who in 1875 harmonized emergent commercial ambitions of large stockholders with rights to trade in livestock as a commodity.

> (Khama's) first action (as chief) was to summon the Ngwato to the Shosbeng kgotla. To the royal headmen and to the batlanka vassal headmen he renounced any royal rights to the ownership of the cattle that they held: the cattle (and therefore the serfs with them) were now "private" property. To the "settlers" Khama renounced taxation in the form of regular tribute, and allowed them property rights to their produce. As a result, Khama later claimed: "I was left without any personal stock of my own . . . so far as prosperity was concerned, practically on the same footing as any individual member of the tribe, and like each of them I had to struggle hard for my subsistence; a matter unprecedented in the whole history of our tribe as well as of the other native tribes in general . . ." (ibid.).

Khama's declaration of private rights to cattle freed his subjects (and notably himself) from prior constraints to trading in cattle, though "the liberalization of private property relations was a slow and cumulative process, dependent on the scale of productive opportunities in the market as well as upon the progressive extension of citizenship rights even to some serfs by 1911" (ibid.). Parsons notes that, true to expectations, it was the large cattle owners who gained the most by the freeing of livestock from royal ownership, by realizing cash from sales of cattle and purchasing imported goods, first from the long-distance wagon traders and later from established European trading points in Ngwato territory. Furthermore, largeholders used cash to purchase additional cattle from smaller holders, effectively building up their herds even further, only now freed from "burdensome political reciprocities (of mafisa)" (ibid.:120).

Thus we see that among the Tswana, social relations in cattle took on increasingly less importance relative to cattle as a commodity, as well as a

continuing source of subsistence, whether it is for milk, meat, or the draft power it provided. Even during the 1930s, the practice of bogadi had decreased to largely symbolic levels. Schapera (1938) notes that the average number of cattle transferred as bride payment among the Tlokwa was one beast; among the Kgatla, three; and among the Ngwaketse, six. The Ngwato and the Tawana had by the 1930s completely abolished the practice.

Significantly, the movement for lessening traditional constraints to market participation received its greatest impetus from the ranks of royal lineages, or the traditional leadership groups. Control over relations in cattle where, next to land, the most important source of political control exercised by chiefs over tribesman. The muting of these ties in favor of less constrained market relations in cattle would have, in the long term, indirect implications to royal prerogatives over land matters as well, as we shall see later.

Although chiefs and associates faced a loss of political power, their economic positions were clearly enhanced, for the private holdings of traditional authorities, accumulated by virtue of past prerogatives of traditional office and kinship, formed the basis of large-scale commercial livestock enterprises. The disposable capital and cash resources that largeholders commanded provided the finance necessary for making investments in comparatively expensive water development projects. Development of underground water resources permitted the year-round occupation of grazing areas previously available only in the rainy season.

We have seen that the Batswana "appear to stand out from other pastoral peoples in that cattle are increasingly regarded as a commercial commodity, not just as symbol of traditional wealth and status" (Colcough and McCarthy, 1980:114). Futhermore, traditional authorities acted to free tribesmen from the constraints to commerce that traditional relations had proscribed. Skewed patterns of ownership, originating in customary relations in cattle, were preserved and strengthened as market relations became more important. Traditional leaders and their close associates had livestock holdings of the scale sufficient to meet virtually all personal income requirements through beef production.

The less favored had essentially two alternative income-earning options, arable crop production or labor migration, typically to mines in South Africa. Each option, or combination of options, was often pursued in concert with some form of animal husbandry, though for slightly more variegated reasons than the commercial production objectives of the larger holders. For households engaged in subsistence crop production, ownership or at least access to cattle was necessary to successfully plow the arable field. Remnants of the mafisa system, described above by Parsons, allowed for the lending of cattle, including draft oxen, to kin who needed them for plowing and for milk. This redistributive function continues to be practiced today, though its importance is decreasing. Mine labor returnees would often invest their cash earnings in purchase of one or two head of cattle. This was and continues to be seen as an appropriate form of savings by poorer households. Typically, breeding stock would be purchased initially, with the aim of eventually building up a herd able to contribute to a variety of income needs, providing food, draft power, and a source

of ready cash in times of need. The long-term aim of the migrant worker was to achieve sufficient income from farming operations to enable him to leave the mines.

Skewed patterns of livestock ownership have given rise to differential production goals, which in turn has had implications to the framing of livestock policy. That skewed ownership patterns have their origins in traditional social relations has already been noted. Schapera observed that among the Kgatla in 1932 "nearly one-quarter of all cattle in the tribe were then owned by five men: the chief had about 5,500 head, his uncle Isang 2,500 head, two other uncles 500 cattle each, and a prominent commoner 600 head" (Schapera 1943:219). The 1975 Rural Income Distribution Survey (RIDS) showed that cattle distribution had in the intervening years become even more skewed. The RIDS survey classified ownership by three cohorts, in part distinguished by the economic goals of cattle production.

The first group is those households that own no stock, about 45 percent of all rural households. This group is highly dependent upon arable crop production and labor migration of household members to meet the basic subsistence budget. Cattle for plowing must be hired or borrowed, effectively limiting the extent of area actually cultivated. Due to the higher propensity of most household heads to migrate, these households are often headed by females. "Thus households without cattle are also characteristically short of labour, and ploughing, which is traditionally regarded as men's work, is often difficult" (Colcough and McCarthy, 1980:111).

The second group of farmers is those with up to 50 head of cattle. This group accounts for about 40 percent of rural households, and owns about one-quarter of the national herd. Cattle ownership by this group allows for pursuit of a mixed farming strategy. Land under cultivation is typically much more extensive than that of the non-stockholder group, and yields per area cultivated are higher. "On the other hand, these farmers are not wealthy enough to acquire exclusive ownership of a borehole for watering their cattle, and consequently have to use the heavily overgrazed areas surrounding communal water points" (ibid.).

The third group, or remaining 15 percent, own an estimated 75 percent of the national cattle herd. For this group, arable production may not be as important in contributing to aggregate income requirements. "This group is quite small but includes some enormously wealthy individuals including the President, the Vice-President, and many other leading figures in the (ruling) Botswana Democratic Party" (ibid.:112).

Other surveys of rural income distribution and household economic activity since 1975 have tended to confirm the broad ownership patterns provided by the RIDS, with some slight adjustment and refinement. A 1981 Ministry of Agriculture study, The Structure of Traditional Agriculture in Botswana, associated patterns of livestock ownership with production mixes along the following lines.

1) The small farmers, owning less than 10 head of cattle, whose primary emphasis is on crop production. However, due to input constraints, land actually cultivated is seldom greater than 1 or 2 ha.

2) A group of medium-sized farmers, who own between 10 and 40 head of cattle. This group cultivates between 2 and 7 ha of land. Smallstock are kept for household meat requirements, while the odd head of cattle is sold to meet supplementary cash requirements.

3) The large traditional farmer will have more than 40 head of cattle; his farming strategy may be either mixed, or specialized in cattle production for market sale. At the same time, his increased capital holdings (e.g., tractors, implements) may contribute to quite large fields and greater crop production (MOA, 1981:25).

Differential production goals are in large part a function of differential patterns of cattle ownersip, with large stockholders producing for the market, and smallholders pursuing more variegated strategies, with beef production for market having less overall importance. Furthermore, largeholders of commercial herds are typically of the same families that held large herds as social capital, and who generally commanded easier access to land and other productive resources by virtue of their social position. The rapid evolution of market relations and the associated differentiation of production goals have had important implications to policies toward land and water rights in Botswana. Before describing those implications a fuller description of traditional tenure rules is in order.

Grazing land in the broadest sense was and continues to be communal; that is, group rights, typically vested in a territorial chief and later in a land board, assured group members access to land for grazing within the confines of the group territory. Two fundamental principles governed the Tswana land tenure system; "all members of the tribe were entitled to land" and "individuals were not allowed to own land" (Hitchcock, 1980:4).

As is typically the case with systems of communal tenure elsewhere in Africa, complex rules existed, often grounded in kinship arrangements, to distribute territorial rights among group members, and to a certain extent regulate land use once new territories were fully occupied. In the Tswana case, blocks of land for homesteads, arable fields, and grazing were allocated by the paramount chief on the basis of ward associations. Land was selected for various uses on the basis of its suitability and its proximity to homesteads. An effort was made to reserve areas of more favorable soils for crop land, while more distant areas also possessing the requisite, naturally occurring water sources were set aside for grazing. The notion of concentric zones, with quite large residential villages forming the core, surrounded by fields and their extensive grazing areas more or less accurately describes the organization of Tswana agricultural settlement. The maintenance and continued order of the system depended upon the prejorative rights of the chief in allocating land rights in harmony with this system. As we shall see, post-independence measures which transferred corporate landownership rights from chiefs to administrative land boards failed to successfully transfer a certain institutional memory and "image" of interrelated system necessary for continued maintenance of a zonal system.

Nonetheless, in pre-independence Botswana, land for residential and arable purposes was allocated in blocks by the chief to ward heads. The ward heads

in turn would distribute land to households on the basis of need. Fresh allocations of arable land would be made, for instance, to sons of the group upon marriage to daughters of the group or of other wards. When a block allocation was fully occupied, a new allocation would be made by the chief. Rights to cultivated land were inheritable.

Allocation of land for grazing purposes followed a slightly different, and less formal, procedure. Areas distant from field and village were designated as grazing land. Several wards would be assigned grazing rights in a single large block, called naga (pl., dinaga), for which an overseer (modisa) was appointed. A modisa may or may not have been a ward head. One of the modisa's functions was to ensure that only group members (that is, members of qualifying wards) established cattleposts in the naga. He also encouraged adequate spacing of cattleposts, so as to inhibit isolated overgrazing.

There is no conclusive evidence that badisa acted as supernumerary range managers, regulating the aggregate stocking rate or directing the grazing patterns of individual herds. Rather, badisa acted primarily to protect the land rights of the group against infringement by outsiders. They provided very little in the way of actually regulating grazing practices and controlling stock numbers among group members. Furthermore, their effectiveness at executing these rather modest regulatory powers appears to have been limited to times and places of general resource abundance. Schapera had by the early 1940s already observed the breakdown of the institutional basis for grazing assignment by groups in the smaller tribal territories of the Bamalete and Batlokwa.

> Among the Malete and Tlokwa, the members of each ward formally had their cattle posts together in one area, which was assigned to them by the chief for their common use. Outsiders, however, could be and were often admitted on request. Owing partly to this, and partly to the limited amount of grazing land available, the old system of separate ward areas has apparently broken down completely.. Today (1943) a man may graze his cattle freely anywhere within those parts of the reserve that are recognized as pasture ground, i.e., he does not require special permission to move from one place to another (Schapera 1943:223).

Dinaga as the territorial basis for assigning group grazing rights was retained longer by tribes with sufficient land for territorial expansion. Most notable were the Ngwato, the largest Tswana tribe who during the colonial period occupied over one-half of the tribal trust territories, including a large area of relatively unsettled savanna on the edge of the Kalahari, in the western portion of their territory. Hitchcock relates decreasing levels of supervisory control by Ngwato badisa to changing group composition, resulting from labor migration and other influences of the industrial and commercial economy that was coming to envelop rural life.

> Changing social and economic circumstances of wards, combined with the practice of sometimes granting land to non-ward members, resulted over time in a blurring of ward boundaries and a mixing of claims to specific areas. The gradual breakdown in ward association with specific blocks of land has, in turn, affected the efficiency of land supervision. If an

> overseer of a grazing area died without a son to succeed him, the office might shift into the hands of an unrelated person. A kind of positive feedback resulted in less and less land being granted to the original ward members, and the process of ward disintegration spended up. Today there are relatively few areas which belong solely to individual wards without some nonward members having customary rights there (Hitchcock, 1980:7).

Thus, customary practice regulated grazing in two ways. First, badisa, or grazing overseers, limited access to allocated grazing distrcts, or dinaga, to group members; and second, isolated overgrazing around water points was ameliorated by the modest spacing of cattleposts (Schapera, 1943:231). Typically, the group's year-round grazing requirements were provided within the confines of the naga. During the dry season, cattleposts were situated near perennial wells or boreholes. With the coming of the rains, in October and November, cattle would be moved to more favorable grazing areas near ephemeral or seasonal water sources, including pan surfaces, shallow wells and dams, and pools in seasonal river beds. Patterns of movement on a group level were, and are, too irregular and informal to be characterized as transhumant, or regular movement between a permanent village and a wet season grazing area. Rather, movements are opportunistic in character, and vary with highly variable rainfall patterns and range conditions. The ability to distribute seasonal grazing pressure by moving among a variety of water points in the grazing district remains a central aspect of Tswana herding strategy. A 1980 survey of water usage found that 80 percent of herds used at least two water points in the course of a year (Cornell, 1980).

Though rights in grazing land were communal, with each and every stockholder allowed access within the rather modest regulations provided by the dinaga territorial organization, rights in water were somewhat more complicated. Customary law with respect to water distinguished between essentially communal group rights to naturally occurring waters, such as rivers and ponds, and water supplies which are secured through physical improvement and individual investment, such as hand-dug wells or machine-drilled boreholes. While private rights could never be claimed over the former, individuals did exercise exclusive rights over the latter. Before the 1930s, these permanent, privately held sources were almost exclusively hand-dug wells or hand-constructed dams of one variety or another. The 1930s, however, saw the introduction of deep borehole-drilling technology that, for reasons of higher water yield, higher development and maintenance costs, and the extended ecological zone of cattle occupation that boreholes permitted, brought on major changes in land use patterns, the distribution of cattle holdings, and in de facto rights in land. The introduction of the borehole at once dramatically increased the potential for livestock development in Botswana, and posed hitherto unforeseen challenges for ecologically sound resource use and equitable resource distribution.

Of perhaps greatest significance was the extent to which borehole technology was to give rise to de facto rights to grazing land around boreholes. The borehole permitted permanent colonization of drier, sandveld areas to the west of the mixed farming, hardveld region. It was to the hardveld that most livestock production had historically been limited, for it was there that year-round water sources, in the form of naturally available water courses

or underground supplies that could be reached by digging an open well with hand-held implements were limited. But year-round grazing was not possible on the sandveld, as what water that was available was typically limited to surface accumulations in pans, or to limited and often saline supplies in shallow wells. With the arrival of the dry season, men and cattle had to return to villages in the hardveld. The extensive sandveld grassland was left to Basarwa hunters, or to small herds of goats and sheep, and occasionally to some cattle, attended by Bakgalagadi herdsmen. Deficient rainfall, poor sandy soils, and limited water for domestic consumption also limited permanent settlement in the sandveld region.

Borehole drilling rigs were able to penetrate several hundred feet of the sand strata overlaying the Kalahari, and tap deep, fairly high-yielding aquifers of high-quality water. Permanent water allowed permanent ranching, and hundreds of boreholes were drilled in the 1930s, 1940s, and 1950s, not only in the sandveld but in the hardveld as well.

Borehole development was seen as both engine for the realization of the Protectorate's fullest potential as a beef producing nation, and as technological solution to the overgrazing that was becoming increasingly associated with already existing boreholes in mixed farming areas. In fact, the conventional solution to overgrazing during the 1930s and 1940s lie simply in the provision of more boreholes. Shapera provides sharp expression of what most certainly were the views of the Protectorate Administration by stating that "The main handicap of animal husbandry, even in the east, is the lack of water supplies," and, in a subsequent discussion of overgrazing states: "Inadequate water supplies are mainly responsible for such overgrazing as occurs in the larger reserves" (Shapera, 1943:215).

> In times of drought cattleß are concentrated more and more round the reliable sources of supply, as the others begin to fail. The result is that all the adjacent grazing becomes consumed and the animals have to forage farther and farther afield, with consequent losses from thirst and poverty. By destroying the vegetation, moreover, and continually disturbing the surface of the soil, they contribute greatly to the damage done by soil erosion. The (Protectorate) Administration has now embarked upon the constructive policy of providing water supplies in areas hitherto little used, and, by limiting the numbers of cattle grazing in their vicinity, hopes to preserve the pastures from further harm (ibid.).

The administration's hope to preserve pasture through imposition of stocking limits remained unrealized. Stock limits were nowhere successfully applied; though the proverbial answer for overgrazing around existing boreholes came to be development of additional boreholes, with provision for stock limitations. During the 1930s and 1940s the answer to drought was seen in the extension of boreholes over what was considered underutilized and potentially very productive rangeland. The popular image of the territory, and in fact the conventional wisdom until the mid-1970s, was that of ideal beef country prone to periodic drought due to shortage of water supplies. Borehole development permitted permanent colonization of ranges that previously had at best been utilized on a seasonal basis. Another direct effect was the contribution

by boreholes to the dramatic increase in the size of the national herd, from 600,000 in 1940 to hearly 1.5 million at independence in 1960.

But the borehole had implications beyond the extension of range under continuous production, or the increased severity of overgrazing. As boreholes were expensive to drill, equip, and operate, their development within the private sector was typically limited to those who could generate the investment capital, usually by sale of a portion of the herd, necessary to cover the costs of borehole development. Furthermore, the production advantages that borehole ownership afforded contributed to an increasingly skewed distribution of livestock ownership. In the larger tribal territories, most new borehole development was concentrated in the relatively unsettled sandveld that, in contrast to the mixed livestock and cultivation activities of the densely settled hardveld, became almost exclusively devoted to cattle production.

> By becoming part and parcel of the development of the Protectorate's livestock sector, borehole drilling and ownership become both a consequence and a cause of an increasingly skewed distribution of livestock holdings. Drilling was feasible only if the livestock sector was viable and, conversely, the growth of livestock numbers in the country was primarily a function of the increasing number of boreholes there. Historically, as one sector grew, so did the other: between 1946-1959, African livestock income increased nearly fivefold and the majority of private boreholes had been drilled. . . . Since the cost of borehole drilling (exclusive of equipping) increased considerably faster than the cost of living (. . . from some £100 per bore in 1927 to an average of some £1000 in 1960), some of this increase in real cost was doubtless due to increased demand for drilling, where, in turn, this growing demand reflected increasing incomes of those benefitting from the commmercialization of the livestock sector. . . . The skewed distribution of livestock holdings and borehole ownership grew mutually reinforcing through time (Roe, 1980:26-27).

Unequally distributed livestock holdings became to a large extent matched by the spatial separation of relatively wealthy owners of boreholes and associated large herds, on the one hand, and poor and middle income small stockholders (and non-stockholders) who continued for pursue mixed farming strategies on the hardveld, on the other. When the opportunity arose to water at a borehole, the less wealthy group of stockholders were presented with rules of access different from those applying to natural supplies, and with costs not previously encountered.

> Since the Europeans introduced better methods of tapping and conserving water, new communal supplies have been provided in the form of wells, boreholes, and dams. Dams are also used freely, except in one instance among the Ngwaketse, where special regulations were made by the Chiefs. On the other hand, a new development resulted from the necessity of maintaining the pumping plants with which boreholes and some wells are equipped. People wishing to use those in the grazing districts must pay a special fee, and the number of cattle allowed to water at each is limited according to the quality of the surrounding pastures. These "tribal" supplies are therefore not "common property" in the same way as are rivers, ponds, and some dams. Their use is more rigidly controlled, and the

> payment demanded for it discriminates against the poorer people (Shapera, 1943:249).

Hitchcock's historical research among the Ngwato of Central District suggests that "the technological innovation of borehole drilling was of major significance for the development of the Ngwato land tenure system" (1980:8).

> The provision of new and abundant water supplies in grazing districts resulted in a further breakdown of traditional patterns of ward segregation, and the large number of water points facilitated the expansion in livestock numbers. At the same time, the cost of drilling was prohibitive, and only the rich could afford the luxury of having their own boreholes (ibid.).

In his history of official colonial policy toward agriculture, Roe (1980) argues that periodic drought cycles (during which the smallholders were especially vulnerable to loss of their entire herds) combined with higher costs of entry and production to take more persons out of livestock production, further contributing to unequal ownership patterns.

> Cattle ownerhip was traditionally tied to representatives and close associates of the tribal chieftaincy along with, somewhat later, a minority of entrepreneurs, such as school teachers and government employees, who invested their wages into cattle holdings. Whatever increase in livestock numbers the small herder managed to acquire was probably wiped out for the father in the drought of the 1930s and for the son in the drought of the 1960s. Moreover, the increase both in the cost of buying cattle and in private borehole drilling by large cattle owners between the period of these two droughts, could only have resulted in a perpetuation, if not a widening, of the gap between small and large cattle holders (Roe, 1980:45).

The preceding has described to trace the pre-independence antecedents to the framing of tenure policy, especially with respect to grazing land. Highly skewed patterns of cattle ownership, grounded originally in traditional social relations, were preserved and exacerbated by the cumulative but differential effects of relaxed market restrictions, drought, and new water-lifting technologies. More importantly, skewed ownership patterns contributed to the emergence of differential livestock production strategies; with smallholders pursuing a mixed crop/livestock strategy, their small cattle herds providing milk and a pool of drought oxen, and the occasional animal for sale, while largeholders come to produce primarily for the market. The widespread introduction of the borehole, particularly in previously underveloped grazing lands on the edge of the Kalahari, ascribed de facto land rights to those, typically market-oriented stockholders, who under traditional tenure law already enjoyed virtually exclusive rights to borehole water supplies. The social, economic, and to a certain extent spatial differentiations that evolved between a predominantly traditional production sector and an emergent, entrepreneurial, commercial beef production sector (with strong ties to the political and future administrative elites) provides the essential political context to the framing of new land tenure policy during the post-independence era, to which we now turn.

Grazing Land Policy Since 1966

At independence from Great Britain in 1966, Botswana was to many an improbable nation. During the protectorate period, its administrative capital had been located outside of the territory, at Mafeking, in South Africa. In 1966 there were no paved roads, few public services such as schools and health facilities, and only a meager financial base in support of the popular demands faced by the new government. Trained manpower was in short supply, with Botswana university graduates, including doctors, numbering less than a dozen.

What the country did have, however, was the physical and market infrastructure for commercial beef production. A critical transport link, in the form of the Rhodesia railway line, bisected the more densely settled eastern half of the country, connecting the market towns of Francistown in the north with Lobatse in the south. Also in Lobatse was the Botswana Meat Commission's (BMC) abattoir. First established in 1927, and substantially upgraded by the Commonwealth Development Corporation in 1954, the BMC had achieved high standards in management efficiency and product quality, and had shown considerable success in securing lucrative foreign markets for Botswana beef. Table 1 gives indication of the growth in exports from the 1930s to 1970s.

Table 1

Long-Run Recorded Exports: Annual Mean of Years Given

	1930-31	1941-48	1949-53	1961-70	1971-79
No. of cattle live or dead)	29,000	45,000	72,000	120,000	189,000

SOURCE: Paul R. Spray, Botswana as a Beef Exporter (NIR: 1981).

In 1975, BMC management and government ministers successfully negotiated a series of generous duty rebate agreements and liberal import quotas for sale of Botswana beef products in European Economic Community markets. By then, Botswana accounted for over 50 percent of all of Africa's beef exports. This was in no small part due to the success of the Department of Agriculture's veterinary extension and disease-control measures in controlling foot-and-mouth disease outbreaks, and gaining the confidence of European vets and markets as supplier of safe and quality products. During much of the colonial era, agricultural development was nearly synonymous with veterinary extension and disease control. Roe (1980:8) observes that "expenditures on veterinary services exceeded those of governmental medical services until 1936/37 and, even thereafter, the two departments concerned alternated in funding priority." That

the basic infrastructure for beef production and export was available in a new nation otherwise noteworthy for the absence of most other attributes of modernity is further testimony to development priorities set during the colonial period. We have seen that the primary focus of investment in the livestock sector was borehole water supplies. The Bechuanaland Protectorate Annual Report of 1938 had observed that,

> The livestock industry constitutes the mainstay of the economic life of the country, and at present offers the only reasonable possibility of development. . . . The provision of further water supplies will remove the main difficulty in the development of the livestock industry of the Bechuanaland Protectorate and to this end drilling machines are now being utilized with successful results in various parts of the territory to tap underground water supplies (Roe, 1980:29).

Post-independence development policy, at least with respect to the primacy of commercial cattle production as the basis of the agricultural economy, was essentially to be an extension of priorities and styles set during the colonial period. Clearly, the new national government had, unlike the colonial administration, a national constituency to which to answer. Indeed, the government's response to neglected needs in education, health, domestic water supply, and other social service sectors was truly impressive. The international donor community, led by the Scandinavian countries, responded favorably to Botswana's administrative efficiency and the virtual absence of official corruption in spending large sums of donor finance on ambitious social service development programs. Also impressed by the apparent democratic give-and-take of its multiparty parliamentary form of government, and by the social democratic rhetoric of the ruling Botswana Democratic Party, Western European governments and the United States responded with assistance to the extent that by the mid-1970s Botswana was probably the largest per capita recipient of development assistance in Africa.

While donors were by 1975 financing over 90 percent of the capital costs of Botswana's rural development program, government's own expenditure patterns have proved distinctly conservative, in terms of both fiscal policy and development priorities. It was not until 1970 that Botswana no longer required operating grants from the British government, that of necessity had limited its fiscal options. Revenues from the new copper-nickel mine at Selibe-Pikwe, and from increasing cattle sales, put government for the first time in a position to cover its recurrent costs. But once accomplished, its own investment priorities displayed a distinctly urban bias.

> The 1968 to 1973 National Development Plan says little about rural development beyond noting that Botswana would look to the agricultural and livestock sector for short term increases in the national income. Economic investment during the First Five Year Plan was committed to the mining sector and supporting infrastructure. During the first 4 years of the 1970-75 plan, 42 percent of the total development budget was allocated to finance the infrastructure for the mining complex at Selibe-Pikwe, while only 8 percent was earmarked for rural development. The disparity of incomes per capita in urban and rural areas was already sixfold in 1965 (Picard 1979:292).

After modest setbacks in the 1969 elections, it became apparent to government that "any political threat . . . would be more likely, in the short run at least, to come from disenchantment in the rural areas by traditional elites and their supporters," then from the small but vocal urban-based parties (ibid.:293). An important paramount chief, Bathoen II of the Ngwaketse, had resigned his position to run for the seat held by the then-Vice President, Quiett Masire. Bathoen won, and became leader of the official opposition party, the Botswana National Front. The gains on the part of rural interests were of a kind that represented disquiet over the rapid social changes being brought on by urbanization, but also over decreasing respect for traditional institutions and power structures. In many respects they were essentially conservative interests, concerned about the future role of traditional institutions (including the power of chief to allocate land) and well-entrenched economic prerogatives, especially in the livestock sector.

Government had already taken steps that dramatically transformed the traditional role of chiefs as trustees and administrators of tribal land. In 1968, Parliament passed into law the Tribal Land Act, which provided for the transfer of land allocation functions from chiefs to new administrative bodies, District Land Boards. The establishment of land boards did not involve the conversion of customary rights in land. Chiefs were in fact often retained as members and sometimes as chairmen of District Land Boards, and their network of village headmen was still needed to advise on local customary allocations. Land boards were meant preeminently to be administrative bodies; to have the benefit of the requisite professional and administrative capabilities, in the form of trained staff, that chiefs, it was felt, could never provide. In a major sense, land boards were seen as a solution to the perceived encumbrances of traditional allocations procedures, considered too inefficient, inexact, and in general sense potentially unfair to the less well-connected or influential members of the tribal community. Loss of direct control over the land allocation apparatus led directly to an even wider loss of influence of traditional authorities in the public affairs of the tribe; perhaps to the extent that certain functions, particularly in the area of law and order and local judicial matters, have been inappropriately downgraded.

Considerations of individual ties to ward, community, and place took on less importance in land allocations now made by professionally staffed land boards (civil servant staff for land board cadres were drawn from a unified local government manpower pool, and were assigned without regard to tribal affiliation). While traditional land allocation procedure had been both a legal and territorial expression of individual rights, based upon kinship relations and drawn from group rights, the inherent neutrality of land board procedures to these questions below the most general level of tribal membership have contributed to a sharp decline in residence and field patterns reflective of group ties. One effect of this, though contrary to what was intended by the rationale of the Tribal Land Act, has been the potential loss of an important institutional form, the local social territorial association, for organizing and advancing public policy in the areas of resource use and land use planning.

On a political level, the transfer of the land allocation function from chiefs to land boards, conceived as socially and politically neutral administrative units, had important implications to the evolution of Botswana's land

and tenurial policies. Of greatest importance was the dramatic diminution of the real and potential ability of chiefs to use control over land as an instrument of wider political influence. That the continuing influence of chiefs had been a concern to the elites of the new government was obvious, and appropriate. Throughout the colonial period and before, public policy as it affected land, agriculture, and to a certain extent taxation and employment were central concerns of chiefs, and it was natural for the public to continue to look to traditional authorities for leadership on these and other issues. Although the government was loathe to openly alienate chiefs, it was determined to convey a new, unambiguous sense to the public of where power and authority lay after independence. While the chief's administrative responsibilities with respect to land were transferred to land boards, their less obvious but ultimately more important prerogatives to make land policy were now reserved for the Minister of Local Government and Lands and the Cabinet. The Tribal Land Act explicitly provides that on matters of policy, land boards will act at the behest of the minister. Land policy, then, became the virtually exclusive concern of the central government.

Land board inattention to the social dimensions of territorial organization contributed to a decline in ward group homogeneity in both residential and arable areas. Chiefs were no longer able to direct seasonal residence patterns. A larger portion of the population, and particularly the poor, remained resident at small villages and lands areas throughout the year. Grazing and cultivation became increasingly mixed areally, and less ordered on the basis of land suitability or appropriate seasonal use. Land transactions under the Tribal Land Act were meant to be between the individual and the land board instead of between the individual and the community, as formerly administered by the chief or his representative. Many land boards proved incapable of efficiently executing their allocative responsibilities, and, facing the prospect in some cases of delays of two or more years, self-allocations have become common. For choice sites in large villages, private markets in land have developed, partially in response to the growing scarcity of land, but also due to the inability of land boards to stay abreast of demand, and to regulate commercial transactions in customary entitlements which are expressly forbidden by the land act itself.

We see then, that the Tribal Land Act of 1968, advanced primarily as a means of streamlining and "rationalizing" the administrative procedures attendant to customary land allocations, had rather far-reaching policy implications. The most important of these were: land policy became the exclusive prerogative of central government; and, ironically, the customary bases of entitlement and land use control became increasingly more tenuous.

The Tribal Land Act of 1968 for all intents and purposes resolved a potentially critical political complication to the framing and eventual implementation of any future land policy. The power to make land policy was now clearly in the hands of central government elites. And the land boards themselves provided the administrative and organizational means for implementing policy. The Tribal Land Act was a critical instrument in reforging institutional arrangements and channels away from rural-based, traditional centers of power, toward modern-sector elites, possessing more cosmopolitan economic outlooks, and less tied to constraints of reciprocity and social obligation characteristic of

leadership roles in customary society. Parson describes the ruling political leadership in Botswana as representative of "a coalition of the educated, cattle-owning elite committed to a programme of rapid economic growth and the development of a non-racial democratic state" (Picard, 1979:283).

Picard suggests that at independence in 1966, the political and the administrative elites were faced with two major questions: what was the proper institutional relationship between the central government and the districts, where policy was to be carried out, and "what rural development strategy should the central government adopt, considering limitations of resources and the ideological preferences of socioeconomic elites?" (ibid.). The establishment of land boards was a partial answer to the first question, at least in the area of land policy. In terms of the second question, we have already traced the broad historical antecedents to tenure change to the evolution of differential livestock production strategies, and to the widespread adoption of deep bore-hole technologies by large stockholders, which, in relatively unsettled sand-veld areas at least, gave rise to de facto rights to areas of grazing land. Given this broad background, what were the contemporary, post-independence factors which contributed to the framing of land development strategy?

Summary of Land Policy Issues

Land policy was the product of the interplay of a number of concerns, interests, and often conflicting national policy objectives. At the risk of slightly oversimplifying the essential concerns of the policy-making process, most of the subsequent debate centered upon reconciling the preeminent goal of increasing national income through the progressive commercialization of the livestock sector with the desire to preserve opportunities for the widest possible participation of the rural population in livestock production.

Inherent, however, in most of the remedies suggested for assuring sustained and increased commercial production were management practices and private costs which presented highly effective barriers to the participation of the great majority of smallholders, and to those who pursued mixed farming strategies. One of the most consistently advanced and eventually most important aspects of the land policy was to involve a shift in land tenure, from common property grazing to exclusive rights of individual or group associations to specific areas. "Privatization" or "individualization" of land tenure in the grazing sector was seen as a necessary first step to accommodate a number of largely physical improvements, such as fencing, and to create the management conditions for the long-term management of the range on a sustained basis. As will be seen, the new tenure model was drawn from a rather limited range of policy alternatives, production strategies, and financial assumptions. Most of these were mutually reinforcing and all posited the commercial, individually held ranch as the measure of what was desirable and appropriate to Botswana's economic goals and resource management problems. This rather limited perspective tended to prejudice subsidiary issues in favor of large herds, fairly heavy capital investment, production for market, and individual tenure.

This is not to suggest that considerations of equity and resource distribution, or the interests of smallholders, were not relevant to the policy

debate. In fact, the fate of the smallholder was in many respects a central preoccupation of the policy-making process. But because large herds and individual tenure became the general production models, strategy for the smallholder sector focused upon amalgamating small herds into larger, more "economic" holdings, in turn to be associated with discrete land areas. Failing successful amalgamation, measures would be taken to compensate smallholders for loss of communal rights, financed in part by land rents charged against those granted exclusive leasehold rights. The inherent difficulty of forging group cooperative arrangements for common herd management, especially given the diversity and complexity of livestock-keeping strategies among smallholders, has stymied progress in this, the ameliorative aspect of the land policy. The same, of course, cannot be said for largeholder sector, to which the needs and interests the policy were originally tailored. The remainder of Part I traces the course of policy debate from the implementation of the Tribal Land Act in early 1970, through the official publication of the Tribal Grazing Land Policy in July 1975.

The Framing of Tenure Policy: The Rationale for Privatization and the Role of Advisors

Virtually all assessments made of Botswana's economic future in the early 1970s shared three, interconnected themes: livestock was the basis of the rural ecconomy, the major source of subsistence and cash income for the great majority of the rural population; livestock represented Botswana's single most important export base, and despite the increasing relative contribution of minerals to national income, livestock, unlike minerals, promised to provide a long-term and well-distributed source of export income; and the status quo and future gains to be realized in the livestock sector were threatened by an increasingly degraded land base, in large part attributable to antiquated communal tenure arrangements. Most observers agreed that unless steps were taken to correct the tenure problem, Botswana's valuable livestock base would be subjected to cyclic, drought-induced fluctuations in output, accompanied by a general decline in range productivity, and ever-increasing maldistribution of the national herd.

These assessments were shared and given added credibility by the attention they received in a series of conferences and consultancy studies in the early 1970s. In 1971, the Botswana Society sponsored a conference on the sustained utilization of grazing lands in the Kalahari. Though the focus of the conference was on the western state lands, or the non-tribal, relatively sparsely populated land that constituted the western, drier one-half of Botswana, several themes emerged from the deliberations that were to have wider subsequent influence upon land policy. Conference proceedings suggest that participants generally agreed that traditional systems of range use, especially when practiced around permanent borehole water points in the sandveld area, provided a threat to the well-being of the land resource. Furthermore, traditional cattlepost systems were inherently less productive management systems than intensive, but carefully controlled grazing models requiring fencing. The prosperity and maintenance of livestock production in Botswana required the adoption of much more intensive management practices, accompanied by changes

in grazing and tenure to permit the imposition of the necessary management controls. The themes and models propounded by the conference were widely adopted by staff within the Ministry of Agriculture. Subsequently, a series of field trials were undertaken to compare livestock productivity and trends in range condition between communal cattlepost systems and fenced, highly capitalized ranches operated by the Ministry of Agriculture.

Perhaps the single most influential contribution to the framing of grazing policy was a consultancy undertaken in 1972 by economists Robert Chambers and David Feldman. Financed by the Ford Foundation, the consultancy had a broad mandate to access the main constraints and opportunities for rural development, and to make recommendations for a comprehensive rural development strategy. A key conclusion was that "livestock is, and will continue to be, the main basis of rural development in Botswana," and the central, unresolved issue was how to "achieve production on a sustained basis, that is, how to ensure that the two main natural resources used for livestock-pasture and water-are not so depleted as to restrict production in the future" (Chambers and Feldman, 1972: 55). The resolution of a number of subsidiary technical and economic issues constraining sustained livestock development were considered "critically dependent on evolving new methods of land tenure" (ibid.).

Chambers and Feldman shared with the range ecologists the view that constraints to livestock development were largely the results and consequences of technical issues related to pasture management. Overgrazing was leading to the "encroachment of lower successional ecological zones," able to support only "lower successional animals" (e.g., goats and sheep); increasing livestock numbers were due to improved animal health and better commercial opportunities; boreholes had encouraged concentration of herds and discouraged seasonal movements (ibid.:56). These essentially technical problems were solvable by technical means, including "the use of fencing, an increase in the scale of herd size, and an increased development and diversification of water sources" (ibid.:36-57). But before needed pasture management practices could be adopted, certain institutional arrangements which governed access to land must be reformed.

> We believe there is an inherent contradiction between the present institutional structure of private herd ownership, communal land control and the sustained development of the livestock industry . . . . The introduction of pasture management requires generally that those responsible for the cattle are also responsible for the pasture used by the cattle. This can only be achieved effectively in the tribal areas through changes in the tenure structure to enable pasture rights in a piece of land to be identified with an individual, a defined group, or a responsible organization" (ibid.:57).

Chambers and Feldman were not insensitive to the implications of tenure conversion in communal areas upon smallholders.[2] "Such changes have major implications, particularly in terms of income distribution and opportunities for increasing herd sizes" (ibid.). Small farmers would have to be organized into viable production units, perhaps on the model of a joint stock company "in which each member has a right in share proceeds but does not have any individual rights to any animal" or through group ranching arrangements,

whereby individual herds are managed collectively, with stockholders covering costs in proportion to the size of their holding, while retaining marketing and other prerogatives. But unless some means of cooperation was found for smallholder participation in commercially viable, restricted tenure pasture units their survival in an increasingly competitive, more costly, and restricted access production system will, in the long run, be doubtful.

> If such institutions do not emerge then the long-term participation in the livestock industry by small herd owners will become increasingly difficult. Without such co-operation the national herd will divide between the expanding, managed, large herd developments, and stagnating, subsistence-based small herds maintained on progressively reduced pasture resources (ibid.:59).

That the potential for widespread alienation of smallholders from future income-earning opportunities was already evident in current trends did not go unnoticed by Chambers and Feldman. Publicly provided boreholes were being sold at low cost to individuals and syndicates, where "the net effect has been to provide cheaper water to fewer, better off people, while squeezing out some of those with smaller herds, forcing them to move to the already overgrazed areas near communal water supplies" (ibid.:117). Proposed tenure changes, in the absence of safeguards and redistributive mechanisms, would undoubtedly lead to widespread landlessness, and in the absence of readily attainable income-earning opportunities in other sectors of the economy, widespread rural impoverishment. For these reasons, Chambers and Feldman argued for a "balanced" approach to land development, involving trade-offs between maximizing income through creation of larger, more efficient herd sizes; improving management practice through tenure conversion and associated technical improvement; and maximizing income distribution, by promoting smallholder participation in large-scale ventures, and by redistributing rents generated by leasehold operations to those unable to participate (ibid.:123). Chambers and Feldman's recommended land policy rested upon two basic principles:

> . . . the identification of individual stock-owners or of groups of stock-owners with exclusive rights to particular land surfaces, (ibid.:123) and,
>
> That wherever an individual or a syndicate acquire exclusive grazing rights, the tribe and community as a whole should be compensated (ibid.: 125).

Each of these principles was incorporated into the TGLP, as set out in Government White Paper No. 2 of 1975.

> In Commercial Farming Areas groups and individuals will be given exclusive rights to specific areas of grazing land . . . . Ranches will be encouraged . . . . The land will cease to be held in the traditional way. A lease will be given and rent will be payable to the local authorities in return for the exclusive rights given in the lease (GOB, 1975:3-4).

The White Paper is, in fact, testimony to the sense of balance and caution that Chambers and Feldman argued for in their report. But as we shall see, the policy as implemented has shown little success in translating two critical policy provisions into action; group development of grazing resources, and compensation for exclusive rights.

Another important recommendation of the Chambers and Feldman report that became a key aspect of government strategy was the notion of land use zoning, initially involving four categories (ibid.:133-34).

1) Reserved land would be areas currently not utilized, to be set aside for future use, and reclassified among one of the following categories.

2) Commercial ranching areas would be areas unsuitable for arable production. "Tenure would be leasehold, with payment of a rent, and ranchers would be eligible for National Development Bank loans" (ibid.:134).

3) Mixed farming areas would have a high proportion of land suitable for crop production as well as smallholder livestock production. "Tenure would be leasehold, perhaps with payment of a rent which might be subject to a rent-free 'allowance' of a certain standard acreage for each household," i.e., that area of land necessary to support subsistence production (ibid.:134).

4) Communal grazing areas would be areas near villages reserved for communal grazing or cooperative ranches. "Tenure would vest in groups, without payment of rent, and with subsidized services and inputs."

Louis Picard, in his detailed study[3] of the relationship between expatriate advisors and administrative elites in the formulation of Botswana's grazing policy, argues that the main outlines of that policy had in fact already been determined and enunciated in a Government White Paper[4] published in March 1972, a year before the Chambers and Feldman mission. The White Paper clearly reflected the technical analyses of constraints to sustained production as described by past consultants' reports, and by the 1971 Botswana Society Conference. The White Paper stated that "Any increase in the size of the national herd will be feasible only if traditional cattle ranching practices are changed" (Botswana, 1972:5). "Forms of land holding and land use will have to be evolved in order to maximize the returns which can be obtained from livestock on a sustained basis, and prevent any further deterioration of the environment" (ibid.:6). What was needed was a coherent strategy to promote cooperative endeavors in the overcrowded eastern areas, while "larger cattle owners will at the same time be encouraged to acquire land grants to fenced areas of State Land for which an economic rental will be charged" (ibid.:8).

> By 1973, (and previous to the Chambers and Feldman mission) policy directions had been set, though nuances of policy remained to be flushed out. Of the three choices available, two were unacceptable politically. The first choice, radical redistribution of the land and a retention of communal land use was unacceptable to the nation's socio-economic elite. The second choice, rapid commercialization of all land was politically unacceptable for the vast majority of rural Batswana who were the cornerstone of Democratic Party support. Government's choice in the short run was to maintain the status quo in areas close to the major villages while providing for commercialization of land in the west" (Picard 1980:17).

Commercial interests were elite interests, and Picard's central thesis is that the policy as framed bore little real political commitment to income distribution, or for that matter to range conservation, but was rather concerned

with the creation of the legal framework and the extension of financial assistance necessary to advance essentially commercial interests. "At the heart of the new policy would be the creation of commercial land" (ibid.:17). What government thinking had lacked, however, was what Picard characterizes as a "rhetoric of policy" necessary to sell an essentially commercially oriented policy to a much wider political constituency. "The mechanisms for that rhetoric were the expatriate advisors who wrote the various policy studies which preceded the 1975 Grazing Land Policy," the most important of which being Chambers and Feldman. Thus, while their report vigorously advocated a deliberate movement toward the commercialization of land in tribal areas, it should be done in a fashion that assures the widest possible participation, maximizes income distribution, and provides safeguards against abuse of position or granting of preferences to largeholders. In fact, a key argument of the Chambers and Feldman report was the need to institute planning and administrative procedures which would provide protection against the increasing concentration of public water supplies in private hands, and which would give priority to group and smallholder schemes in rural development.

In May 1973, government issued a response to the main recommendations of the Chambers and Feldman report. Government, predictably, accepted the recommendations for fencing and granting of exclusive rights to "individuals or groups provided nobody else has valid claim over the areas they want to fence and can support their claim with evidence they have used the land in recent years, or have the capacity to use the land in the future" (Botswana, 1973:6, cited in Picard, 1980:19).

> In addition, government made two other provisions. First, fencing was also to be allowed to a limited extent in the communal areas (near the major villages) by syndicates as well as by other groups and organizations. Second, those who lease commercial land would still be allowed to keep a certain number of cattle in the communal areas. Chambers and Feldman had argued that those who leased commercial land should be required to remove all of their cattle except those borrowed by others (mafisa) from the communal areas. The White Paper of 1973 on the other hand in effect gave wealthy cattle owners the best of both systems of grazing (Picard, 1980:20).

As would be expected, the language of the forthcoming Government White Paper describing the new grazing policy would adopt the rhetoric of balanced and even-handed development provided by the consultancy report. The real measure of commitment to a balanced policy is to be discovered in an assessment of its implementation, to which we can only properly turn after a brief description of the official policy document.

National Policy on Tribal Grazing Land: The Government White Paper No. 2 of 1975

The policy was to have three aims: "to stop over-grazing and degradation of the veld; to promote greater equality of incomes in rural areas; and to allow growth and commercialization of the livestock industry on a sustained basis" (GOB, 1975:1). Existing problems of overgrazing and low output are

attributed to the communal grazing system. The policy paper opens with reference to a recent speech by the president.

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

Exclusive tenure is seen as only the first condition to the creation of more productive ranching enterprises, to be managed and improved along Ministry of Agriculture guidelines.

> All that is needed is some fencing and some piping of water. Land can carry more cattle if it is fenced and watered than if it is open. Properly run group and individual ranches can carry twice as many head as under uncontrolled grazing. The improved system also provides more incentive and makes it easier to build firebreaks and control veld fires (ibid.:5).

According to the White Paper, the present system "is a free for all," and proper herd management and sustained land use practice will only follow where stockholders are "given complete control over the areas where they graze their animals" (ibid.:5). This characterization of the existing system as essentially beyond repair, with but limited potential for improvement, appears to exclude government action, at least in terms of TGLP, for improvement of grazing practices in the communal areas themselves. The policy, in its provision for land use zoning, admits that communal zones will have to be retained, but suggests that "Until stocking rates are brought into line with carrying capacity of the land in all communal areas, it will be impossible for farmers in these areas to make any real progress" (ibid.:7). The policy provides for the dividing of grazing areas into three zones.

Commercial ranching areas, where traditional, communal rights would be alienated, and groups or individuals will be given exclusive rights to specific areas of grazing land. Leases will be granted, with rents accruing to local authorities (land boards). Allocation policy pro- vides that commercial areas "are not meant only for the large individ- ual cattle owner," but rather "First priority will be to help groups of smaller owners to run commercial ranches" (ibid.:6).

2) Communal grazing areas will be essentially those areas presently grazed near villages and in mixed farming areas. Here tenure will not change, and the policy provides no communal program beyond the rather vague suggestion that "we must find ways to teach people better management and how to solve the problem of overgrazing" (ibid.:7). It is hoped that the movement of large herds to commercal areas will bring about a decrease in grazing pressure in communal areas, but there is nothing in the policy to restrict largeholders from keeping herds in both communal and commercial areas.

3) Reserved areas are a third category, to "be reserved and guaranteed for future use by those who have only a few cattle at present," as well as for wildlife, mining, and cultivation.

Part V of the policy document roughly outlines planning procedures for land use zoning and allocation, and for the granting of leases. Zoning is described foremost as a means to assure continued access of smallholders to sufficient communal land to meet subsistence needs. Commercial zones would be delimited only after sufficient reserved lands to meet future smallholder requirements were identified and set aside. Furthermore, land boards were to establish maximum individual herd sizes permitted to remain in communal areas. Holdings that exceeded the limit "should move to commercial areas" (ibid.:11). New, privately owned boreholes would no longer be permitted in communal areas.

The primary objective of granting long-term leases to stockholders in the commercial area is to "give the security of tenure necessary for the taking and granting of loans and for the introduction of improved management systems" (ibid.:14). Lease rents would "ensure that local authorities receive a return from those who acquire the privilege of exclusive use of tribal land" (ibid.:15).

The White Paper concludes with a list of planning procedures to be followed to ensure efficient and fair program implementation. Effects of the policy upon the size and distribution of landholdings, range ecology, rural incomes, and public opinion would be carefully monitored.

The Policy Tested: Planning and Implementation

Louis Picard, in assessing the role of expatriate advisors and external consultants in the policy-making process in Botswana, suggests that advice is accepted and liberally incorporated into program design up to "the point that external actors begin to challenge the ideology and the political and economic policy preferences of local elites," at which time "a subtle but firm resistance to external influence begins to occur" (Picard, 1979:299). In the case of the Chambers and Feldman report, which provided much of the form and substance of what was to emerge two years after its publication as the Tribal Grazing Land Policy, Picard argues that "Policymakers tended to pick up on the terminology and mechanics of rural development rather than the substance of social transformation as raised by the . . . report" (ibid.). Clearly, the TGLP White Paper, despite its rhetorical commitment to smallholder interests, did not offer a practical, well-considered program for smallholder development. Rather, smallholders, if they wished to participate in the provisions of the policy, would have to form themselves into groups of commercial scale, and ranch on an exclusively commercial basis--when, in fact, complex social and economic contraints exist that preclude most smallholder undertakings of this kind. Those constraints were never seriously considered in the framing of the policy, because the central focus of TGLP was the further development of the commercial sector, or largeholder beef production enterprises. No programmatic connection is made between the "rhetoric of policy" (group development, protection of smallholder rights, equity) and the clearly maldistributive logic of the actual provisions of the policy (exclusive rights, commercial beef production, large holdings).

An interesting aspect of the policy's early history, however, has been the extent to which a large segment of Batswana civil servants and expatriate advisors have inculcated the "rhetoric of policy," and finding the TGLP program

prescriptions wanting, have continued to focus attention on communal area, smallholder land and resource use problems.[5] Though elite interests have succeeded in keeping TGLP-related issues uppermost on government's agenda, policy thinking and experience with respect to smallholder strategies is becoming increasingly varied.

Much of the search for alternative policy models has used as its point of departure critiques of the TGLP assumptions concerning the nature and potential of existing smallholder production models, including those describing communal tenure as an obstacle to progress. The TGLP ranch model required a minimum herd size of 400 head of cattle. Anything less would not provide sufficient offtake to finance expensive capital improvements, such as borehole drilling, water reticulation, fencing, etc. Cliffe and Moorsan (1980) associate the political untenability of the tenure conversion required by TGLP with steps taken to broaden the policy's constituency by promoting small group access to TGLP ranches.

> Clearly the TGLP was geared primarily to the essential interests of large-scale capitalist ranchers, and indeed since much of the usable range land has already been staked out with boreholes, the formation of ranches may prove to be little more than a rationalization of de facto private tenure . . . Nevertheless, so fundamental a change in land tenure, partially ending a right of access which remains symbolically powerful to all peasants however remote from the present circumstances of most of them, its major beneficiaries--only 0.2% (160) of rural households own more than the threshold of 400 cattle and only 2.5% (2,330) own more than the 200 estimated to be the minimum for sustained capitalist production--would be left very politically exposed. Consequently the TGLP left open the door to smaller cattle-owners by proposing various forms of group access to the ranches it envisaged; by tying the route to expanded production to private accumulation, it could hope to bind together a much broader class alliance of ranchers, middle peasants and clients on the political level (Cliffe and Moorsan, 1980:51).

Policy toward group development[6] had been evolving more or less in concert with policy toward grazing and livestock development. Group strategy was to aim at amalgamation of smallholdings into holdings of commercial scale. The Ministry of Agriculture was charged with the responsibility of experimenting with various organizational approaches to encourage group cooperation. Even before the grazing policy was officially announced, the Ministry of Agriculture, in cooperation with donor agencies, had begun to mount pilot schemes for group development. The most noteworthy early effort was the Range and Livestock Management Project (RLMP), funded and for the most part staffed by USAID.

The Range and Livestock Management Project

The project's main aim was "to develop through systems research, replicable groups (and) small stockholder range and livestock management systems which are socially acceptable and economically viable" (RLMP Proposal, Willet, 1981:79).[7] The project's strategy appeared to be grounded in a realistic assessment of the complex social and economic interrelationships that regulated livestock production among smallholders in communal areas. These included the

continuing importance of mafisa, or the lending of cattle to poorer kin or neighbors, the complementarity between livestock and crop production, and complex water use strategies that contribute to a certain amount of seasonal variation in herd distribution, with different socioeconomic groups pursuing somewhat different water use strategies as well. Unfortunately, the project's implementation did not reflect the promise of the project's design. Most problems were, in reflection, traceable to a failure to account for the precise social and organizational problems that the project document itself had so carefully documented. The more relevant factors have been discussed in some detail in a variety of reports, especially those of the Rural Sociology Office of the Ministry of Agriculture. Ironically, all can be traced to another feature of project design that was uncharacteristically inconsistent with the spirit of "socially acceptable and economically viable" smallholder development; that is, the notion of the group ranch.

Group ranches were to be essentially production-oriented enterprises, held and managed corporately by a group of smallholders. The project envisaged their establishment in communal grazing areas, requiring conversion of tenure from more or less open grazing to restricted access. Fencing and other physical investments were to be part of the ranch package. They were by definition aimed at the cattle-owning group (or typically not more than 50 percent of rural households) and prescribed a production-for-market farming strategy. That is, production for milk, draft power, savings, prestige, or any other combination of objectives was to a large extent precluded by the financial and physical constraints of the new system. It is not unlikely that the project staff interpreted project document concerns for social viability to the limited set of problems associated with managing a group ranch as a collective enterprise. Cattlemen were totally unaccustomed to cooperating on such matters as joint financing, ranch development and maintenance, loan repayment, sharing of liabilities, and, least of all, common herd management. It was the inability to resolve these critical collective management problems that brought about the rapid demise of the RLMP as originally planned. In 1976, a Ministry of Agriculture review had concluded that, among other problems, such as shortage of staff and other resources, "there was a general problem with a top-down approach which offered package ranch development rather than worked to develop suitable models within and from the concerned communities" (Willet, 1981:82). In the same year, a USAID review recommended a "radical amendment of RLMP, not in terms of aims or objectives, but in approach and method of execution" (ibid.). The revised strategy supported the staffing of a cadre of group development officers, who were to "facilitate group development processes" better grounded in the social and economic circumstances of existing smallholder production strategies.

The beginning in 1974 and end in 1976 of the RLMP group ranch experiment corresponded with the period of final preparation, propagation, and initial field planning of the Tribal Grazing Land Policy. The TGLP attached great importance to group ranching as the answer to smallholder communal development. No sooner had the policy been announced than reports began to reach ministry headquarters challenging many of the assumptions upon which the smallholder strategy had been based.

While RLMP strategy had been recast to support a new, "gradualist extension approach" to the problems of livestock development in communal areas, TGLP

itself was suddenly left without an official, credible development program for smallholders, that could provide at least political counterbalance to the policy's central focus on commercial interests. Progressive privatization of communal lands on the basis of smallholder production units was untenable for not only social and economic reasons, but for ecological reasons as well. Studies of smallholder water use strategies were to reveal that over 80 percent of herders use at least two different water points in the course of a year; and the preservation of "fallback" water and range use options in response to highly variable rainfall and grazing conditions was essential to the success of the pasture use system. If, in fact, smallholders were confined to discrete ranching units and single water points, range condition would likely become worse than under present, open access rules. Opportunities for responding to variable grazing conditions would be further circumscribed by fencing in communal areas.

TGLP was, from a programmatic point of view, silent on smallholder livestock development. The policy as framed in 1975, however, did not mark an end to policy analysis and to efforts of program development for the smallholder sector. A variety of alternative strategies and programs have been proposed and some are already in early stages of implementation. Part II of this paper examines recent experience with approaches that, for the most part, incorporate communal tenure as a functional aspect of livestock development.

PART II.

THE SEARCH FOR SMALLHOLDER LIVESTOCK DEVELOPMENT STRATEGIES IN A TRANSITIONAL ECONOMY

Introduction

We have seen in Part I of this paper that the Tribal Grazing Land Policy (TGLP) was primarily shaped to serve the interests of those large cattle producers possessing an essentially commercial production for market orientation. Increased levels of beef production were to be achieved by extending training and financial assistance to qualified farmers, and by legislating changes in land tenure in designated commercial areas. Tenure reform was seen as a necessary precondition to implementing needed range management improvements and in attracting long-term private loan capital to ranch development. Though various official policy statements have ascribed range conservation and improved income distribution as important goals of the Tribal Grazing Land Policy, it is preeminently a program to promote beef output by way of more efficiently operated, large-scale ranch enterprises. In the course of program implementation, conservation and equity objectives have consistently given way to production objectives, when decision-makers have judged them to be in conflict.

At the heart of the policy is a model of efficient, commercial beef production, represented by a fenced ranch of about 6,400 ha, with a more or less standard package of ranch infrastructure, including at least one borehole, internal water reticulation, paddocks, bull and weaner pens, and firebreaks. Professional ranch managers would be trained at a government training center. Rents would be charged for the exclusive, long-term lease right to the land.

The model ranch envisaged by the policy will support a herd of at least 500 cattle (400 livestock units) considered the minimum necessary to generate an offtake sufficient to finance private water development and other ranch costs. That there were few privately held herds of that size outside of the small (but economically important) freehold production sector did not discourage project planners. Sufficient scale of operation would be achieved by amalgamation of smallholdings into large herds, on group ranches. Largely negative experience with pilot group ranches was becoming known to project planners only during the final stages of TGLP design.

Virtually from the time of the formal announcement of the TGLP as government policy, planners and policy-makers have been concerned with the problem

of how to extend assistance to small stockholders within an overall policy framework oriented to the commercial sector and attendant assumptions concerning such things as scale of operation and management practice. Eventually, many came to realize that the model of the leasehold commercial ranch was not, with rare exception, a realistic or appropriate production model given the overall land and labor use strategies of rural smallholding households. New policy paths were charted, in the areas of extension and farmers' organizations, land use planning, and cooperative resource management that took more realistic account of real world constraints, and built upon the lessons of past mistakes. Part II examines some of the major efforts at smallholder livestock development in communal areas undertaken since 1975. The paper focuses on how new policies and strategies have dealt with the overarching problem of improving the management of pastureland under circumstances of communal land tenure.

The paper is organized as follows. First, the circumstances of smallholder production on communal land are examined, drawing upon a variety of published studies and statistical data. Particular emphasis is given to describing the major production orientations and management styles characteristic of smallholder livestock enterprises. It will be seen that development projects that assume a fairly constant and planned level of commercial offtake, such as TGLP, do not capture the real world strategies and constraints of smallholders. Range and water use strategies are also reviewed in this section, providing a description of the processes of range degradation under current management conditions.

Next, the three major development strategies proposed since 1975 for the smallholder sector are reviewed. Only one aims to promote the collective management of communal grazing, with the aim of eventually limiting (if only roughly) stocking rates to the carrying capacity of community pastures. The success of this approach is usually made contingent upon reinvesting village-level traditional authorities with control over land allocation and management matters. Though these latter proposals are very promising, and clearly on the right track, there are a number of economic and political circumstances that advise against relying upon traditional leaders or even village-level institutions for the main portion of direction and authority in the area of communal management.

Preliminary to setting out an alternative approach, the paper argues that improving the circumstances of communal resource management requires the development of policies which simultaneously account for household economic strategies, land tenure, and formal institutional roles, under circumstances of rapid social and economic change. The critical requirement is for a much more direct and assertive institutional role in control of communal resources. In time, district land boards should take on increasing responsibility for grazing management. An institutional framework, relating individual herders to community level administrative institutions to district land boards is sketched out.

The Environment of Smallholder Production

This section presents some basic information on the distribution of livestock holdings, and on the organization and structure of livestock production

in rural Botswana. As would be expected, the circumstances of production at the household level are not suitably described by reference to mere averages; structural regularities only emerge out of consideration of the diversity of farm types and farming strategies. On the most general level, it is convention in Botswana to distinguish between the "traditional" and "commercial" livestock production sectors. In the strictest sense, the "commercial" sector refers to the small freehold ranching sector, which took root during the colonial era on less densely settled crown lands. Most freehold enterprises were established through land grants and sales to Afrikaaner and European settlers. On the other hand, the "traditional" livestock sector refers to all other cattle-producing enterprises undertaken on tribal land, almost universally on the basis of communal tenure. On one level, then, the distinction between "traditional" and "commercial" is made strictly on the basis of land tenure: "Traditional farming is conducted on tribal (customary tenure) lands, and commercial farming is conducted on "titled" lands. Titled lands may include clear title, long-term leases, etc. Thus, commercial farming includes, but is not limited to, freehold farms (Litschauer and Kelly, 1981:1).

The chosen lexicon does not, of course, reflect the diversity of production orientations among those farmers classified as "traditional." These operations in fact range from herding a few cows for milk and other subsistence needs to large-scale ranch-style beef production enterprises. It should also be borne in mind that "titled" land, freehold or otherwise, has until very recently in Botswana been unknown beyond the fairly small, settler dominated freehold ranching sector. Out of 80,360 farms censused in 1980, 80,100, or 99.6 percent, were classified as traditional. Table 2 provides a summary of livestock holdings and crop output in 1980, drawn from a 1981 comparative study of the traditional and commercial sectors.

The data indicate that slightly more than 70 percent of the farms in the traditional (communal land) sector held cattle. The watershed 1975 Rural Income Distribution Survey (RIDS) estimated that 55 percent of rural households owned cattle. More recent treatments of the RIDS data, and several subsequent surveys suggest that the 70 percent estimate is probably a closer measure of effective access to an important range of economic benefits arising from access to cattle, either by virtue of outright ownership, or through a number of reciprocal sharing arrangements. Recent research points to a marked increase in the number of herds since 1975, due to the continued financial attractiveness of investment in livestock relative to alternatives, and to generally favorable rainfall patterns, at least until 1981. Most of the new herds are small, and are usually made up of breeding animals purchased with the savings of mine and urban workers.

In 1980, average cattle holding for farms with cattle in the traditional sector was 42.5, as compared with 1,341.2 in the commercial sector. Only 4.2 percent of traditional sector farms held more than 100 head of cattle, though this represented an estimated 2,400 holdings. In contrast, 90 percent of commercial farms held more than 100 head. The International Livestock Center for Africa (ILCA) estimated a 1982 national livestock population of 3.35 million cattle and 1.8 million sheep and goats. Given an estimated human population of 800,000, this yields a livestock units to human ratio of about 5:1, the highest in Africa (ILCA, 1982:3).

Table 2

Total Farms, Livestock Held, and Food and Cash Crop Production--
Traditional Versus Commercial Farm Sectors, 1980

CATEGORY	TRADITIONAL	COMMERCIAL	TOTAL
Total farms (number)	80,000 (99.6%)	360 (0.4%)	80,360 (100.0%)
Total cattle (number)	2,455,000 (84.3%)	456,000 (15.7%)	2,911,000 (100.0%)
Total smallstock (number)	758,000 (96.4%)	28,000 (3.6%)	786,000 (100.0%)
Total food crop production (metric tons)[a]	38,105 (85.1%)	6,695 (14.9%)	44,800 (100.0%)
Total cash crop production (metric tons)[b]	903 (32.2%)	1,897 (67.8%)	2,800 (100.0%)

[1] Includes, sorghum, maize, millet, and beans/pulses.

[2] Includes groundnuts and sunflowers only. Commercial farmers enjoy a virtual monopoly in the production of other cash crops such as cotton, citrus, etc.

SOURCE: John G. Litschauer and William F. Kelly, Traditional Versus Commercial Agriculture in Botswana (Gaborone: Ministry of Agriculture, 1981), p. 4.

National data on the distribution of livestock holdings reveal a highly skewed pattern of ownership. As indicated in the following table, in 1980 about 45 percent of farming households owned no or less than 10 head of cattle, while an additional 34 percent held between 11 and 40 head. Only 21 percent of farms held more than 40 head of cattle. As subsequent data will indicate, the approximately 80 percent of farms holding less than 40 head of cattle pursue livestock production strategies that do not conform to the production behavior required for widespread adoption of TGLP perscriptions.

As would be expected, the freehold, or commercial sector, supplies a disproportionate share of market offtake. While cattle held by commercial enterprises represented about 16 percent of the national herd in 1980, about 33 percent of gross cattle sales were attributable to the commercial sector. Nonetheless, the total market share of the so-called traditional sector is impressive, and increasing at a fairly rapid rate.

In 1980, gross sales by the traditional sector accounted for 190,000 of the 287,000 total animals sold. Thus, the traditional sector accounted

Table 3

Relationship Between Cattle Herd Size, Average Area Planted and Harvested in Food Crops, and Average Number of Smallstock Held, Traditional Farms, 1980

CATTLE HERD SIZE	FARMS Number	FARMS Percentage	AVERAGE HECTARES PLANTED	AVERAGE HECTARES HARVESTED	AVERAGE SMALLSTOCK HELD
0	22,300	27.9	1.7	1.1	4.3
1-10	13,800	17.2	2.6	1.9	5.6
11-20	13,200	16.5	3.8	2.89	6.7
21-30	9,100	11.4	3.9	3.1	11.5
31-40	5,000	6.2	3.7	2.6	12.8
41-50	3,500	4.4	4.5	3.7	11.4
51-60	3,000	3.7	4.0	3.1	18.3
61-100	4,700	5.9	4.9	3.6	20.9
101-150	3,000	3.8	6.9	6.1	28.3
150+	2,400	3.0	3.8	2.8	20.4
Total	80,000	100.0	3.2	2.4	9.5

SOURCE: John G. Litschauer and William F. Kelly, The Structure of Traditional Agriculture in Botswana (Gaborone: Ministry of Agriculture, February 1981).

for nearly two-thirds (66.2 percent) of the gross sales of cattle in the country during this period. When these sales are placed on a net basis (i.e., purchases are deducted from gross sales), the traditional sector accounted for just over 73 percent of total net sales in the country--149,500 of 205,000 animals (Litschauer and Kelly, 1981:10-11).

Average offtake for the national herd during the years 1978, 1979, and 1980 is an estimated 9.0 percent: the traditional sector had an estimated 8.1 percent offtake, compared to a 15.6 percent rate for the commercial sector.

A close examination of livestock ownership patterns reveals a typology of production orientations that limits the "commercial" management styles to the cohort with at least 40 and probably more than 80 head of cattle. Litschauer and Kelly develop a simple typology of production orientation, based upon an analysis of "different sized cattle holdings, average crop areas planted and harvested and average smallstock holdings" (Litschauer and Kelly, 1981:iii). Households are classified among three groups:

a) For the smallest farmers--those with 10 or fewer cattle--primary emphasis is on crop production. However, as a result of input constraints--whether draft power, capital, or other--the average hectarage planted averages from 1 to 2 ha. Smallstock holdings are at best a peripheral production activity.

b) For medium-sized farmers--with from 10 to 40 cattle--there seems to be a definite indication of mixed production activities. Hectarage planted, on the average, may range from 1 to 7 ha, and the number of smallstock held becomes more important in the overall production picture.

c) For large traditional cattle farmers--with more than 40 cattle--the production picture may be either specialized or mixed. A significant number of farmers in this size range plant little or no cropland. However, when crops are planted, the area planted tends to be larger than in the previous two farm-size groupings. At least a portion of this increase may be due to increased capital holding and/or management skills. The number of smallstock held by this last group also tends to be larger than those held by the smaller farmers (ibid.:25).

A number of studies of herd management practices in Botswana compare various indices of animal productivity between the traditional sector and the commercial sector. Typical measures of performance have included birth (calving) and death rates, calf mortality, weaning percentages and weights, and commercial offtake rates. Studies used as justification for TGLP tended to indicate markedly superior performance of commercial ranches over traditional systems. For instance, some studies suggested that much higher levels of productivity could be achieved if traditional cattlepost systems (typically characterized by a single large herd watered at a private borehole, on communal land in a relatively unsettled area) were modernized through adoption of a package of ranch-style management inputs, such as fencing, grazing rotation, and more selective breeding and culling. The Table 4 provides the summary results of one such study, reported in 1975.

More recent studies of herd management (Litschaur and Kelly, 1981; Odell, 1981; Carl Bro, 1982) present conclusions somewhat contrary to earlier findings. Litschauer and Kelly, utilizing agricultural census data from 1978, 1979, and 1980, balance the prima facie negative implications of significantly higher death rates among traditional herds relative to commercial herds (10.8 percent versus 3.8 percent) with the comparably high average annual birth rates among both classes, 58.3 percent for the traditional and 61.8 percent for the commercial herds. Their interpretation of comparative differences and similarities in herd performance represents a previously rare but increasingly more common attempt to attribute differing measures of performance to differing management goals.

> These differences in offtake/death rates in the two sectors do not necessarily indicate that commercial farmers manage their cattle "better" than traditional farmers. For instance, there seems to be no significant difference in cattle birth rates (i.e., calf/cow ratios) between the two sectors. In the traditional sector the calf/cow ratio averaged 58.3 percent over the last three years. In the commercial sector this ratio averaged 61.8 percent over the last two years. These similar ratios might well indicate that in areas of management considered important to traditional farmers (i.e., increasing their herd size, for instance), they may manage just as well as commercial farmers. Thus, given the available data, there is no "clear-cut" indication of better cattle management in the commercial

Table 4

Productivity Under Cattlepost and Ranch Production Systems

TRAIT	UNIT	CATTLEPOST	RANCH
Calving percentage	%	46.4	74.0
Calf mortality	%	10.2	8.5
Weaning percentage	%	41.7	67.7
Weaning weight	kg	122.5	177.4
Post-weaning gain (7-18 months)	kg	84.1	100.5
Weight of weaner calf per cow per year	kg	51.1	120.1
Weight of 18-month calf per cow per year	kg	86.1	188.2

SOURCE: Ministry of Agriculture (1975).

sector when compared with the traditional sector (Litschauer and Kelly, 1981:14).

Carl Bro Consultants, in reporting on the first year's findings of an extensive study of livestock management and production in communal areas (1982), suggest that higher productivity values do not strongly correlate with increasing herd size, at least among herds held in communal areas.

> The picture which emerges . . . is one of great diversity among the herds. It is in marked contrast to the orderly patterns which appear in the tables of statistical studies. For example, the Agricultural Statistics Report for 1980 (Table 21) shows a strikingly close inverse relationship between herd size and mortalities and also between herd size and calving rate. Our own sample exhibits no such correlation, herd size being outweighed in its influence by other factors some of which are apparently accidental and some directly related to human fallibility (Carl Bro, 1982:4.23).

Though the study sample was small, there appeared to be no correlation between herd size and mortalities, or between herd size and net herd increase. Calving rates were found to be considerably better than the 47.3 percent rate "mentioned by the Animal Production Research Unit (APRU) as the norm for cattlepost herds" (ibid.:4.56). Most significantly, increasing herd size "seems to act more as an enabling than a determining factor. The large herd owner is able to spend more (of his own time, labor, money, etc.) and demand less (of milk and draft power) of his herd than the small one" (ibid.:4.52). Many smallholders wishing to increase their herds to a level that provides a good team of draft oxen, permits a regular, sustainable surplus for market, and provides reasonable assurance of surviving a drought with breeding capacity intact encounter a threshold range of 20 to 30 head. Herd growth during this

critical phase must be subsidized by the farmer, which typically requires household labor migration (often by the male household head). The resulting labor shortage detracts from the attention to herd management needed to sustain the desired growth rate, especially during the calving season. Most smallholders (and especially those owning fewer than 20 head) find themselves tottering between marginality and possible self-sustained growth, though "it seems that a combination of management factors, economic pressures and natural disasters tend to erode the viability of the small herd" (ibid.:4.77).

> The important point is that a herd below a certain size, preliminarily set at 20-30 heads, is difficult to manage well, because it cannot provide its owner with enough to live on; therefore, he tends to make excessive demands on it, and he usually lacks the resources to care for it properly. It is a vicious circle, a poverty trap, in which men and cattle are caught (ibid.:4.78).

The Carl Bro study provides an extremely useful model of the evolution of management strategies through the family life cycle; equating age and general social and occupational status of the male household head and stockowner with changing herd size, labor use, and investment and management strategies. During the "early phase" of family and herd development, interest is focused upon maintaining at least a modicum of herd growth in the face of the kinds of high consumption pressures common to supporting growing households. For many the aim of herd accumulation, bought at the price of years of austerity at home and savings from migrant wages, is to eventually leave paid employment and return to the rural homestead. By age 40, most men have lost the strength for hard labor, and are looking to return home permanently. "For this to be possible, they should already have laid the basis for their livelihood, and for the majority the possession of an adequate herd is the only feasible basis for an independent living" (ibid.:4.83).

Those herders who enter a "mature phase", very roughly defined in the study as that group which can secure an "independent living" from their herds, at present constitute a small minority of herders. Many aspire to this status, and once achieved, the herdowner may adopt a "traditional" or a "commercial" production style. But the orientation adopted--traditional or commercial--is less a function of actual herd management practice (from the point of view of calving rates or herd structure) than a matter of willingness to make expenditures on livestock inputs, and to make planned and fairly regular market sales. Commercial herds have a higher offtake than traditional herds not because potential offtake (in terms of comparative herd growth) is significantly greater, but because commercial herders are predisposed to realizing a higher proportion of overall income from market sales than are traditional herders. The study draws an instructive distinction between the production orientations held by "traditional" and "commercial" herders in the nonfreehold sector.

> (For traditional producers) the production of cattle specifically for the market is a subsidiary aim to the provision of milk, draught power, bogadi cattle for a son's marriage (or even a second wife for the owner), a store of wealth against the coming of evil days, the social status associated with a well established herd, the ability to help people with loans of cattle when they are in need and the sheer delight of owning cattle. The

> ability to select one or more animals for sale without significantly reducing the herds capacity to provide for these needs is also valued, but that is the function of stock which are surplus to immediate needs, not of stock reared specifically for the purpose. On the other hand commercially oriented herd owners are those who are prepared to spend money on their herds, both in terms of capital invested (e.g., breeding stock, bulls, boreholes, etc.) and of recurrent costs in the expectation that they will reap the benefit financially and in the growth of their herds. They often share the objectives of the traditional owner, thus enjoying social and aesthetic as well as pecuniary rewards (ibid.:4.85).

This brief review of recent herd management studies underlines a main conclusion of Part I of this paper: that livestock policy, and specifically TGLP, failed to incorporate the circumstances and logical implications of smallholder livestock production into its prescriptions. We can summarize the most significant aspects of the dichotomy between policy and the circumstances of production as follows.

1) Livestock production orientations among smallholders are diverse, and utilize livestock as inputs into the farming enterprise, for subsistence, consumption, a depository of savings, and as marketable commodity. Herd management styles are for the most part not consistent with the commercial models posited by TGLP. This has implications to policy assumptions concerning the willingness or ability of producers to incur the kind of capital or recurrent costs envisaged by commercial models, and to adopt the kinds of herd management strategies recommended to maximize beef production. I hasten to add that though production orientation is not predominantly "commercial" in the TGLP definition, it is also not primarily directed to the accumulation of social wealth, or to meet social obligations. It is rather directed to helping individual, relatively autonomous households pursue specific economic objectives, largely determined and constrained by overall asset endowment and access to land and water resources.

2) The TGLP ranch model is a rather idealized development package that a priori requires relatively high levels of commercial efficiency which are necessary to finance the capital improvements, which in turn promote the desired higher beef production levels. In fact, the economics of commercial beef production on the TGLP model may never favor the circumstances of the smallholder, insofar as it is generally agreed that holdings under 100 head cannot achieve the economies to finance private water development and other improvements necessary to achieving the measure of land and herd management control that would make commercial production viable over the long run. Paradoxically, the Carl Bro study suggests that "commercial" behavior, if defined simply in terms of planned and deliberate sale of cattle, may in large part be pursued as a risk-averting strategy for protecting a large-scale investment, in light of uncertain access to water.

> Above this herd size (of 100 head) the risks of watering at unreliable sources or ones not under control of the herd owner are considerable. In the event of the source failing, it is not easy to make alternative arrangements quickly for a large herd. But ownership of a water source costs money, for labour, if not always for fuel, oil and mechanical

repairs. This usually requires regular sales of animals so that the owner must begin to plan ahead and so take the first steps towards commercial production (Carl Bro, 1982:4.87).

3) "The distinction . . . drawn between 'traditional' and 'commercial' herd owners applies more to their methods of management and to their planning of sales than to their attitudes towards the market as such or to their levels of offtake" (ibid.:488). Smallholders do not consider the market unimportant. Rather, they are constrained from producing exclusively for the market by other demands on the herd, and by the fact that small herd size precludes realizing more than a small fraction of total income requirements from cattle production alone. Small scale and the dispersion of herd uses that result combine to undercut the chances of the herd achieving the threshold size necessary for self-sustained growth, typically considered to require between 30 and 40 head. Even then, those herders owning fewer than 100 head will often act to "keep down expenses" by not making the kinds of investments in water development and range improvement recommended by the TGLP model.

For the great majority of livestock producers, a full-scale commercial production strategy is not economically feasible, from the points of view of scale of operations, labor availability, and access to requisite investment capital. This is not to suggest that the development of livestock policy should be put in abeyance until the industry restructured itself along lines more amenable to conventional policy prescriptions. Rather, it suggests the need for a less deductive approach to the problems of smallholder production, and the design of policies more appropriate to the specific conditions and problems of that sector.

The most cursory examination of the circumstances of smallholder production would indicate that the priority concerns of the sector lie less in the area of increasing livestock productivity and output than in issues related to range management and conservation. Overgrazing and range degradation is encountered throughout the communal grazing areas of eastern Botswana. Losses of cattle due to localized drought are common each dry season in Botswana. More generalized drought, such as those that occurred in the middle and late 1960s, have devastating national effects. An estimated one-third of the national herd was lost between 1965 and 1967. In addition to being an ephemeral condition of below-average rainfall, drought under circumstances of overstocking has long-term implications to the resource base. The ecology of pasturelands is permanently degraded to lower levels of natural productivity with each successive drought.

It is the inherent instability of the current circumstances of smallholder production that has attracted the concern of policy-makers and planners in the last few years. Instability is the dominant feature of smallholder production because aggregate herd size surpasses the carrying capacity of the communal range during periods of low resource productivity. Individual herd owners are either unable or unwilling to coordinate their range use decisions, so that carrying capacity is not exceeded, or that an appropriate response (such as destocking) can be made in time of drought. Conventional approaches to livestock development only exacerbate the situation.

> Livestock development and marketing projects and programmes which stimulate herd increase yet further, and which result in higher producer prices for cattle, are likely to make the national problem of overstocking and overgrazing even more intractable than it is at present, thus preparing the way for a national catastrophe of unprecedented scale. The smaller herds concentrated on the denuded communal areas will then be affected the worst (Carl Bro, 1982:4.89).

In the following section we examine some recent approaches to improving communal range management.

Improving Range Management Under Communal Tenure: The Challenge of Smallholder Development

The question of devising viable smallholder development strategies has preoccupied policy-makers and planners virtually since the inception of the Tribal Grazing Lands Policy in 1975. We can categorize most "communal development" efforts among three differing approaches: incremental group development, best represented by the gradualist extension approach of the Ministry of Agriculture; communal area land use planning, fostered mainly by the Ministry of Local Government and Lands; and what I call here models for the collective management of communal grazing land, represented by a few special land use planning efforts and consultancy reports. Although the first and second type of approach are more of the mainstream, the third approach has engendered widespread interest, and speaks most directly to the long-term problems of smallholder production in communal areas, and specifically to the question of how smallholder resource use practices can be regulated so as to accommodate resource management and range conservation objectives. Whereas questions of resource rights in the development literature have traditionally been limited to comparison of tenure models for effects upon output, resource distribution, and equity, the debate in Botswana has been expanded to include the comparative outcomes of differing tenure models on resource condition.

An important argument advanced in favor of TGLP (and other privatization models) is the assertion that assigning private rights in land is a necessary precondition to achieving individual responsibility for resource condition. Under individual tenure, the cost of abusing the range will be fully assessed against the user, and his rights in grazing will be limited to the territorial unit over which he has exclusive jurisdiction. This tenure, it is argued, leads to two desired outcomes. First, herd management will become more efficient, in terms of the ratio of inputs (grazing land) to outputs (cattle) because the full valuation of grazing costs will now be made against the individual production unit. Second, the manager will feel compelled to regulate the intensity of resource use so as to ensure sustained production of grazing. His options for exploiting grazing at a less-than-cost price have been finally constrained.

But in most cases assignment of individual smallholders to discrete areas of land is not feasible, for the reasons set out in the previous section. Private grazing lands require individual water supplies, which cannot be

capitalized by the modest offtake of smallholdings. Once again, market offtake from most small herds is not planned to meet a steady stream of variable costs associated with livestock production requirements per se. Sales are typically undertaken in response to extraordinary or irregular cash requirements, and every effort is made to keep variable costs associated with herd management to a minimum. Finally, even normal, seasonal variations in rainfall require a much more extensive grazing range than could be feasibly accommodated by private grazing tenure. Private tenure would actually limit optimal utilization of the range, or would entail enormous information and transaction costs to permit anything like the easy adjustments to available grazing now accommodated by communal tenure. Indeed, the TGLP does not require universal transformation of tenure rights. Tenure in crowded communal grazing areas will not change. But the rationale in favor of a new normative model of commercial production on privatized land strongly implies that communal tenure is an obstacle to economic development, and inherently destructive of the resource base.

I described in Part I of this paper the extent to which tenure policy was shaped to serve essentially largeholder, commercial interests. Because of the spatial separation of most existing large and smallholder production areas, a general transformation of tenure from communal to leasehold was unnecessary. Rather, most existing large-scale commercial operations could be granted leasehold rights without (in many cases) extinguishing a multitude of smallholder rights to the same grazing area. But for most policy-makers and many technicians, the problems of smallholders appeared intractable, as long as the destructive logic of communal tenure prevailed. The skepticism of planners and technicians was matched by a general absence of real political interest in smallholder problems, and least of all by a political commitment to communal tenure.

In recent years, several planners and advisors have argued for modifying the communal tenure system to allow for stricter protection of the public's interest in sustained natural pasture production while assuring continued access of smallholders to the range. Not to work toward imaginative resolution of communal tenure problems, it is argued, effectively condemns the vast majority of livestock enterprises to low levels of productivity, and probably to chronic instability in individual herd sizes. Designing feasible models for collective management of communal areas has proved, in Botswana and elsewhere, to be an extremely difficult undertaking. Succinctly, the problem is ultimately one of "how to assign individual quotas of grazing rights so that overstocking is avoided, social and economic equity is upheld, and individual progress is possible" (EU, 1981:34).

Most approaches to the problem have begun with the assumption that the main challenge is one of identifying existing or constructing new social institutional forms, at the level of the local community, which possess the social legitimacy and can apply the sanctions required to enforce range use controls and management standards. The Carl Bro Consultants report provides a typical statement of the problem, and of what has come to be a conventional, though rather general, recommended solution.

> It is the contention of the Evaluation Unit (EU) that under present circumstances communal grazing areas are inherently unmanagable and that

> nothing can be done about the problem of overgrazing, except to wait for the next drought, which is not a very imaginative or durable solution. It is therefore necessary to create the conditions under which communal range can be managed. The administration and continuous enforcement of the necessary controls cannot be undertaken by any agency other than the local community itself (Carl Bro Consultants, 1982:2.13).

In the following pages we examine two important and broadly representative approaches to the problem of creating effective community-level resource management rules and institutions: Ornulf Gulbrandsen's Agro-Pastoral Production and Communal Land Use: A Socio-Economic Study of the Bangwaketse (1980), and relevant sections of the Carl Bro International consulting report, An Evaluation of Livestock Management and Production in Botswana (1982). Many of the ideas of the latter document appeared in somewhat different form in a report of the Evaluation Unit of the Ministry of Agriculture's Ranch Management Centre, at Ramatlabama. That paper, entitled "The Management of Communal Grazing in Botswana" (Evaluation Unit, 1981) will be used interchangeably with the Carl Bro study.

The main body of Gulbrandsen's study is devoted to a description (based upon the analysis of survey data) of the circumstances of crop and smallholder livestock production in the Southern District, the home territory of a large Twana sub-tribe, the Bangwaketse. Bangwaketse cultural and economic patterns are typical of those found throughout eastern Botswana. The picture of communal production that emerges is one of continued vitality in both small-scale crop and livestock sectors. (The two sectors are highly interrelated, with success at crop production largely dependent upon success at producing sufficient numbers of cattle to inspan a team of draft oxen.) But rural households are increasingly limited in the extent of agricultural enterprise by household labor shortages, brought on by the need to migrate to towns to raise needed and reliable cash incomes. In fact, Gulbrandsen's and other studies of household labor use present a picture of a highly mobile workforce, combining urban wage employment and subsistence farming into an overall strategy for securing a sufficient aggregate (cash, and subsistence) income. The strategy is not necessarily one of maximizing total income, but rather one of satisfying a range of income demands in a fashion that matches the household's relative resource endowments. In other words, a family owning a fairly sizable subsistence herd might be able to meet (in an average rainfall year) most of its grain requirements by home production, and might thus be obliged to send only one of several sons to town, to raise a modest margin of needed cash income. Likewise, a family of low resource endowment, in terms of land and cattle, may still be compelled to farm, however marginally, in order to keep cash expenses down, as jobs are not necessarily easy to find, and living in town is costly. These rather simplified examples reflect an aspect of household income strategy characteristic of a rural economy in transition: the need to simultaneously combine subsistence (and cash) farming activities with urban wage employment. The mix of income source (urban or rural) and the household's overall success are highly susceptible to a range of other variables generally characteristic of the transitional economy, such as the rate of urban job market growth, changes in factor prices, the effects of new technologies and the pace of their introduction, and the effects of education and training.

For Gulbrandsen, the major concern is not that a transition is under way. Most households appear to be combining rural and urban strategies with a fair measure of success: adjusting patterns of urban labor migration and agricultural strategies to a steadily improving ability to afford improved technologies (better ploughs, etc., and perhaps membership in a borehole syndicate) and to compete in urban labor markets (through investments in education and training). What ultimately concerns Gulbrandsen is the ability of the land base to maintain reasonable levels of productivity in light of relentless demographic pressures for more intensive use. The rural population is projected to increase by 56 percent between 1971 and 1991. Gulbrandsen estimates that "the number of households owning cattle will increase by no less than 40 percent by 1990" (Gulbrandsen, 1980:207). Combining the population trends with the growth in livestock numbers, Gulbrandsen estimates that by 1990 the overall "stocking rate is likely to drop to 4.2 hectares per livestock unit (ha/lsu), whereas 12 ha/lsu represents the recommended rate." Gulbrandsen considers this a conservative growth estimate, and hastens to underline the importance of steady growth rates to the maintenance of the entire farming enterprise. "Let me emphasize that because the vast majority possess little or no stock, the conditions for raising the off-take rate are certainly not favourable. Most farmers need to save all the cattle they can in order to have enough draught power" (ibid.:207).

Increasing human population leads to increasing grazing pressure, as cattle are an extremely attractive form of investment, both as a factor of agricultural production and as reasonably liquid financial investment and hedge against inflation. The prognosis is drought-induced ecological collapse, with the poorer segments of the population subject to the most devastating effects. This outcome can be averted, according to Gulbrandsen, only if one or both of two broad policy goals are adopted: "(a) to limit the cattle population of communal areas, and (b) to improve the organization of range utilization in the communal areas whereby grazing is exploited optimally without being degraded" (ibid.:212). He considers three strategic options for pursuit of these goals: increasing the offtake rate, transferring cattle from the communal areas to designated commercial areas, and "regulating the number of livestock units kept in communal areas by means of legislation" (ibid.:216).

Under existing market and investment conditions, the prospects for increasing the offtake rate by means of price incentives are limited. Gulbrandsen cites the conventional analysis based upon the backward bending supply curve. As prices increase, relatively static household cash requirements are met by sale of fewer, but higher priced cattle. The multipurpose functions of cattle further limit price incentives as an effective policy instrument. Even among the more successful grain producers, "profit created in agricultural production is likely to be invested in the pastoral sector because of lack of investment opportunities in the agricultural sector" (ibid.:217). Other circumstances somewhat unique to Botswana act to further limit the offtake rate. These include a relatively low level of infectious disease and an efficient veterinary extension network, contributing to a fairly high natural growth rate, and the existence of extensive work-for-cash options outside of the cattle sector. This latter factor allows many rural households to secure much of their basic cash requirements from urban transfer payments. Instead

of producing cattle for cash income, many buy cattle as a sound investment and hedge against inflation.

> Even Batswana who have adopted a "commercial" approach to their herds tend to live relatively simply and to plough back profits into their herds. This is likely to continue as long as reasonable cash incomes can be earned from sources other than cattle, and there are very few alternative ways of investing savings or gaining security. Stephen Sandford estimates a cattlepost owner could earn an inflation interest 9-12% on his investment which is superior to almost any other way of investing his capital, it is also something he and his neighbors understand and admire, and it does not attract taxation (Carl Bro, 1982:4.88).

The cumulative effect of conventional interventions aimed at accommodating higher offtake rates by enhancing herd productivity is higher aggregate herd sizes, putting ever greater pressure on the communal range. The logic of this outcome becomes obvious when the household's overall income-earning strategy is analyzed in all its complexity, and not simply on the basis of an assumed dominant reliance upon livestock production for market sale. Whether, by means of veterinary measures, improved herd management practices, or water development projects, mainstream livestock policies are leading to ever higher numbers of cattle, and are accommodating fairly static or even declining offtake rates (Sandford, 1977, Table 33).

One of the few immediate improvements envisaged by TGLP for communal areas was decreased grazing pressure, resulting from the exodus of large, commercial herds to the newly developed commercial ranches in the sandveld hinterland. Gulbrandsen's analysis of the distribution of holdings in the Southern District leads to the conclusion that in fact, "this strategy does not contribute much to protecting and improving communal ranges, because it does not mean significantly less pressure on the communal grazing areas, since only a small part of the total herd in the communal areas belongs to men who can afford to take part in commercial schemes" (ibid.:219). Gulbrandsen estimates that only about 10 percent of the communal cattle population belongs to herds larger than 70 (ibid.:220). Even in the unlikely event that all of those larger herds should leave the communal areas, the remaining 90 percent could breed up to and surpass previous population levels within a year or two. Furthermore, the TGLP does not include provision for restricting a single owner from keeping herds in both communal and commercial areas, or in transferring cattle between communal and commercial area holdings. Gulbrandsen is concerned that higher levels of cattle productivity achieved on commercial ranches might actually result in increased pressures on communal areas.

> I am afraid commercial ranching in the sandveld (or commercial areas) might add to the pressure in the communal areas, and if no other feasible alternatives for investment are available, (the ranches) certainly will put cattle into the communal areas. He might also do so if he finds the costs of taking part in new commercial ranches prohibitive" (ibid.:219).

Given the rather negative prognosis for market or other indirect measures for relieving grazing pressure, Gulbrandsen turns to the details and feasibility of his third alternative; regulating livestock number by applying limits

to individual herd sizes. Gulbrandsen's discussion focuses upon the necessary economic and ecological preconditions for successful application of administered controls. Gulbrandsen postulates two preconditions for pursuing local-level stock controls: the achievement of a widely held perception among stockholders that stock controls will pay-off, relative to the likely devastating losses resulting from inaction; and the assurance to farmers who adopt stock-control measures that they will not "be carrying costs from which uncooperative farmers will benefit" (ibid.:227). Crucially, the assessment of payoff will vary from farmer to farmer as, once again, farmers pursue a variety of income-earning strategies, with the relative importance of livestock varying significantly in its contribution to individual household budgets. Because control mechanisms which would provide the assurance of the second condition themselves involve costs, each and every farmer "is likely to try to compare the profitability of adapting an individual strategy to a strategy involving participation in a communal organization" (ibid.:227). The matrix of cost and benefit factors would include: the degree of overgrazing; the number of cattle a man owns (the more cattle, the greater the vested interest in local pastures); the size of the pasture unit utilized and its territorial coincidence with a potential coordinating institution (the larger the territory and the greater the number of cattle owners, the greater the problems of coordination); the household's dependence on animal husbandry; and the availability of manpower (ibid.: 227-28). Although not explicitly stated, Gulbrandsen appears to be looking for indications of relative homogeneity in herd size and household income strategy as the basis of a consensus for collective action to regulate grazing practices. He evaluates in turn the factors noted above, only to reach unpromising conclusions.

a) Because overgrazing is concentrated around water points, and because there remain effectively unutilized but not overgrazed areas nearby, few farmers "express recognition that their area as a whole is overgrazed" (ibid.:228).

b) The majority of livestock holdings are very small (in Southern District, 51 percent are less than 30 head), underlining the fact that though cattle are critically important as a source of income and a factor of production, other aspects of economic life (for instance, arable agriculture, labor migration, housekeeping, food and beer production, etc.) compete for the household's attention. If anything, the demonstrated ability of cattle to pretty much fend for themselves, and of to course reproduce themselves, has given rise to attitudes and practices that tend to detract from good animal husbandry.

c) The basic organizational unit for possible collective action is today a very large one, "the tribe or the district numbering thousands of people" (ibid.:228).

d) As suggested in (b) above, the small size of herds and the shortage of labor due to migration indicates "that few families can depend to any significant extent on animal husbandry for consumption" (ibid.). Hence, the overriding economic interest and the obvious payoff presumed necessary to voluntary organization would appear not to exist.

Emphatically, Gulbrandsen states: "In conclusion, as far as the interest of the management units themselves is concerned, we can say that currently the conditions for spontaneous organizational processes and so-called group formation are not very favourable" (ibid.:229). Paradoxically, and admirably, Gulbrandsen sets aside his practical skepticism concerning the current structure of incentives at the level of the household, and turns to the question of what political and economic resources might be mobilized to encourage cooperation for range management in the long run, and what institutional framework might be devised to better regulate range use. In Gulbrandsen's words, what are "the possibilities of creating organizational conditions for stimulating the farmers themselves to take the responsibility for the pastures, and to act accordingly" (ibid.:231).

Gulbrandsen approaches the problem of institutional context by searching for an existing organizational framework with which nearly all farmers could identify. He properly rejects the efficacy of "village" or "village organizations," because the institutional authority and territorial integrity of these constructs have on the main given way to political and economic influences beyond the realm of the traditional social territorial unit. The decline of the chiefs' authority to regulate land use and coordinate agricultural patterns has resulted in extensive mixing of land uses and a mixing of places of farmer origin and traditional association.

While rejecting village-level associations, Gulbrandsen concludes that at the level of the tribe, members share a common cultural identity (ibid.:233). Although this is not a surprising conclusion in and of itself, what Gulbrandsen deduces from this otherwise innocuous observation overextends, I believe, the applicability of the generalization. His argument goes as follows. In past times, an attribute of traditional (tribal) society was the office of modisa, or grazing overseer, who had certain regulatory duties invested in him by the chief, over a naga, or demarcated grazing area. This system was described in Part 1 of this paper. Because grazing territories came to be used by members of a variety of wards, "many of the cattle owners have nothing in common (other) than being under the administration of the same overseer" (ibid.). Gulbrandsen admits that "there are few indications that the overseer-system is functioning today," (ibid.:234), but claims that the grazing areas are still formally "supervised" by the chief or by his representatives. Given this brief, and on the whole pessimistic introduction to the issue, Gulbrandsen asks, "Since this sytem was simply a way of dividing the tribal territory into administrative zones, containing no corporate body of farmers (apart from some unrelated factions of kinship-groups), and since it does not seem to function today, can this system be at all useful for the organizational tasks in question here?" (ibid.:234). Gulbrandsen's answer is yes, though not without reservations. "Even though the system is not practiced today to any significant extent, it is based on a complex set of well-codified rules which, as a part of the people's culture, still exists in their minds" (ibid.:234). As evidence of the institution's potential usefulness, Gulbrandsen suggests that older members of the tribe are still familiar with the zoning of grazing areas, are aware of its purposes, and understand the responsibilities of the overseer. But more important than its former functions, the concept of dinaga, or grazing territories, provides an institutional framework for the pursuit of contemporary resource management objectives.

> In other words, a conceptual framework is available which, in many respects, has previously facilitated just those organizational tasks which currently are being recognized as so crucial. It should be stressed that such a system is quite flexible. It is not necessary to follow the traditional territorial zoning literally, because this has certainly always been pragmatically adaptable. "Traditional" rules defining responsibilities, distribution of authority, and status relations have also been modified pragmatically, according to changing circumstances. This traditional system could thus be modernized according to the organizational demands and the present political-organizational structures (ibid.:235).

Updating of the system would be achieved through legislation, and by legally upgrading the authority of the chiefs to regulate land use. Critically, Gulbrandsen emphasizes "that it is difficult to see this traditional system, even in a modernized fashion working properly unless the tribal authorities are given back some power to administer land" (Ibid.:235). It is the political feasibility, and social and economic desirability of this last requirement that we must be most skeptical about, for reasons that we will explore shortly.

Assuming establishment of an overall authority to administer and sanction resource use measures, Gulbrandsen next turns to a series of technical and organizational issues pertaining to the practical functioning of communal management units. The aim here is the unification of short-term and long-term interests in pastureland. "It is unlikely that people's short-term interest in preservation unless each farmer is assigned to one and only one specific zone" (ibid.:236). Furthermore, more or less free flow between zones would defeat the purpose of establishing discrete grazing units. The units would be limited in area, and include a minimal number of stockholders. The overriding purpose of this recommendation is to create the conditions whereby farmers' attention will be drawn to the finite dimensions of their grazing area, thereby inducing them to apply self-generated control measures to keep other people's cattle out, and to control their own stock numbers.

> It will be in every farmer's interest to ensure that other farmers keep as few cattle as possible in their zone, and they will . . . be greatly interested in establishing an upper limit for the number of cattle a farmer can keep in a zone. If a farmer reaches such a ceiling, the others would benefit from noting it and demanding that he should not exceed the limits agreed upon (ibid.:237).

It is at this point that Gulbrandsen's rather general recommendations and broad interpretations of likely stockholder responses fail to jibe with his previously detailed analyses of the kinds of resource use and economic constraints faced by farmers. Hitherto, farmers had been individualistic in their attitudes toward cooperative production. The variety of household income strategies acted to preclude the emergence of an identifiable common interest. Now, with the creation of discrete, limited resource territories, farmers will devise rational, sustained use strategies because the consequences of nonregulation are at last made evident in tangible terms, i.e., the range degradation brought on by their actions will decrease carrying capacity to a point where livestock no longer provide a viable source of income.

We can fault Gulbrandsen's conclusions here on three counts. First, by requiring that "each farmer be assigned to one and only one specific zone," Gulbrandsen overlooks the importance of the "fallback" strategy, in which stockholders use two or more water points (and grazing areas) in the course of a year, in response to variable seasonal rainfall (see Cornell University, Water Points Study (1981), for a full description of the fallback strategy). This is a critical ecological adaptation to highly seasonal, and seasonally variable, rainfall patterns typical of savanna regions such as Botswana's. To restrict stock numbers to single, presumably small territories, would require drastic cuts in the current stocking rate, to levels that could be supported at the lower levels of estimated range productivity. This is not practical, or even advisable from an optimum resource use point of view. The alternative would be to delimit grazing territories of sufficient size to incorporate "fallback" grazing requirements. The disadvantage of this approach is that by so doing the large numbers of stock holders that would be included in the unit would defeat a major purpose of keeping the territorial unit small: minimizing the number of herding units that would have to be coordinated.

Second, the kinds of farmer responses to a finite resource situation predicted by Gulbrandsen run counter to what his earlier profile of farmer income strategies would indicate. Those profiles give a strong impression of diversity of strategy, and of diverse interests in the utility of livestock. Gulbrandsen does not explain how a presumed sense of common interest in the welfare of the resource base will be translated into the practical assignment of rights to those resources, simultaneously scaled to an infinite combination of legitimate economic (subsistence and market) interests in cattle. This, of course, is an awkward issue often leading to cumbersome administrative constraints, and Gulbrandsen's instinctive reaction is to defer to the local group in making these kinds of valuations.

Third, the conscious realization of imminent ecological collapse at the level of the locality will not necessarily provide the catharsis for action that Gulbrandsen predicts. This might have been the case if the economic interests of individual households where commensurate with those of the group. But a unity of interests no longer exists, as a large portion of household income is (or can be) derived from sources other than local economic networks, and other than from cattle. Indeed, all farmers, to differing degrees, share a basic common interest in a productive resource base. But those who derive a larger portion of their income from cattle may be motivated to act sooner and in ways different from those who are less reliant upon cattle for current income needs. The challenge becomes one of reconciling an obvious group interest in sustained pasture production with a multiplicity of individual perceptions of what action is appropriate given individual needs and contraints.

A publication of the Evaluation Unit of the Ranch Management Centre in Ramathabana ("The Management of Communal Grazing in Botswana" [Ministry of Agriculture, March 1981]) provides a model for communal resource management similar in many respects to Gulbrandsen's. The paper summarizes cases of communal pasture management, existing and no longer functioning, in the Hebrides of Northwest Scotland, Lesotho, Central and Southern Districts in Botswana, and among the Herero of western Botswana. The Hebrides example is the most elaborate, and is the only case which provides for the assignment of specific

and limited grazing rights to individual farmers. The African examples are somewhat idealized and general in presentation, and appear to rest on circumstances of social structure, political control, and modes of production characteristic of traditional society and economy, but which have been transformed as a result of interaction with now dominant, new economic factors beyond the village level. Nevertheless, the examples are offered in support of the principle that "the commonage is not inherently unmanageable" (EU, 1981:26). The critical lesson drawn from the comparative analysis of communal management systems is the importance of scale to the success of the group management endeavor.

> A common factor in all the cases mentioned is that small communities control small grazing areas. The people live close to each other, many are related, and there are strong informal, as well as formal, pressures within the group to urge conformity on its members. The examples therefore strongly endorse the arguments of Hitchcock and Gulbrandsen that communal grazing management is possible only when the scale of operations is small by the contemporary standards of Botswana (ibid.:26).

The author of the report (Paul Devitt, a sociologist and planning consultant) is skeptical of the group ranching approach to range management, arguing that it would lead to increased inequities among communal stockholders. There are many factors which mitigate against participation in groups, especially among the poor. He is also dubious about the notion that special purpose organizations, such as borehole syndicates, drift fencing groups, etc., can be transformed into ranching groups.

> Such transformations occur but they can seldom be relied upon to endure, unless the objective the group has set is essential for survival. Despite enormous financial, logistic, and organizationsl problems, borehole syndicates, for example, are remarkably resilient, largely because the stakes of the members are very high and the consequences of failure are immediate and drastic. The direct connection between non-cooperation and lack of water is usually sufficient to keep syndicates working. This is not the case where the resource to be managed in common is a tract of land and its vegetation. No direct connection between lack of management of the range, depletion of forage and death of cattle can be observed. Thus, the incentive for individuals to accept painfull and onerous restrictions in herd movement and growth is not present (ibid.:29).

Though the inability to relate management practice to range condition would appear to mitigate against the group ranch as a model for cooperative range management, the author does not see an equivalent obstacle in his own model of resource management based upon another, still larger corporate body, the village (ibid.:30-36). The model appears to be drawn from two critical first conditions: the necessity of smallness of scale, and the need to instill an institution with jurisdiction over the delimited territory with the authority to enforce management standards. The minimum size geographical unit with an institutional apparatus coincident with boundaries of the territory is the village. "It seems that the most appropriate 'local community' to deal with is the 'village,' with its headman or chief's representative and kgotla" (ibid.:32).

The village is in no sense a small-scale unit, and would normally encompass a few hundred square kilometers, when including, as the author himself does, residential, arable, and grazing areas, and from two to three thousand citizens, and as many as fifteen thousand cattle. It quickly becomes clear that the essential ingredient to the author's plan is not smallness of scale, but an effective, overall institutional apparatus that can (ultimately) regulate range use while ensuring the continued rights of all members of the community to land for small-scale livestock and crop production.

The actual process of assigning individual rights to a portion of the commonage would be modeled roughly on the Herbrides practice of distributing equal shares of grazing rights to community members, which in turn could be freely traded within the community so that grazing rights could be adjusted to individual grazing needs.

> There are at present no local institutions experienced in pasture management and stock control. Some years ago Reynolds (1977) suggested that the local community be given the status of a "company", with its shares corresponding to the carrying capacity of the communal grazing area. In current terms this company would resemble an Agricultural Management Association, except that all community members would be members and shareholders. Each household with grazing rights in the area would be allocated equal shares. The sum total of shares (i.e., the current carrying capacity) would be reassessed each year at a public meeting, and at the same time those with shares in excess of their current requirements would put the year's lease on their surplus shares up for auction. At the end of that year the shares would revert to their owners (ibid.:34).

This model would appear in broad outline to meet the requirement of assigning individual grazing rights "so that overstocking is avoided, social and economic equity is upheld, and individual progress is possible." It remains, however, an essentially conceptual model, which assumes (1) a widely held perception of the problem of overgrazing and the necessity of doing something about it; (2) that all will see the economic benefits of cooperation over other approaches to the problem, such as gaining exclusive rights to a large portion of the commons; and (3) the existence and viability of a local authority to manage and police the allocative process. On the latter point, Devitt presumes "the kgotla would provide the forum for these decisions and transactions and a sub-committee (called the Grazing Committee?) could deal with registration of shares and their lease, and the administration of the system" (ibid.:34).

A Summary of the Communal Management Strategies

Gulbrandsen and Devitt, as well as a number of other analysts of smallholder grazing management, have drawn attention to the need for action at the institutional level (see especially Odell, Sandford, Hitchcock), and have significantly advanced thinking on possible models of collective resource management. They have been motivated by the obvious need to find practical solutions to problems that are fundamental to the economic welfare of Botswana's rural majority. They have recognized the critical importance of identifying a social institutional form that can regulate individual behavior within an overall

framework of community interest. They have also recognized that smallholder land rights will only be preserved in the long term if some form of cooperative resource management is put in place. The by now familiar recommendations for government and local action to assure the viability of communal livestock production have in common the following themes.

1) Reinvesting traditional authorities at the local level with control over land allocations, and over land use management. Unfortunately the specific provisions of this recommendation are typically not drawn out in sufficient detail. The political controversey attendant to such a change is almost always acknowledged, but cogent and practical arguments for overcoming the objections of existing power centers are usually not presented. The case for enhancing the authority of traditional leaders is made on two grounds: the perceived failure of land boards to effectively execute the whole range of customary land allocation functions formally undertaken, reasonably efficiently, by village headmen; and the inarguable need for some authority at the local level to administer and enforce grazing regulations. Because traditional institutional forms at one time performed broadly similiar functions, they recommend themselves as a familiar, still existing, institutional resource.

2) The assignment of communities or groups to designated resource territories. This is actually a variant of the TGLP model: no producer has the incentive to abide by stock limitations unless he has assurance that the benefit of his self-restraint (sustained grazing production) will not be consumed by his neighbor. Assurance in the broad sense is provided by clarification of territorial rights, and the elimination of ambiguity concerning the supply of fodder elsewhere in times of real emergency. This recommendation posits the community of herders as a collective grazing unit, operating under internally agreed measures of self-regulation. The exclusive use rights of the collective over its territorial jurisdiction must be respected by neighboring communities if intercommunal cooperation is to be guaranteed. Presumably, the state (via the land board, for instance) is to police intercommunity grazing relations. Devitt recommends the establishment of a state commission to determine upon village boundaries.

3) Grazing territories should be small in area. This will enhance communication between herders sharing a common range, and will ease the managerial complications inherent in large group endeavors. This might be interpreted as contrary to the use of the village as a basic territorial unit, but some, including Devitt, recommend a hierarchical relationship between a number of territorially delimited grazing areas placed under the overall jurisdiction of a single village authority. This is something of a modified group ranching model, with the village authority acting to ensure continued access of the entire community to grazing rights. The argument for small grazing territories is also made under the assumption that they will focus the attention of herders on the finite character of the grazing, and thereby instill greater discipline in management practice.

There are a number of other features common to models of cooperative resource management which are of less importance to the present survey. These include such issues as preserving the ability of herds to move temporarily to other areas in the event of local drought, and several details of management

structure and organization. We will not examine these here, but will rather concentrate on a more thorough analysis of the central assumptions and arguments of the cooperative development models as summarized above.

It will be argued that cooperative management models as currently constructed are flawed, and will probably not succeed in creating the kinds of institutional and management conditions required to meet the goal of sustained smallholder production on communal range. The models have failed to take proper account of the changed economic circumstances of smallholder livestock production, of the implications of economic change to the traditional institutional order, and of the extent to which economic and institutional changes have redefined the set of practical policy options. Furthermore, enhancing the authority of traditional institutions over land matters is not only politically infeasible but perhaps even socially undesirable. It will also be argued that because range conditions, and for that matter smallholder livestock production, are peripheral to the sustained operation of the overall economic system, there exists no automatic mechanism within the system to enforce "self"-conservation of communal grazing. If conservation is to be achieved, it must be imposed by a legislatively sanctioned institution that is the product of a perceived state interest in sustaining a smallholder livestock sector. The remainder of this section is devoted to a more thorough critique of the assumptions underlying most current communal management strategies. The last section of the paper outlines what I feel to be a more appropriate approach to the problem of institutional development and resource management.

The Limits to Collective Action at the Village Level

Economic Change and the Decline of Traditional Institutions

As we have seen in the preceding discussion, some have attributed the inability to achieve improved range management practice in communal areas to the absence of a local authority responsible for the assignment of land rights and the enforcement of management standards. Many of these analysts argue that the chiefs, through a network of headmen and grazing overseers (badisa), provided the direction and sanction necessary to the kinds of collective resource management functions needed today. Chiefs and headmen still retain an important measure of respect and authority, it is argued, and village-based control and management can be realized again by reinstilling chiefs with control over local land use management. The kgotla, or tribal meeting place, could provide an important measure of democratic discussion and consultation required by today's more democratic models of public participation.

Most criticisms of this approach have focused upon the political difficulties of transferring power over land matters from land boards, which operate as legal instruments of central government authority, to traditional authorities, who in the early years of independence were perceived as potential threats to the achievement of national unity under a nonsectarian national government. Land boards, by assuming the main part of authority over land matters, denied the chiefs continued legal jurisdiction over their single most important source of political authority. Advocates of traditional institutional forms have

responded to these criticisms by suggesting that their proposals for enhancing the powers of traditional authorities refer to village-level powers, and would leave the powers of paramount chiefs, the real source of potential organized challenge to central authority, essentially unchanged.

An important aspect of social and economic organization relevant to consideration of the role of traditional management models has been overlooked in this debate. This is the extent to which traditional authority was largely based upon a network of local economic interdependencies, many related to the allocation and management of common resources, which have declined in importance commensurate with the emergence of powerful economic institutions beyond the political jurisdiction of local communities. Put another way, the economic frame of reference of individual households today is predominantly oriented toward networks of production and exchange at the regional and national levels. This fundamental reorientation of economic interest has made moribund community-level institutions which had acted to ensure individual economic security in the context of locally derived agricultural and material production. The new, dominant economic institutions are wage labor markets, commercial livestock and grain markets, and commodity markets.

The political legitimacy of chiefs and local headmen was in large part based upon the critical economic function of redistributing surplus production to ensure the minimum welfare of all members of the polity and in coordinating access to the resources and privileges that tribesmen were entitled to by virtue of their membership in the group. According to Dalton, "Redistribution entails obligatory payments of material items, money objects, or labor services to some socially recognized center, usually king, chief, or priest, who reallocates portions of what he receives to provide community services, and to reward specific persons" (Dalton, 1967:74). An important aspect of office associated with the redistributive function is assuring all members of his jurisdiction their "socially structured rights to receive factors of production" (ibid.:74), and most particularly their allocation of land for subsistence crop production, and access to the group's grazing commons. Emergency allocations of food from the chief's stores acted to tide over those who had suffered crop failure or cattle losses until the next season. General levels of production and material wealth were low, but the redistributive function vested in chiefs acted as a guard against widespread social destitution.

Furthermore, the traditional economic order put important limits on economic expectations. Schapera, writing about the influence of European economic institutions upon Southern African tribes generally, observed that previous to contact the substantive economy acted to limit individual accumulation.

> Once the native had his huts, his utensils, and so on, the only form in which he could accumulate wealth was cattle. The wealth of a household consisted in its herds of cattle; and to a certain extent, indeed, cattle may be regarded as a standard of value in native life--lobola (bride-wealth) was paid in cattle, the chief levied fines in the form of cattle, and so on. But there was, however, a limit to the accumulation of cattle by the ordinary native. There was no motive in native life which would lead to a man's accumulating cattle beyond a definite point; once he had enough cattle to maintain his household there was nothing more which he

> could hope to gain by their possession. He could not even contemplate--what we are able to do--a rise in rank or social status due to the accumulation of wealth (Schapera, 1928:174).

But the entire economic system, involving as it did low levels of production and a simple division of labor, required a large measure of insularity from external economic institutions, which promised, for some at least, higher levels of production and economic wealth if certain institutionalized obligations of reciprocity and redistribution could be avoided.

Institutional relations changed fundamentally as tribesmen became steadily drawn into a network of European-managed economic relations which operated outside of the traditional order. Schapera identifies three influences as most significant in desolving traditional economic interdependencies: a growing reliance upon European manufactured goods; exchange of agricultural produce with European traders; and, most importantly, participation in wage labor markets. As early as 1928, Schapera notes that a large proportion of the Southern African labor force "are becoming detribalized and many of them have ceased to be agriculturalists and herdsmen, and are now primarily industrial labourers" (ibid.:149).

New tastes, habits, and vices are acquired; the strictures of traditional "communal ideas" are no longer relevant to new economic realities; the networks of traditional social obligation through which mandatory reciprocity and redistribution operated no longer hold sway.

The new economic order had far-reaching implications for the authority of the traditional leadership. Schapera traces the decline of the effective political power of chiefs to a combination of economic and political factors, but it is clear that economic considerations were dominant.

> The breakdown of the tribal system has been further stimulated by other factors (in addition to labor migration). Of these not the least significant was the decay of the chief's economic functions. This is partly the result of a policy deliberately carried out by the administration since the middle of the last century. The chiefs were still recognized by the Europeans as a means of government, but their jurisdiction, more particularly in criminal matters, was gradually transferred to European magistrates and commissioners. They were induced to accept fixed salaries from the government, in return for which they had to surrender their right to fines imposed on their people. They were also deprived of the power of making war against rival tribes, and were thus discredited in the eyes of their people, who looked to war as one of their principal means of acquiring cattle. In this way chiefs were deprived both of their most important functions in native life and of the chief source by which they derived revenue from their people (ibid.:150).

Substantial and reliable sources of income earned outside of subsistence farm production and intragroup exchange had the effect of supplanting the traditional role of chiefs in coordinating land use, regulating the agricultural cycle, and redistributing surpluses in rough harmony with individual requirements.

> Instead of working for their chief they now worked for themselves: the accumulation of wealth became a motive in the life of every native. Travel and the absence for longer or shorter periods from their home environment widened the breach between the chief and his subjects. The economic reciprocity which entered so strongly into the relations between chief and subjects, and which formed one of the vital features of the native economic system, has broken down almost completely. The chief no longer plays the part of tribal banker: his function as the holder and distributor of all the surplus wealth has been obliterated by the new economic forces (ibid.:150).

The "new economic forces" are labor and product markets outside of the framework of local subsistence economies, to which households must now turn for securing an increasing proportion of the total household budget. This fundamental reorientation of economic interest, away from local networks of reciprocity and redistribution and toward institutions beyond the influence of local institutional forms, has contributed to the demise of the economic functions of traditional institutions. The past importance of economic functions in providing an underpinning to authority is often overlooked by present-day analysts. This is in part due to the fact that while the major economic transformations which substantially redirected household economic interest were at their zenith during the 1920s and 1930s, the British Protectorate administration moved to enhance the apparent political position of chiefs and headmen. But increased authority in aspects of civil administration in no way hindered the progress of markets in defining new patterns of economic organization. In fact, many of the duties of indirect rule incumbent upon chiefs actually accommodated integration into the market economy. Most important among these were the chief's role in organizing and assuring a steady supply of mine labor, and in collection of the hut taxes. We have already noted in Part I how Khama's formal disavowal in 1875, of mafisa rights to all Bamangwato cattle, began a process of decreasing political control over subjects by means of claiming ultimate rights in property. To be sure, the chief remained trustee of all land, but it was the timely redistribution of cattle and grain that ensured group survival in times of economic or ecological stress. The political legitimacy of successive chiefs until the period of protectorate administration depended in large part upon the success of the incumbent in performing the redistributive function to the satisfaction of their constituencies.

Once the buttress of the protectorate administration was removed, chiefs and headmen lost what had come to be their single most important sanction for the exercise of power. Management of residual economic affairs had already been usurped in the process of economic transformation that gave rise to the market economy. That is, whatever surplus that in former times had been set aside for poor years or for redistribution, now found its way into market outlets. Finally, the critical function of land allocation was effectively transferred to land boards, which came under the ultimate control of a central government ministry. It is these latter functions of land allocation and management that analysts such as Gulbrandsen and Devitt suggest best be returned to tribal authorities.

Although enhancing local-level powers might in fact promote desirable resource management practices at the community level, the arguments in favor of

such reforms typically fail to recognize the extent to which the social and economic aspects of resource use and agricultural production are of a totally different order today than they were under the "traditional" dispensation. Not to account for these changes may result in the design of institutional reforms not scaled to the relevant factors which policy aims to affect.

For instance, will farmers perceive their best interests served by following the directions of an institution that no longer plays a meaningful role in other aspects of economic and community life? According to economic anthropologist George Dalton, increasing reliance upon the money economy for product sale and acquisition

> can be as disruptive to indigenous social and economic organization as wage labor, and for the same reasons. It is not alienation from the means of production which is socially divisive, but rather the dependence upon impersonal market forces unrelated to indigenous social control; the separating of economy from society by divorcing resource allocation, work arrangement, and product disposition from expressions of social obligation (Dalton, 1967:78).

Certain prerogatives for regulating land use may have been derived from the chief's trusteeship of land and from their responsibilities for assuring the minimal economic welfare of all tribesmen. This would provide major explanation for the role of the badisa in regulating grazing intensity in rough balance with carrying capacity. This institution apparently failed to stand up to the pressures of population growth, or to the challenge of controlling stock numbers in a situation of maximum grazing pressure. Whereas the badisa could redirect stock to areas of surplus grazing when a surplus was available, they were unable, and probably ill-disposed to imposing a completely new order of management controls that would inevitably involve stock limitations. We can hypothesize that the badisa, as agents of the chiefs, probably could not have legitimately maintained collective stock limitations into the present period, because by the 1920s and 1930s households were already less dependent upon exchange and redistribution within the affinity group than they were upon labor and product markets outside of the group. The course of economic change and development since the 1930s has only increased household reliance upon cosmopolitan economic institutions and reduced traditional economic bonds.

Writing on changing patterns of social and family relations, B.C. Thema (1972) provides a fascinating description of how traditional systems of reciprocity and redistribution functioned in reallocating surplus food and in assuring a general subsistence. The chief had a central role to play in the economy committed first to assuring group survival. A general decline in authority resulted from the decline in his economic role relative to emergent commodity and labor markets.

> Besides excercising secular and divine authority over his people the chief was also looked up to to provide for their material needs. The hungry came to the chief's kgotla to be fed, the poor came too, and they might be given mafisa cattle to breed, hold for the chief, and subsist on in the meantime. These were, above everything else, the personal ties which bound the Batswana to their chiefs, and it is the weakening of these

forces that is undermining the former authority of the Tswana chiefs, much more that the rise of political awareness amongst the people (Thema, 1972:39).

The operative economic factors which influence the resource use practices of rural households will not be successfully regulated by simply reinstilling traditional officers with jurisdictional authority over land and land management matters. It is the interaction with modern sector economic institutions beyond the village level which now influences the resource use decisions of rural households.

The Changing Role of Livestock in Household Income Strategies

Most analyses of communal range management in Botswana begin with an empirical examination of the household enterpriseits land, labor use, and herd management practices--as the primary decision-making unit in matters of resource use and factor allocation. This emphasis is a sound one, as households are relatively autonomous economic entities, in the sense that they form discernible units of production and consumption interacting with a larger economy. These descriptions, including those provided by Gulbrandsen and Devitt, tend to present a picture of relative heterogeneity among farming families, in terms of their income mixes, asset distribution, and degree of dependence upon wage labor migration.

Indeed, the household was relatively autonomous as a production unit under the traditional dispensation. As noted, chiefs performed critically important redistributive functions, and appeared to coordinate resource use by assuring the fair distribution of grazing rights among tribesmen, but the chiefs did not coordinate production decisions in the sense that the tribe formed a corporate, or communalistic, production unit. Rather, the redistributive function operated at the margin, essentially as a tax on a portion of the surplus production of households for reallocation to the less fortunate, or as reward to the loyal. Great inequities of wealth were evident, with the royal households possessing the greatest capital wealth. Traditional economic organization did not challenge the skewed distribution of wealth, and redistribution in no way involved the reassignment of private assets, in land or cattle, so as to achieve more equitable capital distribution. The increasing importance of the cash economy, and the concomitant decline of the chief's economic functions, contributed to a decline in what had always been a residual coordinative function with respect to range use (the role of the badisa), successfully executed only in times of relative resource plenty. Shortly after independence, land boards displaced the role of chiefs in land matters, contributing to a further decline in their political authority.

Gulbrandsen's study of the Bangwaketse distinguishes itself for sustaining a focus on household constraints and decision-making throughout the analysis. In the absence of a dominant collective economic institution for organizing resource use and factor allocation among a community of producers (as is the case for instance, in the Israeli kibbutz and among the Hutterites) analysis must focus upon the potentialities for coordinated decision-making among the

community of individual resource users, i.e., the farming households. Two overriding factors militate against local-level action for coordinating resource use.

1) The economic uses of cattle vary among households, as does the relative importance of livestock in contributing to the total household budget.

Production objectives, and hence resource use strategies, are anything but homogeneous. This is important for at least two reasons. First, a plan that allocates grazing rights among members of a community cannot assume shared objective functions with respect to cattle-keeping. A household's reasons for keeping cattle, and hence its perceived minimal requirements in terms of numbers and market offtake, will vary by a number of factors, such as stage in life cycle, proportion of income met by other sources, extent of involvement in crop production, and overall reliance upon cattle for subsistence and/or cash income. To be fair, the calculus of grazing rights should account for the variety of livestock-keeping requirements. Given the diversity of perceived requirements, this would be a tremendously difficult thing to do, given current conventions of resource use rights.

Second, as the extent of reliance upon livestock varies, so will the household's real interest in resource conservation. If a household is primarily dependent upon cattle, say for direct subsistence, cash income from direct sales, and as a factor in producing crops, then it would follow that household's interest in sustaining the conditions for future production might be greater than that of the migrant worker who maintains a small herd at his home village as, for instance, a savings bank. Gulbrandsen has noted the increased significance of this latter phenomenon in Southern District.

> There is a substantial increase in the number of farmers who own very few cattle, and who can, therefore, depend on their animals only to a limited extent. Because they have to exploit other economic options, there is thus less time for engaging in pasture control. Also, by being dependent mainly on other sources, they are less likely to consider the long-term benefit of using time and effort to improve pasture management. The growing number of such marginal farmers implies not only that ambitions (with) respect to pasture control will be fairly low, but also that the scale of the farming "communities" is increasing to the point where it becomes more and more difficult to organize properly (Gulbrandsen, 1980: 248).

2) Households adjust their overall land and labor use allocations and resource use strategies in response to variable opportunities in several sectors of the economy.

Households through time shift their factor allocations among a number of income-earning sectors, with the net effect that decisions relative to cattle-keeping are determined by weighing the availability and relative importance of modern sector wage opportunities, agricultural product prices, and comparative savings functions, among others. For example, Gulbrandsen suggests that rising urban wages and successful policies for increasing cash crop production will lead to increased treatment of cattle as an investment good, rather than as a source of current income (assuming the continued paucity of alternative

investment opportunities providing comparable returns). In effect, this hypothesis suggests that aggregate herd size would increase as other sectors of the economy become more robust, and that cattle would be treated less as an object of income generation than as a medium of savings. Can we further hypothesize that management practice with respect to cattle as an investment good will be more desultory than it would if cattle are seen primarily as a source of current income?

In conclusion, household decisions with respect to cattle-keeping are not simply defined by relative resource endowment and attitude toward the livestock market, but by a much larger decision matrix determined by parameters of risk and income opportunities in other sectors of the economy. We can see the particular importance of this to the Botswana case, where data indicate that very few households ever achieve a significant measure of economic independence based upon earnings from their herds, and less so from crop production (see especially the Rural Income Distribution Survey, 1975). This suggests that resource management policy must be in large part approached from the perspective of national economic policy. Effective policy measures at this level are difficult to implement in Botswana, not least of all because several important aspects of economic policy are beyond the direct influence of government. But government does have some choice of action, as will be argued in the concluding section of this paper.

A New Framework for Policy Analysis

It is now time to summarize, from the preceding discussion and from other materials, salient aspects of the economic and institutional environments that indicate both limits and opportunities for developing policy for the smallholder livestock sector. S.V. Ciriacy-Wintrup and Richard C. Bishop (1975) provide a useful conceptual framework for considering decision-making processes under circumstances of communal resource use. The framework entails three interrelated levels of decision-making: the operating level, the institutional level, and the policy level.

The operating level, or first level, of decision-making "relates to the determination of inputs, outputs and the host of similar decisions made by the operating sectors of the economy" (Ciriacy-Wintrup and Bishop, 1975:716). For our purposes, we are referring to farming households, the basic units of livestock production and management in Botswana, and producer decisions concerning such things as herd size and composition, uses made of cattle, attitude toward livestock markets, and herding practices.

The second level of decision-making involves the "institutional regulation of decision-making on the first-level" (ibid.). Here we refer to the variety of formal and informal institutions, including traditional authorities, land boards, central government ministries and other agencies, that have some formal or customary role in allocating land rights and regulating land use.

The third level of decision-making is the policy level. Here, changes in the institutions on the second level are themselves subject to decision-making, typically as matters of institutional form, authority, and procedure. The policy level treats institutions as instrumental to the achievement of policy goals.

"Decision systems on each level can be analyzed with respect to structure, functioning and performance" (ibid.). For the purposes of this analysis, we are primarily concerned with: on the first level, the implications of smallholder production practices to choice of tenure; what this implies, on the second level, for institutional form and prerogative, especially with respect to the regulation of grazing practices; and, finally, the prospects for action given past and current national policy toward land and livestock in Botswana.

Smallholder Production and the Necessity of Communal Tenure

Smallholder production will continue to involve shared use of grazing resources. Smallholdings do not achieve the economies of scale neessary to finance individual investment in basic productive infrastructure, including water. The agro-ecology of livestock production in Botswana's semi-arid environment often requires that producers make seasonal adjustments in grazing patterns. Use of natural range is an extremely land-extensive activity. Given this broad economic and ecological context of smallholder production, is it possible to be more specific about what is meant by communal tenure? Next, what factors influence smallholder decision-making concerning communal resource use? What does this imply for an institutional role in influencing common resource use?

Confusion, and imprecision, over the meaning of communal tenure have detracted from the development and application in Africa of this otherwise promising property concept. The conventional property rights school in neoclassical economics (see especially Demsetz, 1967) has tended to asssociate communal tenure with the notion of "open access," usually defined in terms of an absence of property rights. This notion is best represented by the maxim "everybody's property is nobody's property." "That is, when a given natural resource is physically and legally accessible to more than one resource user, the result is said to be a free-for-all, with users competing with one another for a greater share of the resource to the detriment of themselvese, the resource, and society as a whole" (Ciricacy-Wintrup and Bishop, 1975:713). The conventional, neoclassical approach for dealing with situations in which costs of resource use are not fully assigned to consumers is to "internalize the externalities," by assigning private individual rights to the resource in question. Private property is the institutional solution to the tragedy of the commons. This, of course, is one of the key assumptions that went into the framing of the tenure aspects of the Tribal Grazing Land Policy.

Other property rights theorists have faulted this characterization of the communal tenure problem, and solution, on two accounts. First, a distinction must be made between "open access" and "common property" when approaching any specific communal tenure situation. Common property strictly defined "refers to a distribution of property rights in resources in which a number of owners are co-equal in their rights to use the resource" (Ciriacy-Wintrup and Bishop, 1975:714).

> Economists are not free to use the concept "common property resources" or "commons" under conditions where no institutional arrangements exist. Common property is not "everybody's property." The concept implies that potential resource users who are not members of a group of co-equal owners

> are excluded. The concept "property" has no meaning without this feature of exclusion of all who are not either owners themselves or have some arrangement with owners to use the resource in question (ibid.:715).

By strict definition, a common property situation entails an associated institution (or a set of rules or conventions) for regulating access to and use of the resource. A "common property" situation becomes an "open access" problem when property rules that regulated resource use no longer apply. "Open access," then, is best conceived as an absence of property rights. There are several approaches for correcting the resource degradation problems attendant to "open access" situations other than privatization. These include legislative action to prescribe acceptable standards of resource use (e.g., much environmental regulation in the United States), local-level cooperative action to establish criteria for rights of access and to restrict access by outsiders, and regulatory action undertaken by institutions expressly established for the purpose of resource control.

Often, the nature of the resource requires a common property response. Such is the case with ubiquitous resources, like air and many water sources, and fugitive resources, such as fisheries. Here, assignment of private property rights to the resource per se would be impractical. By extension, the nature of the production environment and the distribution and size of producing units may require a common property solution, if the social and distributional attributes of that production sector are to be sustained. This is clearly the case with the smallholder livestock production sector in Botswana. In sum, communal tenure, while broadly entailing common use of grazing land, can be characterized by contrasting circumstances of resource use and control: either common property, whereby use is restricted to members of a group, in which each member holds a discrete property right; or open access, which is characterized by a general absence of property rights or duties.

Which communal tenure mode, common property or open access, best describes the situation in Botswana's communal grazing areas today? There is no single answer, as the situation varies from place to place. But on the whole, communal tenure in Botswana has become increasingly characterized by the effective absence of anything resembling common property rules, and by the existence of institutional disorder and the prevalence of uncontrolled grazing that might appropriately be associated with an "open access" situation.

The evidence brought forward in previous sections of this paper suggests that circumstances of smallholder production in a market economy require the imposition of some measure of nonlocal, external regulation of range use, if reasonable standards of range condition are to be achieved. Producers make reference to market conditions, total household income needs and other factors, and, perhaps lastly, to resource conditions when making decisions about resource use. As households diversify their income sources beyond predominant reliance upon livestock (e.g., toward agriculture, and especially wage employment), the potential for local-level regulation of range use decreases. Gunnar Haaland (1977) has developed a theoretical explanation for increased range degradation as household income sources diversify beyond reliance upon livestock alone. Using a simple model of two income activities, animal husbandry and crop production, Haaland advances the following argument.

> Let us now assume . . . that pastoralism is not an exclusive activity, but an activity which can be combined with agriculture. Pressure on the pastoral niche will in this case not automatically lead to selective exclusion of personnel from pastoral activities and thereby relieve the pressure. Instead, as the income per animal decreases (the subsistence importance of pastoral activities decreases) marginal households will maintain their consumption level, not by eating up their animals, but by income derived from agricultural activities. Thus this adaptation is not sensitive to pressure on pasture like a pure pastoral adaptation is. Despite pressure on pasture, a growing human population may still keep a large animal population which is decreasing in subsistence importance, but which still is of importance as a store of wealth (Haaland, 1977:186).

This formulation, which I believe accurately describes the Botswana case, suggests that the prospects for endogenous, local-level action to organize the sharing and management of delimited communal grazing territories are probably not very great. Locally initiated cooperation is further undercut by the social and economic stratification, in wealth, influence, and power, characteristic of much of rural Botswana; by the diverse mix of uses households make of livestock; and by the variable importance of livestock in the income strategies of livestock-holding households.

In concluding this discussion of smallholder livestock production and communal tenure, I emphasize the need to distinguish between communal tenure conceived as "open access" and communal tenure conceived as "common property." While the former roughly describes the situation in Botswana's communal areas today, common property approaches to resource management hold great promise as institutional alternatives to privatization, which is not a feasible tenure model for the smallholder sector. Given the dynamics of smallholder decison-making in a mixed and open economy, common property rules will have to be imposed and in large part administered by some institution external to the local community of range users.

Institutions for Grazing Land Management

Botswana's communal land problems are essentially rooted in issues of public land management. Smallholder livestock development and communal land management have usually been treated as range management problems. The range management tradition is essentially an agronomic perspective, which views improved grazing management as a traditional endeavor, concerned with the manipulation of physical inputs and producer management practices to achieve desired outputs, typically increased animal productivity. As an agronomic discipline, range management has very little to say about institutions, or the structure and activities of public agencies in influencing producer decision-making in utilizing resources. If anything, range management science has a preference for private tenure, as private holdings are the conventional tenure type on North American ranches, which have been the field laboratories for the development of the discipline.

Botswana's communal grazing problems are, I suggest, predominantly matters of identifying and promoting institutions capable of better regulating communal range use. In other words, it is the interjection of some sort of

institutional structure, with attendant rules and procedures for assigning grazing rights and duties, that will provide the basis for moving from the open access situation that currently prevails, toward the common property situation that must arise if current trends are to be arrested.

I have argued in the previous section that, given the economic and social circumstances of smallholder production, controls must be imposed, or established, by some agency outside of the local community. Two institutions with potential for providing the needed institutional rule, traditional authorities and land boards, have been described elsewhere in this paper. The viewpoint expressed here is that traditional authorities, that is, chiefs, headmen, and badisa, offer little promise for asserting the kind of authority necessary for regulating communal herd management practices under current social and economic circumstances. Claims that traditional offices ever asserted vigorous control over resource management practice are not well substantiated. What they appeared to achieve was a modest measure of coordination in grazing behavior during a time of relative resource plenty. The ability to perform these functions did not stand up to population pressures, human or livestock (Schapera, 1945). More importantly, the decline of the economic functions of traditional authority, with respect to exacting a surplus for redistribution and for assuring at least a minimal subsistence for the community, dissolved in the face of a substantial reorientation of household economic interest away from dominant dependence upon subsistence modes, to a much larger economic system incorporating distant wage labor markets and livestock markets. It is with reference to nontraditional economic institutions that household land and labor use decisions are for the most part made today. Combined with a deliberate government policy of neutralizing any potential political challenges by the traditional leadership to modern government authority, chiefs have lost whatever effective political power they once retained over land and resource allocation matters.

District Land Boards were established in 1970 to take over the land allocation function from traditional authorities. Technically, land tenure did not change, insofar as customary rights in land were retained. Changes of a more subtle character did result, some of which were expected and considered desirable, as well as others which were unanticipated. Importantly, the establishment of land boards provided a direct political and administrative link between the making of land policy by modern political institutions at the national level, and the detailed planning and execution of policy at the local (district) level. Also, land board members tended to be drawn from nontraditional institutions and to represent models of agricultural enterprise and economic behavior more representative of "modern" political and economic interests.

Levels of land board efficiency, in terms of staying apace with applications for customary land grants and in maintaining land records, have been fairly low. At their establishment, land boards lacked trained staff and administrative experience. Furthermore, the infeasibility of a single, relatively centralized body making informed judgments on the merits of thousands of individual applications for land quickly became clear. This problem was in part redressed by the establishment in each district of a network of subordinate land boards, but these bodies still lacked the on-site knowledge that the chiefs' network of village headmen brought to the task of customary land

allocations. These largely administrative shortcomings are being addressed by a number of training and infrastructure projects designed to improve land board capacities. The need for a concerted land board development effort was first brought to light through realization that land boards were wholly incapable of undertaking the planning, administrative, and legal responsibilities necessary for smooth implementation of the TGLP at the district level. Investments in land board development are beginning to pay off, as each in turn has demonstrated its ability to make sophisticated judgments on land use zoning and lease stipulations, sometimes advancing more exacting standards and controls than those envisaged by the TGLP architects and managers in the central government.

Land boards have not come to grips with problems of resource management, and least of all with problems of communal grazing management. There are several reasons for this. First, there has been little official impetus, at the district or national levels, for a land board role in this area. Second, there has been little historical precedent, even under the traditional dispensation, for the body in which land is held in trust, whether chief or land board, to undertake the kind of resource management functions that I argue are necessary. The role of the land trustee was and is an essentially allocative one. Finally, land boards would surely encounter similar sorts of organizational and control problems that traditional authorities would encounter, in attempting, for instance, to impose stocking regulations within individual grazing areas.

Land boards, then, provide the most appropriate institutional context for promoting improved management of the communal range. That land boards are presently ill-prepared to act as effective public land management bodies is undeniable. Several prerequisites are necessary before reasonable levels of effectiveness can be expected. New legislation would be needed to define land board responsibilities in the area of communal range control. Appropriate administrative and planning procedures would have to be devised. Some sort of local-level grazing committees, representing local grazing interests, would need to emerge all over the country. Standards for grazing management and range use under varying circumstances would have to be established. Personnel would have to be identified and trained. Most importantly, the legitimacy of a state role in land management would have to be established in the minds of producers themselves. This will be the most difficult task, and one related to more general issues of public policy toward the smallholder livestock sector.

Land Tenure, Land Policy, and Smallholder Livestock Development

The Government of Botswana has essentially two strategic policy options at hand for the smallholder livestock sector. One is to do essentially what it is doing now: support modest ameliorative measures, through extension and land use planning, to improve livestock and crop productivity in communal areas. Unfortunately, this approach does not come to grips with the fundamental problems plaguing the smallholder sector, and most especially the widespread overgrazing that contributes to chronically low levels of animal productivity, and which sets the stage for devastating environmental and economic loss in the event of severe drought. Under present circumstances, the long-run prognosis indicates a permanently lowered level of land productivity and

widespread rural poverty. A second policy course would involve adoption by smallholders of a number of progressive management practices designed to achieve higher efficiencies in resource use and range productivity, which would involve range-sharing strategies that are adaptive to variable resource conditions. As argued in the previous section, pursuit of this policy option would require a very assertive institutional role: in establishing plans, standards, and rules for resource communal resource use, and in applying the sanctions necessary to enforce compliance. This proposal stipulates the continued existence of communal tenure, which is an overarching precondition for the participation of smallholders in livestock production. Indeed, a heightened, more direct institutional role in regulating range use is indicated by the fact that communal tenure, at least under present circumstances, does not automatically limit aggregate stock numbers to an acceptable stocking rate.

In the longer term, successful adoption of improved management strategies--involving in part the accommodation of entrepreneurial management styles by smallholders--will allow this sector, constituting about two-thirds of the current national herd, to make a significantly greater contribution to national income. As has been observed by so many others, the livestock sector, smallholder and largeholder, offers very little potential for employment creation. At the same time, continued itinerant livestock uses--cattle kept to provide the most basic subsistence, or as the last hedge against economic marginalization, or the best possible investment in the economy available to small savers --detracts from measures to put communal management on a sounder basis.

As the Haaland analysis indicates, when livestock became a secondary source of income, producer incentives for improving management became much less compelling (hence a major justification for external regulation). This suggests that the tasks of management institutions and the goals of improved grazing management will be greatly facilitated if assistance is targeted toward that sector of the smallholder community that achieves its main proportion of income from livestock.

In conclusion, the difficulty of pursuing the course recommended in this paper cannot be overemphasized. It would first require a strong national political commitment to the smallholder sector, something that has not been in evidence in national leadership circles despite the strong cultural attachment to cattle as a source of income and wealth. Public management of communal grazing land is an inherently difficult and normally contentious process. Procedures are difficult to administer; regulations are even more difficult to enforce. The experience with the Taylor Grazing Act in the United States provides ample evidence of this. Establishing effective institutional procedures is all the more difficult under circumstances of rapid change in the structure of the rural economy. Nevertheless, a long-term commitment to the establishment of institutions and procedures for improved management of public grazing lands will be necessary if the majority of Botswana's livestock producers are to have a continuing opportunity to secure a satisfactory living through livestock production.

FOOTNOTES

* Research Assistant, Land Tenure Center, and Ph.D. candidate in Land Resources, Institute for Environmental Studies, University of Wisconsin-Madison.

1. Although Schapera and others associated generally increased overgrazing with the arrival of the borehole, grazing intensity and range condition under communal tenure did in fact vary from borehole to borehole. This was due largely to the presence or absence of restrictions on borehole use, restrictions that fell short of exclusive tenure or statutory stock limitations, but typically involved imposition of a grazing fee or seasonal restrictions on borehole use.

2. To achieve "sustained offtake," Chambers and Feldman reckoned that a minimum herd size of 50 head was necessary. Two hundred head were needed to finance water and fencing improvements necessary for pasture management units (or ranch operations) (1973:59).

3. Louis A. Picard, "Bureaucrats, Cattle and Public Policy--Land Tenure Changes in Botswana," Comparative Political Science (Winter, 1980).

4. Government of Botswana, Ministry of Finance and Development Planning, "Rural Development in Botswana," Government White Paper No. 1, mimeographed (Gaborone, March 1972).

5. Strategies for smallholder development in the context of communal tenure is the subject of Part II of this paper.

6. Used here to denote essentially cooperative farming ventures on the part of small stockholders, or farmers possessing less than the requisite number of head to enter into commercial production on their own.

7. Most of the evaluative material on the Range and Livestock Management Project is drawn from Chapter 5 of A.B.J. Willet, Agricultural Group Development in Botswana (1981).

BIBLIOGRAPHY

Carl Bro International
1982 An Evaluation of Livestock Management and Production in Botswana: Main Report. Vol. 2. Gaborone: Ministry of Agriculture; and Brussels: European Development Fund.

Central Statistics Office. Ministry of Finance and Development
1976 The Rural Income Distribution Survey. Gaborone: Government Printer.

Chambers, R., and Feldman, D.
1973 Report on Rural Development. Gaborone: Government Printer.

Ciriacy-Wantrup, S.V., and Bishop, Richard C.
1975 "Common Property as a Concept in Natural Resource Policy." Natural Resources Journal 15:713-727.

Cliffe, Lionel, and Moorsan, R.
1979 "Rural Class Formation and Ecological Collapse in Botswana." Review of African Political Economy 15/16.

Colcough, C., and McCarthy, S.
1980 The Political Economy of Botswana. Oxford University Press.

Dalton, George
1967 "Traditional Production in Primitive African Economies." In Tribal and Peasant Economies, edited by G. Dalton. Austin: University of Texas Press.

Demsetz, Harold
1967 "Toward a Theory of Property Rights." American Economic Review 57: 347-359 (Papers and Proceedings).

Evaluation Unit (EU). Range Management Centre
1981 The Management of Communal Grazing in Botswana. Gaborone: Ministry of Agriculture.

Government of Botswana (GOB)
1972 Rural Development in Botswana. Government Paper No. 1 of 1972. Gaborone: Ministry of Finance and Development Planning.

1975 National Policy on Tribal Grazing Land. Government White Paper No. 2 of 1975. Gaborone: Government Printer.

Gulbrandsen, Ornulf
1980 Agro-Pastoral Production and Communal Land Use: A Socio-Economic Study of the Bangwaketse. Gaborone: Minstry of Agriculture.

Haaland, Gunnar
1977 "Pastoral Systems of Production: The Socio-Cultural Context and Some Economic and Ecological Implications." In Land Use and Development, edited by Phil O'Keefe and Ben Wisner. African Environment Special Report 5. London: International African Institute.

Hitchcock, Robert K.
1980 "Tradition, Social Justice and Land Reform in Central Botswana." Journal of African Law 24:1.

International Livestock Centre for Africa
1982 Range Livestock Production Systems. Botswana Working Document no. 6.

Litschauer, John G., and Kelly, William F.
1981a The Structure of Traditional Agriculture in Botswana. Gaborone: Ministry of Agriculture.

1981b Traditional Versus Commercial Agriculture in Botswana. Gaborone: Ministry of Agriculture.

Odell, Marcia L.
1981 Botswana's First Livestock Development Project: An Experiment in Agricultural Transformation. Gaborone: Government Printer.

Parsons, N.
1977 "The Economic History of Khama's Country in Botswana, 1844-1930." In The Roots of Rural Poverty in Central and Southern Africa, edited by N. Parsons and R. Palmer. Berkeley: University of California Press.

Picard, Louis
1979 "Rural Development in Botswana: Administrative Structures and Public Policy." Journal of Developing Areas 13.

1980 "Bureaucrats, Cattle and Public Policy--Land Tenure Changes in Botswana." Comparative Political Science (Winter).

Roe, E.
1980 Development of Livestock, Agriculture and Water Supplies in Botswana Before Independence: A Short History and Policy Analysis. Cornell University Occasional Papers. Ithaca, N.Y.: Cornell University.

Sandford, Stephen
1980 Keeping an Eye on TGLP. Gaborone: National Institute of Research.

Schapera, Isaac
1928 "Economic Changes in South African Native Life." Africa 1:170-188.

1943 Native Land Tenure in the Bechuanaland Protectorate. Johannesburg: Lovedale Press.

Spray, P.R.
1981 Botswana As a Beef Exporter. Gaborone: National Institute for Research.

Thema, B.C.
1972 "The Changing Pattern of Tswana Social and Family Relations." Botswana Notes and Records, vol. 4, pp. 39-43.

Werbner, Richard P., ed.
1980 "Land Reform in the Making: Tradition, Public Policy and Ideology in Botswana." Journal of African Law 24:1 (Special Number).

Willet, A.B.J.
1981 Agricultural Group Development in Botswana. Gaborone: Ministry of Agriculture.