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## Fencing Botswana's Commonage: A Recipe for Environmental Disaster or Conservation?

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### Abstract

*This paper reviews the extent of compatibility between the current agricultural policy of rangeland enclosures and stated concerns for halting environmental degradation and safe guarding natural resources for sustainable and future development. It starts by assessing perceptions on the nature of the environmental problem of rangeland degradation, showing that in its physical qualities, this is a problem that is not yet fully understood in Botswana. The paper also argues that the problem has a social side to it in which human actors interact with each other as well as with the environment in a way that produces beneficiaries and losers. It further points out that policy makers like to see the poor as the major causes of the problem, when in fact the problem should be laid squarely at the feet of the big cattle ranchers and a development strategy that has encouraged them to put their short term interests for profit before those of the welfare of the poor as well as long term impact on the environment.*

## Introduction

Sustainable development has featured as a major principle and objective in all of the Botswana government's intervention strategies since independence in 1966. Only in more recent years, however, has it come to be associated with environmental issues and conservation concerns. It is the Seventh National Development Plan (NDP 1991-97) that recognizes for the first time, that "Development is not sustainable without effective conservation policies" (Botswana Government, 1991:93). It also emphasizes the need for both a) annual consumption of renewable natural resources not to exceed annual output; and b) safe-guarding capital stocks of natural resources for future generations.

Among the five environmental issues officially identified as major problems requiring intervention to achieve sustainable development, the degradation of land<sup>1</sup> is perceived as the most intractable and politically sensitive. It most directly touches the main livelihood activity of politically powerful Botswana elites. Thus, the way the problem and its causes are defined has consistently tended to be biased in favour of the protection of these interests, often to the disadvantage of the poorer and less powerful social classes, as well as to the detriment of Botswana's fragile ecosystem.

Concern has been raised that Botswana's development strategy, by emphasizing livestock production without due regard to the natural resource base that sustains it, has led to considerable social and environmental problems which threaten the economic gains and fragile democracy both of which have earned the country world esteem as Africa's model of development and democratic governance. Yeager (1993:130), for instance, has argued that "Persisting in the colonial effort to convert cattle, land and water from permanent community assets into disposable commodities, Botswana's elite has helped bring about a 'tragedy of the commons' ". The conventional wisdom is that Botswana is sitting on an environmental and social time bomb which is about to blow.

The environmental aspect of this time bomb consists of an ecological system which has been so abused that the sustainability of the very livestock industry that depends on it has been undermined. The social aspect concerns the poverty that the livestock-biased programme exacerbates, and which is a factor of inherent inequalities in the distribution of cattle and thereby the use of natural resources. This has prompted Yeager (1993) to observe that "Unless ecological balances are restored, rural inequalities and poverty will widen and deepen, ... and the regime's political base of support will recede and finally vanish in the cities and countryside alike." He predicts that the political regime could either break down or become authoritarian.

From all accounts, Botswana's environmental problems are intricately linked with social and political variables which are crucial to the viability and maintenance of democracy and sustainable development. The question is whether the problems and tensions of development can be resolved before they reach proportions which threaten the stability Botswana has enjoyed in the past three decades of independence. Although Botswana has experienced rates of economic growth which have been unparalleled in Africa and has been able, so far, to spread the benefits of this growth through provision of various social services such as education, health, water, etc as well as a relatively impressive record of employment growth, that level of expansion has peaked. It will become progressively difficult for the state to satisfy the aspirations and needs of an increasingly literate and urbanized population.

This paper examines prospects for the resolution of the conflicts associated with sustainable development and environmental policy, focusing specifically on the latest agricultural development policy and its fencing component for communal rangelands. From the official point of view this fencing programme for the commonage is a crucially important part of the strategy to halt and reverse environmental degradation and ensure sustainable development through improved management of resources. Critics of Government's track record on development

policy and environmental conservation see Botswana's policy formulation essentially as a strategy based on the protection of the short term interests of the elite, at the expense of environmental conservation and the safeguard of the incomes of the poor. It is feared that the fencing of communal land may in fact simply serve to confer exclusive rights to elites whose track record on natural resource management has been one of negligence and abuse.

This raises fundamental questions about the very nature of the environmental problem facing the country, its causes and thereby its possible solutions. Is fencing the effective way forward for the resolution of the problems of environmental degradation and sustainable development?

### **The Physical Characteristics of Rangeland Degradation**

There are essentially two main positions regarding the nature of Botswana's rangeland degradation problem, viz:- a) the view that the country is experiencing widespread, deepening and irreversible environmental destruction, and b) the perception of rangeland perturbation as a localized problem currently limited to some areas surrounding water points and which extends to alarming proportions during drought. This view emphasizes the resilient nature of this system under drought driven perturbations, and the apparent capacity for the ecosystem to recover rapidly at the end of drought spells.

For more than a century now, Botswana has been described as a country with a serious overgrazing problem which tends to push the fragile ecosystem to the brink of irreversible degradation. Githinji and Perrings (1993:112) define this range land degradation essentially in terms of changes in the composition of plant cover from palatable to unpalatable grasses and woody plants, and which therefore results in a reduction in the carrying capacity and the economic

productivity of the range. Yeager (1993; 127) similarly sees the problem as "declining biomass of nutritious forages" which combine with encroaching desert sands, particularly in an ever widening radius around watering points. According to this observer, this overgrazed rangeland has increased from a proportion of just 2% of Botswana's total land in 1975 to 25% in 1986, proportions which rains alone cannot reverse.

Degradation is thus seen as comprising the following elements: depletion of pasture, denudation of land, soil erosion, and desertification. These physical changes have the cumulative effect of diminishing the capacity of the range to feed livestock, particularly cattle which are the backbone of the rural economy. This is the most widely held perception of Botswana's rangeland degradation. Underlying this view is the notion that this degradation is to a significant extent man made, and that it has reached a point where in many places it cannot be reversed, and will lead to national ecological collapse if no effective measures are taken to ensure the effects do not spread any further.

Several factors would seem to lend support to this conventional view of the problem. The first is the evidence that around water points, there is a tendency for land to be denuded. The second fact is that the number of boreholes is increasing, and that in some cases these boreholes are drilled quite close together (ie 8km apart), thus leaving little room for undisturbed vegetation. The potential for a coalescence of denuded range is thus increased. Third and finally, the very drilling of boreholes has opened up marginal lands to pastoral use, thus carrying the problem of denudation on to lands more susceptible to perturbation, and thus potentially compromising the resilience of such local ecosystems.

That notwithstanding, the definition of range degradation in terms simply of visible signs of the immediate impact of grazing has been challenged. Perkins (1991: 188), while acknowledging that grazing reduces the standing crop of vegetation, alters the species composition of grasses, and increases the proportion

of bare ground, nonetheless observes that this normally affects an area averaging not more than a kilometer around each watering point. The problem, he points out, becomes substantial primarily during drought when the area affected extends to more than seven times the radius characteristic of wet seasons. This observer argues that while drought depleted range appears severely degraded, primary biomass can increase spectacularly when the rains return.

A major contention of this approach is that savanna ecosystems are inherently both unstable and resilient. It questions the interpretation of short-term changes in the composition of plant species as necessarily indicative of permanent degradation. In fact according to this thesis, the very changes in grass species and woody plants are what confers resilience to the system, in that the presence of unpalatable grasses and woody plants minimizes the incidence of soil erosion as this vegetation is not graze sensitive. The critical factor in this coping mechanism is soil erosion. As long as the soil is not eroded, rapid recovery of primary biomass is enhanced. Reversal of bush encroachment, it has been argued, can be achieved through a combination of fire and stocking the range with browsers like goats<sup>1</sup>.

In that context the ecosystem should really only be termed degraded when its ability to recover from perturbation has been irreversibly altered. That permanent change can not be read from the short term effects of drought, but from medium to long term time frames that include post drought years. In the case of Botswana and the southern African subcontinent, each of these cycles entails nineteen to twenty years. The question we have to consider then is whether available data indicates Botswana's rangeland as irreversibly degraded. Outside its adaptability to endemic drought, a factor that is manifested by periodic reductions in both pasture and livestock populations (ie through high mortality rates), is the range increasingly becoming less capable of supporting livestock and other land uses?

According to conventional wisdom the answer is in the affirmative. Yeager (1993), for instance, points to the high mortality rates which were experienced during the long drought of the 1980s when the cattle population was decimated by one third. This, however, tells us nothing because even in the long drawn drought which ushered in Botswana's political independence, up to a third of the cattle population had been lost, so that the nation entered political independence extremely poor aggregatively as well as at household level. Perkins (1991: 190) contends that in the case of the Kalahari sandveld the available evidence is not sufficient to indicate if the rangeland is undergoing degradation. What is available indicates that there is denudation around watering points, but does not indicate whether this phenomenon extends very substantially away from these areas. He does accede to the possibility of the problem becoming widespread through the spread of borehole drilling, particularly if these are drilled too close together (ie within the limits which drought normally extends the radius of denudation).

Similarly, in the case of the hardveld the analysts usually focus on the immediate effects of grazing and drought, and do not always indicate long term trends to show if observed rangeland perturbations are irreversible. What is incontestable is the fact that severe perturbations do occur, and are at their worst during droughts. The Botswana government takes the view that the quantification of the problem is difficult, but that a significant proportion of the national range is undergoing degradation which can not be ascribed solely to drought (Botswana Government, 1990: 4). It is generally accepted that up to three quarters of Botswana's rangelands are affected by the problem of deterioration, which seems to be most prevalent in the communal areas which make up 95% of the nation's rangelands. But obviously the problem is not yet fully understood.



### **Socio-spatial Definition of the Rangeland Problem**

Although rangeland degradation is primarily defined in terms of the physical attributes of the land in relation to the livestock it can support, the specification of the problem in fact also includes social and related spatial characteristics. This socio-spatial definition is political, and involves identification of which social groups are responsible for the perpetration of the problem, and which are the victims. The solutions are therefore also defined in terms of separating the victims from the perpetrators. In colonial times, for instance, rangeland degradation was perceived as a problem emanating from tribal areas and therefore from the natives using these range resources. It was their livestock which was bred in excess of the carrying capacity of the range, and which therefore had to be excluded from damaging all other pastures. The solution was seen in terms of excluding these animals from other pastures (ie for Europeans) through enclosure of those pastures requiring protection.

Similarly, in the post-independence period, the Botswana state perceives range land degradation as a problem located in the communal areas and therefore perpetrated by communal area dwellers who use this range, particularly the poorer social classes. Thus, poverty is highlighted as a major explanatory factor in the degradation problem. The argument goes that "Households that are poor have a short planning horizon" and that "long term sustainability plays a minor role in their decisions about production and consumption" (Botswana Government, 1991: 93). That definition of the problem in terms of poverty then justifies the exclusion of poor farmers from certain range resources which are then enclosed for use by social classes perceived as capable of managing the resources more efficiently (ie large holders).

The definition of the degradation problem is therefore not class neutral. In the case of colonial times it was a problem associated with the natives in a system based on racial discrimination. The political influence on the definition of the

problem is exposed by evidence suggesting that Tswana traditional practice on the commonage was to balance stocking rates with environmental carrying capacity (Yeager, 1993: 125). Yeager has argued that "Traditionally, in Botswana, institutional mechanisms for environmentally rational decision-making and conflict resolution were embodied in the land allocating chiefs, in chiefly appointed overseers of stocking rates, and in *makgotla* " (Yeager, 1993: 131).

Molutsi (1988) has similarly challenged the notion of the tragedy-of-the-commons that perceived communal land tenure as essentially a free for all system where everybody uses common property with scant regard for either the needs of others or the long term sustainability of the resources. There is sufficient reason to believe that traditional tenure systems had regulatory mechanisms for ensuring rational management of communal range. In fact a large part of the problem we see in Botswana's communal areas today can be explained not simply in terms of the presence of communal land tenure system, but by the fact that its regulatory mechanisms have been eroded, and not replaced by newer ones. The modern land allocation institutions like the Land Boards behave mainly as leasers of land, and totally neglect their role of land management and enforcement of laws and regulations requiring resource conservation on the part of those leasing the land.

The absence of an efficient and effective regulatory institution has meant that with the rapid increase of livestock, overgrazing has become prevalent. The question we must consider is who owns the stock which is well understood as a major factor in causing denudation and other environmental changes on the range? What role have the various social classes in Botswana's countryside played in the mismanagement of the range resources? From official circles everybody who uses the commons contributes because no one makes it their responsibility to ensure proper management through efficient stocking.

Cattle ownership is, however, extremely skewed in Botswana, with up to 60% of the stock owned by just 5% of the farmers. The rapid increases in the national herd has mainly benefitted large holdings, while the share of poorer classes has declined due, among other things, to the fact that their herds are more susceptible to the ravages of drought and have less recovery capacity. Devitt (1978) has observed that there is a critical herd size above which farmers can ride the drought, and that below this number (ie 40 cattle) when drought induced mortality hits, it leaves poor farmers with a mix of animals that is not sufficient to enable rapid restocking. The larger holdings on the other hand, though experiencing spectacular losses through high mortality, usually have a sufficient mix of surviving animals to be able to restock quickly<sup>2</sup> after the drought.

Past livestock development programs have served to exacerbate these inequalities. So that even in communal lands, despite attempts to encourage large farmers to move their stock out of communal range to enclosed areas, they continue to dominate in terms of their share of the national herd. These are the very farmers who have borehole drilling capacity, and therefore whose drilling activities must be directly associated with the incidence of land denudation and pasture depletion. But the prevalence of degradation in the communal areas is interpreted in policy making circles as evidence of overgrazing particularly by the poor, exacerbated somewhat by the movement of stock onto communal lands by large holders exercising their dual rights.

Yeager (1993: 132) challenges this specification of the rangeland problem when he observes that it is agricultural privatization that encourages rural impoverishment and environmental degradation. He sees the tragedy of the commons" as deriving from subsidized overstocking of cattle principally by large farmers, thus firmly locating the problem socially among the elites and spatially around the boreholes which only they can afford. This approach shifts emphasis away from poverty as a source of range depletion towards poverty as a result of degradation induced by the overstocking activities of the affluent. This, as

pointed out earlier, is because graze induced and drought exacerbated land degradation erodes the share of poor people's stock faster than it does that of the larger stock owners, and differential capacities for recovery perpetuates the immiserization of small stock holders.

In the past, Government has responded to calls for combating range deterioration by searching for virgin lands for the large farmers where they could be encouraged to enclose and have exclusive access to the range. In recent years, with few options for 'empty lands' available for further exploitation, policy makers have finally turned to the commons for further enclosure. The new policy for enclosing communal rangeland was adopted by Parliament in February 1991, and is currently being implemented in various communal areas. In the Gantsi district, for instance, a layout for 30 ranches averaging 6,000 hectares has been approved. Of all the plans that have come under consideration so far, the overwhelming majority are for ranches. This fencing strategy is being implemented against fears and reservations expressed by many observers regarding, in particular:-

- a) the possibility of enclosure depriving the small holders, non-cattle owners, and various other disadvantaged groups [eg ethnic minorities] of access to land and a livelihood;
- b) the negative impact of fencing on the environment. For example, the potential to compromise the resilience characteristic of the ecosystem which enable rapid recovery after drought;
- c) the likelihood of continuation of inefficient production regimes when institutions meant to maintain efficient stocking rates fail to do so; and

- d) the continued overemphasis on pastoral production over other economic activities, and hence the possibility of eroding the resource base for arable agriculture and other land based income sources such as veld products, game, etc.

### **The Political Context of Fencing**

As indicated in the introduction above, it has been only recently that development policy in Botswana has taken environmental issues as important components of the development efforts. Environmental concerns are therefore largely something being added to a long standing tradition of development planning in which the state has dominated as a resource allocator, a major reservoir of ideas, programmes and expertise, as well as development manager and director. The rapid economic growth that has characterized the country's post-independence history has served to strengthen the power of the state inordinately, making it the single dominating actor in decision-making. This concentration of power has happened at the expense of the development of organizational life and party political opposition. So, there are no effective forces of social mobilization to check and counter balance state monopoly of power.

Decisions made by the organs of the state machinery therefore always carry as they never encounter any effective challenge. So, while these decisions may have far reaching consequences for the lives of the people of Botswana, the populace has no means of influencing this decision making outside of the power to vote once every five years. The country's steadfast adherence to, among other things, multi-party competition for government power, parliamentary governance, and the separation of powers has established it as a shining example of democracy in Africa. Much is often made of the consultative processes government often

undertakes with the populace before introducing policies and programmes deemed to require their input and mandate. Invariably few objections or alternative strategies generated by such consultations ever impact on policy or programmes. So while Government does now and then create space to listen to the people, it has had no obligation to act on their contributions, and there has been no strong lobby to take Government to task for non consideration of alternative points of view. This simply means that Government does exactly what it likes all the time because there is no systematic mechanism for civil society to monitor its accountability.

It is within this political context that we must assess the new fencing policy. What does Government expect to achieve through the implementation of this programme? And what are the likely environmental consequences? Who will benefit from this policy, and who is likely to lose?

### **The Purpose and Design of the Fencing Programme**

The primary purpose of the fencing of communal rangeland is to transform the quasi-commercial state of beef production and deepen and expand its commercialization. The Ministry of Agriculture sees Botswana's recent membership of the General Agreement on Trade and Tariffs (GATT) as a force that requires this country to stay competitive in order to maintain its minuscule share of the world's beef market. At a production rate of 200kg beef per beast in a world market where other competitors produce at 300kg per beast, policy makers recognize the need for Botswana to raise productivity levels to match these ones. In the past, the European Economic Council's (European Economic Commission (EEC)) guaranteed market and subsidies encouraged production patterns based on minimum costs and inefficient utilization of resources. This led to constant expansion of herd size based on extension of the exploited rangeland.

Such a production pattern was achieved in the past by simply moving into lands utilized by the most politically powerless such as the foraging communities of the Kalahari sandveld. The threat of overgrazing and degradation of these rangelands and consequent lowering of productivity levels, has brought about the realization that it is management practices rather than simple exploitation of more and more land that must bring a turn about in the productivity levels of Botswana's cattle-beef industry. Fencing is seen as a critical factor and a prerequisite to improved management and increased productivity.

Its importance lies, it is argued, in defining the limits of individual users' areas of responsibility and accountability, thus making it easier for the overseers of the nation's natural resources to monitor their use and encourage superior management practices. These practices include efficient stocking rates, rotational and deferred grazing, control of livestock movement, breeding programmes, use of various productivity enhancing technologies, and the implementation of environmental conservation measures. To help improve efficient land use and stocking rates Government would:

Produce land use maps clearly defining livestock grazing areas, with each area being provided detailed maps, and provide information on various land resource parameters such as soils, vegetation, climate, hydrological data and livestock.

The programme is targeted at three levels of beneficiaries, namely: individuals, syndicates and communities. It is intended to use various targeted incentives and dis-incentives, as well as legal instruments, to encourage compliance with the guidelines for responsible and efficient utilization of natural resources. For example one such incentive will be the fencing subsidies, especially for communities. The enforcement of existing legal instruments like the Tribal Land Act and the Agricultural Resource Conservation Act is also targeted for improvement. In the past, enforcement was considered politically sensitive

because most of those who did not comply were prominent politicians and policy makers. Even now, with the recognition that these instruments need to be strengthened and enforced, the language is still that of finding politically acceptable ways of enforcing such acts (Botswana Government, 1990: 10).

According to the 1991 white paper on National Policy on Agricultural Development "There is no way of either reversing the progressive range degradation together with soil erosion or improving productivity under the present management system" (Botswana Government, 1991: 10). The paper notes that some diseases like contagious abortion have costly prevention and control programmes and cannot be eradicated under communal management systems. But can fencing deliver in terms of improved offtake and enhanced land productivity? If so, at what cost?

The new fencing strategy and its associated packages have only just begun to be implemented and therefore cannot yet be assessed for impact. However, fencing as an idea and a strategy has been part of Botswana's agricultural development programmes since the 1970's. The current fencing programme is actually an extension of the 1975 Tribal Grazing Land Policy (TGLP). Various other fencing packages have been implemented in the past through programmes like the Arable Lands Development Programme (ALDEP), Accelerated Rainfed Arable Programme (ARAP), and the controversial cordon fencing (for animal disease control). There is thus a wealth of experience to analyse and draw insights from in terms of possible trends and impacts.

### **Lessons from Twenty Years of Fencing**

The TGLP was the first post-independence attempt at changing traditional management systems in livestock production. The white paper on National Policy on Agricultural Development (Botswana Government, 1991: 11) lists the



following as the major lessons learnt from the experience with the TGLP which was also designed to improve land utilization and conserve grazing through fencing:

- a. Land availability for livestock farming is limited.
- b. Soils and climatic conditions in Botswana are varied. Therefore the carrying capacity of land is as varied. Farm sizes and livestock production systems cannot be uniform.
- c. There is no direct correlation between good management and herd size.
- d. Underground water surveys were delayed, resulting in allocation of ranches in areas with either poor underground water potential or saline water not suitable for either human or livestock consumption.
- e. Diverse livestock production systems like dairy, stud breeding, feedlot and others were not considered.
- f. Delays in allocation resulted in eventual dezoning of land previously zoned for fenced farming.
- g. Only about 4% of the country was eventually demarcated TGLP ranches.
- h. No detailed land use plans based on suitability and carrying capacity were made before demarcation and allocation.

The paper concludes that the "TGLP clearly demonstrated that, given the opportunity, Botswana farmers can be as productive as other farmers in similar conditions" (Botswana Government, 1991: 12). The indicators of this productivity

are given as i) the fact that some TGLP farms are suppliers of high quality breeding stock previously imported or supplied by freehold farmers; ii) some of the TGLP farms practise artificial insemination which is cheaper than natural breeding, and iii) the fact that some of the farms have developed diverse production systems. These are no doubt laudible achievements. However, it would have been interesting to compare how these farms performed in relation to farms their size on communal land<sup>5</sup>. That information does not seem to have formed part of the evaluation of the TGLP for purposes of extending the programme.

Observers have argued that the productivity gains made in the TGLP farms are minimal and may in fact pale to insignificance when measures of productivity other than beef output are taken into account.<sup>6</sup> This is not surprising as most of the farmers actually operate on the basis of limited costs and maximum profit. An incentives/disincentives survey conducted on TGLP farms revealed that the majority of these farms do not practice some of the improved management practices they were expected to use to improve productivity. For instance, the majority did not use artificial insemination but relied on natural breeding (ie more than 80%). Further, only five per cent practised controlled breeding. In terms of supplemental feed, most relied only on bonemeal (76%) and used very little of the other supplements (McGowan International and Coopers & Lybrand, 1987). Twenty years of TGLP implementation does not seem to have converted large holder pastoralists into fully commercialised cattle farmers. So, what guarantee is there that the more these pastoralists are engaged in enclosed rangeland farming the more commercial they will get? It seems true to say that the TGLP merely changed land tenure without achieving much else if we look at the majority of pastoralists who gained from this land alienation. Is this what the Government of Botswana wants to see on a larger scale in the communal areas?

A glaring omission in the assessment of the TGLP is information on the impact of the TGLP on land utilization and grazing. How have the TGLP farms managed the range leased to them for exclusive use for livestock production? For those not constrained by inept planning and implementation such as delays in allocation, water surveying, and absence of land use plans, were there any significant improvements in their resource utilization and conservation of grazing?. This crucial information, which should have formed the basis for expanding the TGLP to communal rangelands, is missing from the government's accounts. It is important that a systematic evaluation of the TGLP is conducted to inform the implementation and modification of the new agricultural development policy. The fact that this has so far not been done, when a massive programme to extend the TGLP to the rest of communal areas is already underway, is a telling point on how the Government of Botswana usually operates. There is an arrogance there that stems from the knowledge that Government is omnipotent.

From available evidence on the characteristics of savanna ecosystems, there is reason to doubt the conservation capacities of fenced rangelands. As already noted earlier these unstable ecosystems have an inherent resilience which is conferred by their capacity to change plant species in relation to the changes in moisture availability. The proposed rotational and deferred grazing that is meant to support a farming system based on limited but constant stock rates can only serve to seriously undermine that resilience. This farming system will invariably encourage the dominance of palatable grazes in the paddocks in which grazing has been deferred. During drought this plant cover is more susceptible to denudation than one where palatable and unpalatable grass species are mixed. Consequently, such drought denuded pasture would not recover as fast as one where there is still plant cover in the form of unpalatable grass species and/or woody plants. These considerations were not part of the TGLP experiment. Consequently, farmers finding their enclosed range badly denuded simply responded by taking their stock on to the commons.

This strategy raises some very fundamental questions about fencing and stocking rates in an ecosystem such as Botswana's. Does this drought prone country actually have the capacity to support commercial cattle breeding at the rate envisaged? The average TGLP ranch actually has about 350 animals. Is this size viable economically under a management system that requires a) high offtake to maintain limited stocking rates and; b) the farmers to bear the full costs of farming under conditions of not only limited water resources but pasture as well? The Government of Botswana needs to seriously consider why farmers have been so reluctant to incur costs that were meant to transform their cattle concerns into viable commercial enterprises. Is it because they perceived such expenses uneconomical? Once the generous subsidies that have kept this cattle industry artificially buoyant over the past three decades are removed how many farmers can actually maintain a viable economic enterprise based on cattle?

We already know the critical limit of a herd size able to maintain subsistence arable farming in years of good rainfall. Even so, most households in Botswana are unable to meet their subsistence food requirements fully on the basis of production alone because of the poor soils and variable rainfall.<sup>7</sup> What is not known, but needs to be established, is the critical herd size required for an economically viable commercial cattle enterprise. Would that critical limit also be compatible with the carrying capacity of the land? These questions have not begun to be addressed in the debate about range degradation, cattle production, and fencing as a prerequisite for agricultural development.

Until they are addressed, we must seriously question the assumption that privatization of the range will automatically spur management practices like de-stocking and limited stock rates. We must therefore seriously doubt the possibility of such farmers practicing range management that is compatible with conservation and long term sustainability of the natural resources. Until we know

the full story about the carrying capacity of Botswana's rangelands *as well as* the minimum level of stocking that can support the high offtake required in commercial production, we must doubt the capacity of Government to induce range conservation while encouraging full scale commercialization to compete in the world's beef market.

Apart from these technical and production considerations the TGLP experiment raises questions of social justice which are likely to continue as the programme is extended to other areas. When it was first implemented, the TGLP was based on the assumption that there were empty and under-utilized range resources where large farmers could be moved without much negative impact on the small farmers and landless people's access to the range. But it soon became clear that the land earmarked for TGLP ranches was in fact already in use by various communities. In particular, the foraging communities of the Kalahari came to be made virtually landless as their hunting rights were not recognized by Botswana law, based as it is on agro-pastoral use as an indicator of birthright to land.

Although Government was warned the TGLP would infringe on the rights of the San people (Basarwa), this was not regarded as grounds enough to stop the implementation of the programme. Instead, Government made several unsatisfactory attempts to compensate the San for the land they lost, but which rights were hardly recognized. This has led Good to make the observation that the "San's access to land today is very limited, sharply unequitable, and frail" (Good, 1993: 214). Botswana's record on the treatment of the San and reluctance to uphold their rights is extremely worrying in the context where democracy is perceived as majoritarian and where the numerical minority of these people gives them no political clout with which to make effective demands.

Compensatory programmes for the San have included<sup>8</sup> a) establishment of new villages where they could be moved; b) granting of them ranches so that they could engage in agriculture (Only one district ever implemented this one. Even

then the local council had to bear the gamut of heavy political opposition which was only ameliorated by the intervention of international organizations and governments); and c) establishment of social service centers in each block of TGLP ranches. This has so far been the most successful means of giving the San some breathing space. The land does not belong to them, however, and is so poorly resourced that it is in fact a series of refugee camps for those San who are not employed on the farms and cattle posts of the landed Batswana elites. Even on the pieces of land they occupy their rights are continuously trodden on by the big farmers grazing their stock on what they consider communal land.

The extension of the enclosure system to the rest of communal areas must therefore be viewed with concern in that social justice is not always a major factor in the implementation of such programmes. It is envisaged that the rights of the small farmers and the landless will be protected by giving them opportunity to establish community fencing and allowing those who can not to continue open communal grazing. This seems very much like a recipe designed to privatize most of the land and leave small farmers with very scarce range resources which will deepen the problem of degradation. And even if the programme does succeed in setting aside fenced communal grazing, the question of the impact of these enclosures on both the environment and the income position of the community still remains.

Will attainment of efficient stocking rates sufficiently provide income for the farmers? Will they be in a position to increase offtake as a way of limiting stock rates and still have a viable herd to sustain household needs? It does not seem probable, given the endemic drought, that commercialization will actually induce better resource management and safeguard the rights of the poor. The extension of fencing to the rest of communal grazing lands thus seems set to exacerbate inequalities by giving cattle breeding even greater supremacy than it already enjoys.

Past efforts at extending many of the development programmes to the poor have shown that it is usually the larger farmers who benefit. The fencing of arable lands is a case in point where most of the beneficiaries were not the small farmers to which the programme was targeted. Among those medium farmers who actually took up the fencing subsidies, many never actually utilized the material. Rather, they simply put it away and continued as before with practices that required flexibility to take advantage of regional variability in the climate. A fixed-fencing farm could be a liability if the rains dictated that farmer move to another locality to plough either mid-season or the following year.

### **Conclusion**

Ultimately, the responsibility of range and natural resource conservation is the responsibility of the individual users of the resources. From Government's point of view these individuals are too caught up with the concerns of day to day survival under limited income resources to be concerned with the long term effects of their activities on the environment. However, this paper would like to argue that the major culprit for absence of long term perspective on environmental issues is not so much the poor, who have limited resources, as the wealthy farmers who were encouraged to increase their cattle herd through generous subsidies from both the Government of Botswana and the EEC.

Botswana's policy makers assume that by giving these large farmers even greater access to land through enclosure, they can be persuaded to adopt environmentally sound agricultural practices. The experience with the TGLP, however, seems to suggest that fencing can worsen the environmental status for the following reasons, viz a) by fixing the land within which cattle can move and should be rotated, it can erode the resilience of the range and make the land more susceptible to drought induced degradation; b) the continuation of poor management practices such as overstocking have been difficult to eradicate

because those entrusted with the responsibility for monitoring the farms did not care to offend the political sensibilities of the policy makers who were the chief beneficiaries of the TGLP and similar programmes; and c) the programme is not based on a cost benefit analysis which gives an indication of the possible range of factor combinations that are compatible with both carrying capacity and economic survival.

Environmental conservation is in fact the least important of the considerations for fencing and agricultural development. Thus, while plans are already at an advanced stage for zoning and land demarcation, little on the required environmental safeguards has been put in place. The Ministry mandated to ensure that the programme has an environmental agenda sees this policy as the responsibility of the Ministry of Agriculture. They have yet to come up with an action plan for environment conservation in the enclosed lands. And although the policy documents give Non Governmental Organizations prominence as major partners in this development programme, in fact these have not been involved in the planning and implementation of the programme so far. The Government structure for implementing this policy is as follows and completely excludes NGOs:

- i. A Steering Committee of Permanent Secretaries from all the Ministries. This committee is chaired by the Ministry of Local Government Lands and Housing.
- ii. Technical Committee of specialists, originally exclusively from the Ministry of Agriculture and comprising of range ecologists, land use planners and social scientists. This has now expanded to include specialists from other ministries (Local Government, Lands and Housing; Mineral Resources and Water Affairs; and Commerce and



Industry). The committee is also chaired by the Ministry of Local Government Lands and Housing. This committee reports to the committee of permanent secretaries which also acts as a reference group.

Since the adoption of the policy by Government in 1991 further consultations with other sectors of government, particularly the Local Authorities and extension officers, have been conducted with the aim of informing them how the fencing programme should be implemented. Land Boards and Councils have now been informed about the policy packages and what these involve. There has been vehement opposition to the fencing policy at district level, but the objections have been dismissed as inconsequential because it is assumed by senior bureaucrats that those opposing the policy do not appreciate that Botswana's livelihood is based on livestock. Environmental NGOs on the other hand feel that policies only open up for public discussion when they are ready to be implemented, and that therefore interventions on the part of NGOs and other parties almost never impact on the direction of policy or its implementation. Consultations are therefore primarily to inform people, not to invite them to make observations that might interfere with the policy.

The new agricultural policy and its fencing component thus seem set to follow the example of the old TGLP in hasty implementation without due regard for other components of the programme that are meant to enhance success and ameliorate the negative aspects of the policy. Environmental concerns seem to set one of the casualties.

## Notes

1. The others include a) growing pressure on water, b) depletion of wood, c) over-exploitation of the veld products, and d) pollution.

2. Unlike grazers browsers have a higher mortality rate during wet seasons and the reverse during drought, and can thus be used effectively to manage the environment and maintain its resilience.
3. Having large numbers of cattle, which observers usually dismiss as irrational and inefficient because of the high mortality rates experienced during droughts, is in effect a very rational coping mechanism which Batswana have used to ride the drought and be able to restock when the cycle ends and the wet seasons return.
4. **Progress Report on the Implementation of Agricultural Development Policy** (no date, Ministry of Agriculture)
5. A 1987 Government commissioned survey of the TGLP found that half the TGLP farmers were grazing their cattle in the area before they were allocated the ranch. More than 60% of the ranches surveyed were located where there was already a borehole. This suggests that exclusion rights were mostly extended where they had existed *de facto* through borehole ownership. It also explains why the TGLP did not attract cattle from communal areas: there were already cattle there! (McGowan International and Coopers & Lybrand, 1987)
6. Perkins, J. S.(1991), "Drought, Cattle-Keeping, And Range Degradation in The Kalahari, Botswana". In J C Stone (ed), **Pastoral Economies in Africa and Long Term Responses to Drought** (Aberdeen University African Studies Group, Aberdeen):p190.
7. At the same time the majority of these households do not have adequate cash income to provide them with sufficient buying power to replace farming. See Selolwane, OD (1992),"Labour Allocation and Household

Income Strategies in Western Ngamiland, Botswana: Implications for Agricultural Development". Unpublished PhD Thesis, University of East Anglia, Norwich, England.

8. R. Hichcock and D. Holm (1993), "Bureaucratic Domination of Hunter Gatherer Societies": A Study of the San in Botswana: in **Development and Change** volume 24 (pp325-338).

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