

Comparing Land Policy and Resource Degradation in Botswana and Zimbabwe

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Abstract

This paper looks at the effects of government policies on resource depletion and land degradation in Botswana and Zimbabwe. The paper develops by looking at tenurial arrangement since the colonial era. Policy incentives aimed at boosting agricultural production during this period are also looked at. In Botswana, land alienation, Tribal Grazing Land Policy (TGLP) and Arable Lands Development Programme (ALDEP) are considered while in Zimbabwe, land alienation, post independence land reforms, and marketing policies are discussed. These are then related to land degradation. It is argued that inequality and individualisation of land and emphasis on boosting small scale agriculture, have put pressure on the land. Overuse of land, monocropping and extensification of land use have resulted in soil exhaustion, overgrazing and deforestation in places. It is concluded that if sustainable development is to occur, land policy must be tailored in a manner which does not promote inequality and poverty.

Introduction

In recent years there has been a re-awakening of interest in the vital role rural areas play in economic development and in the production of food (Bilsborrow, et.al. 1992). Many African governments have turned to boosting agricultural commodity production for export as a way of solving their food deficit situation and foreign exchange problems while diversifying their mineral based economies. Many developments have been conceived of in terms of the promotion of relatively centralised, capital intensive, and large scale operations whose benefits are measured in terms of productivity and the reduction of poverty at the macro level. At the micro level the focus have been with bringing peasant production within the market economy by encouraging rural dwellers to grow more cash crops such as cotton, tobacco, tea, beans etc. Raising producer prices and changing the system of land 'tenure' have been the main incentives utilised to attract peasants to the market.

While there has been some concern about the environmental effects of development projects there has been very little examination of the relationship between rural development policies and resource degradation as a dimension of the conflict between the agricultural development and environmental conservation. "Much more study is needed to identify the historical and contemporary roles of government policy in rural environmental quality" (Buttel, 1982, p. 367). The purpose of this paper is to identify and discuss the mediating role of government rural policies in the process of land degradation using examples from Botswana and Zimbabwe. The rationale for the paper lies in the fact that governments in Sub-Saharan Africa own or control vast tracts of land and influence land allocation by setting legal frameworks and policies that affect incentives to which those who use land respond (World Bank, 1992). This stewardship over land resources not only put governments in a powerful mediating role concerning the quality of land but also makes them the chief focus of interest in arguments and efforts aimed at upgrading the quality of the general environment.

This paper outlines the conceptual issues involved in (and defines the main concepts associated with) land degradation. Then the rural development policies of Botswana and Zimbabwe are discussed in relation to land degradation both in the colonial and post-colonial era. Lastly comparisons between the two countries are drawn in the context of emerging important issues.

Some Key Concepts

Land Degradation generally means, "loss of land productivity through processes such as erosion, salinization, waterlogging, depletion of nutrients, deterioration of soil structure or pollution" (Bojo, 1991, p75). The term implies that land is reduced to a lower rank taking into account the fulfilment of given demands (Blaikie and Brookfield, 1987). Thus land degradation as a concept involves value judgements. For example, to a pastoralist the replacement of forest by Savanna with ruminants may not necessarily imply degradation but for those concerned with deforestation it can not be otherwise.

Deforestation implies removal of forest and undergrowth by human beings in order to expand arable land for agriculture and/or to harvest timber for construction and other industrial uses. As Gilpin (1976) maintains forest and its undergrowth have a high water retaining capacity which inhibit runoff. Their removal may result in erosion and other forms of land degradation.

Soil erosion signifies loss of soil as a result of natural and mainly human activity. Most soil erosion today is due to bad management, deforestation, bush and forest fires, overgrazing and other poor agricultural practices (Gilpin, 1976). Soil erosion is one of the major forms of land degradation today.

Soil conservation refers to, "devising and implementing of systems of land use and management so that there will be no loss of stability, productivity or usefulness of the soil in relation to the selected purpose" (Gilpin, 1976, p149).

Policy is used here to signify guiding principles or courses of action aimed at meeting personal needs and social problems of individuals and groups. Governments everywhere evolve policies designed to guide development and other efforts aimed at improving the circumstances of living of citizens.

Sustainable development (SD) deals with economic growth which reflects concerns for the environment. Economic growth should not only yield material benefits but do so leaving the environment with a capacity for self-generation. According to the World Commission on the Environment and Development (WCED) Today's needs and aspirations should be met without compromising humanity's ability to meet those of the future (WCED, 1987).

Rural Policy in Botswana:

Botswana was one of the few countries which did not experience large scale land alienation during colonialism. Only 3% of Botswana's land was reserved for the use of 1% of the population who were Europeans (Yedelman, 1969). To this end, the Tlokwa and the Lete groups lost land in Gaborone, Lobatse and Tuli Blocks. Subsequently the Kalanga group also lost land to the Tati concessions and mining corporation (Mudzinganyama, 1983).

The most important post colonial development for rural Botswana was the Tribal Grazing Land Policy (TGLP) of 1975. TGLP was based on a 1973 consultancy report by Chambers and Feldman. It had four main objectives viz: (1) Stop widespread overgrazing through the creation of commercial leasehold ranches for those with large livestock numbers; (2) increase cattle productivity through improved range and livestock management (paddocking, rotational grazing, selective breeding, etc); (3) promote social equity. The removal of large scale cattle owners from communal lands was supposed to leave room for the expansion of smaller farmers and (4) upgrade rural living standards by improving

incomes from cattle. TGLP was administered by government appointed Landboards. These zoned land into commercial (where individuals had exclusive rights over land) and communal areas. Within the first five years ranches with a minimum of 400 cattle paid a minimal rent after a three year grace period. These comprised 12% of the country. Communal lands representing 8 kilometres radius around villages covered 30% of the land (Hesselberg, 1985).

The Arable Lands Development Programme (ALDEP) was aimed at promoting arable agriculture among those who had not really benefitted from TGLP. ALDEP was promulgated in 1978 by the government. However, due to reliance on international funding ALDEP could not take off till the 1981/82 rainy season (Chipasula and Miti, 1989). Three events converged to prompt the government to embark on ALDEP. These were: (a) The fact that economic growth was not resulting into reduced unemployment, especially among school leavers and those from small scale agriculture (Mayende, 1990); (b) the realisation that more than 80% of rural dwellers depended on arable agriculture, yet production of small scale peasants was inadequate. This led to importation of food from South Africa and hence contributed to food insecurity; and (c) the fact that major donors such as the World Bank were shifting emphasis to the development of small scale holder agriculture. These factors together with the government's own studies showing growing poverty among small scale farmers persuaded Botswana to enunciate ALDEP.

ALDEP, according to the fifth National Development Plan had the following objectives:

To increase production and achieve self-sufficiency in basic grains and legumes at rural household and national level plus export surplus for these and other cash crops in all but the poorest rainfall areas; in so doing raise arable incomes (both self-employed and waged) through improved agricultural productivity and to optimise income distribution effects by

concentrating on small-holder development; and to create employment in the land areas to absorb underemployment and reduce rural-urban drift (quoted in Mayende, 1990, p6).

ALDEP was aimed at three groups of small farmers: Those with no drought power; those with one to twenty heads of cattle; and those with twenty to forty heads of cattle. The first group was to be given access to a package in which 6000 heads of cattle were to be distributed. Additionally there were 5,400 planter/cultivators, 2000 ploughs, 4300 water tanks and 2100 fences to help the participants. These packages were to be supplemented by the strengthening of marketing and input supplies; improved farm machinery supply and service; and improved extension service, land recordings and feeder roads (Chipasula and Miti, 1989). It was hoped that ALDEP would contribute 4-6% annual growth to arable agricultural production such that by the year 2000 incomes would be more than doubled. Import substitution, agricultural exports and increased commercialisation resulting from ALDEP would give rise to 2500 jobs per year. Thus in the last analysis ALDEP was to complete land privatization and leasehold tenure started under the TGLP. It was to do so by extending it to small scale holders. The land recording element in ALDEP aimed at full land registration. Leasehold titles were to extend beyond cattle farmers to arable farmers who would fence their land.

Policy and Land Degradation in Botswana

In Botswana, land alienation happened in Gaborone, Lobatse and Tuli Blocks. In these areas the best lands were alienated from indigenous people (Mudzinganyama, 1983). Historical evidence abounds that as a consequence of this loss overstocking, overcrowding and environmental degradation leading to large scale migration occurred (Schapera, 1971 and Mudzinganyama, 1983). Historical records from colonial government officials show a concern that the Tati area was overgrazed and on the verge of collapse (Fortman, 1989, p198).

For instance, the 1936 report of the cattle export officer in the tati district read:

The area in which stock is grazed during these months (November to July) soon become devoid of grass owing to the close herding which takes place (Fortman, 1989, p198).

Similarly, Schapera (1943) wrote that "this area is considerably overstocked resulting in the poor production of very poor stamp of cattle. From my observations, stock have greatly depreciated both in stamina and numbers during the past seven years".

Although officials in Botswana were unanimous in decrying severe overgrazing and land degradation, the land continued to support more and more people, while the cattle population tripled (Fortman, 1989). For this reason, Fortman (1989) considered these views on overgrazing as amateurish and overdone. It seems that in the 1930s, 40s and 50s evidence for range degradation was deduced from comparisons of height of grass in grazed and non grazed areas. There really was little effort to consider, "the actual annual production of herbage and assess damage, if any, to the capacity to produce herbage" (Livingstone, 1989, p83). Another measure of range degradation was loss of land due to gully erosion. However, much of this was localised damage which could not be generalized. "It was much less likely to be the major component quantitatively, however, visually impressive except in serious cases" (Livingstone, 1989, p83).

The real effects of land degradation came in with TGLP. With TGLP Botswana offers a good example of a government policy which encouraged people to move to supposedly "frontier areas in a premature manner and at a rapid rate" (Thiesenhusen, 1991, p2). TGLP zoned land into: (a) Commercial areas (which were to be developed on an exclusive basis by individuals and groups for ranching); (b) communal land (which could be accessed by members of ethnic groups on a traditional basis); and (c) reserve land -which could be used in mining, wildlife and by future generations (See Roe, 1993).

The TGLP assumed that there was unused land to be opened up for the commercial ranching thus relieving, "larger than normal increases in human and livestock population in the agricultural hardveld of eastern Botswana" (Ringrose and Matheson, 1986, p.6). Such increases were said to be detrimental to communal environments. Big cattle owners had to be moved into ranches where through water reticulation, fencing and general improvements in management they would sustain the range. Giving ranchers exclusive use of the land was thought to be incentive enough for them to control livestock numbers, improve management and halt range deterioration.

Another of the TGLP's important innovations was to reinforce Landboards. These assumed powers formerly belonging to traditional chiefs to allocate and make decisions over tribal land. These boards could give tenants 50 year rent-free leases with the right to fence off the land in designated areas and to exclude other people from its use (Githingi and Perrings, 1993). Another sweetener was loans to would be ranchers. TGLP was a policy which culminated in a process beginning in the 1930s whereby the management of the two most important resources for cattle farming; pasture and water was individualised.

By the 1980s even the government came to recognise that management linked degradation of pasture resources had occurred. A wealth of evidence had accumulated to suggest that the TGLP's objective of environmental sustainability had gone badly awry. Ringrose et al (1986) using Landsat multispectral imagery digital data found that areas with high percentages of bushcover and the lowest proportion of exposed bare soil mostly occurred in uplands and rock outcrops which were largely uninhabited. Communal lands and grazing and the eastern Kalahari (areas with the heaviest cattle population TGLP ranches) had the lowest bush cover and the highest proportion of exposed soil. Closer inspection revealed that the areas of high digital values included abandoned fields, severely overgrazed lands, lands with a high proportion of rills and gullies and areas with extensive sheet wash (Ringrose and Matheson, 1986). Abel and Stocking's (1987) research revealed that the annual rate of soil loss from undulating grazing

land in communal areas of South Eastern Botswana amounted to 1.2 tonnes per hectare. They argued that although this represented some kind of land degradation it did not reach crisis proportions. Research by Cooke (1985) and the Government of Botswana (1990) also indicate that TGLP and its associated borehole technology has expanded overgrazing and rangelands degradation.

In all fairness, it must be pointed out that not all researchers agree that land degradation is seriously threatening Botswana. Fortman (1989) for instance has argued that the ecosystem is too resilient to be damaged by the overgrazing that has occurred. A more recent study by Biot et al (1989) seem to lend crucial support to this argument. Biot et al (1989) compared steep sloping land heavily used for communal grazing with geological similar sites which were less heavily used in Botswana's semi-arid range. They found that soil depth was the major factor affecting herbaceous basal cover and that grass cover declined with cumulative soil erosion due to heavy use of the range. Despite this, Biot et al (1989) concluded that Botswana's soils were resilient and it could take around 500 years for decreases in grass and herbaceous production to fail to sustain present cattle densities.

It seems the major argument is not on whether TGLP is affecting the quality of the land but on the irreversibility of the damage or the resilience of Botswana's semi-arid tree savanna. In what specific ways has the TGLP affected the environment? Firstly, TGLP ranch lease-holders still retain access to communal range lands. They release their stock into the communes thereby creating pressure on these lands. Consequently, they experience uncontrolled grazing as no individual really bears the cost of adding animals beyond the carrying capacity of the range, resulting in severe deterioration in places (Githingi and Perrings, 1993). More indirectly the lease holders affect land through the mafisa. This is a system of associate ownership whereby individuals temporarily transfer cattle to others who use it. The beneficiaries are mostly poorer peasants working marginal lands. Additional mafisa stock from lease-holders easily overwhelm the carrying capacity of these lands (Githingi and Perrings, 1993). Secondly, grazing

lands and boreholes, the two most important resources in rural production are increasingly converted from communal assets into disposable private commodities (Yeager, 1993). Consequently peasant stock is relegated to marginal land. Where syndicates still control boreholes, mafisa cattle has degraded land near water points. Lastly, the tradition which provides social incentives to keep a lot of cattle still exist. Not only are cattle a store of wealth but they are utilized to meet a whole range of social obligations such as bride wealth (bogadi). Ownership of large cattle herds also confers prestige and status (Githingi and Perrings, 1993). Consequently there is a propensity to maximise cattle production in confined communal lands.

Rural Development Policies in Zimbabwe:

Zimbabwe was among the first countries to experience Land alienation in which most Africans were pushed into marginal lands. Six million hectares, a sixth of the whole country passed to European settlers after 1890 (Blaikie and Brookfield, 1987). After 1897 reserves for Africans were created. These totalled some 20 million acres (Palmer, et al, 1977). The creation of reserves started in earnest between 1908 and 1914. In this process the Native Reserves Commission was instrumental. Between 1914 and 1915 the commission reduced reserves by one (1) million acres. Much of this land taken away was among the best. The Land Apportionment Act which came into effect in 1931 allocated 9 million hectares of land to African reserves. This reapportionment entailed massive relocation by people from particular land areas (Sylvester, 1991). The Act also stipulated that Africans could additionally purchase land in specially designated native purchase areas for which approximately 2-8 million hectares were allocated in areas not known for good soils or easy market access (Sylvester, 1991).

On the other hand, the process of land alienation to European settlers proceeded apace as their number increased from 1324 in 1911 to 2355 in 1921 (Palmer, 1977). In the period 1915 to 1925, 8½ million acres of land were alienated

bringing the total land alienated to Europeans to over 31 million acres. This represented one-third of the whole country (Palmer, 1977). The land apportionment Act of 1931 granted Europeans nearly 20 million hectares (Sylvester, 1991). According to Yedelman (1969), eventually 49% of the land was devoted to the exclusive use of Europeans who represented only 7.1% of the population.

The British South Africa (BSA) company which ruled the country in the early part of the century saw the country as an agricultural producer for mining activities in South Africa. With the encouragement of settling by Europeans successfully underway the BSA sought to encourage their agricultural activities. Through a "White Agricultural Policy" (Palmer, 1977) institutions to encourage white farmers were started. Thus, the Department of Agricultural was established. It had several facilities including extension and crop grading. In 1912 a land bank was established to make credit facilities available to "persons of European descent only" (Palmer, 1977, p 231). Additionally, the price of land was reduced in relation to those prevailing in the sub continent. This White Agricultural Policy bore fruit in that many settlers were attracted, and maize and tobacco were established as the major cash crops of the country. Tobacco and maize production and exports soared in the 1920s (Palmer, 1977).

In the early 1930s continued competition from African producers and the great depression put severe stress and strain on white farmers. They requested for help from the government so that they could "achieve a return large enough for them to continue farming and live according to civilised standards" (Palmer, 1977 p.240). The resulting Maize Control Amendment Act of 1934, which required that African grown maize be approved by the maize marketing board, was designed to discriminate in favour of the European farmer. The result was widespread African Poverty.

Native reserves were overcrowded by the end of the second world war. It was officially estimated that cattle had exceeded the carrying capacity of reserve land

by 145% (Phimister, 1993). It was in this context that the Native Reserves Land Utilization and Good Husbandry Bill of 1948 was promulgated. It later became the Native Land Husbandry Act (NLHA) of 1951. The Act specifically aimed at: Ensuring that Africans using the land protected it through good management; limiting stockholding such that it matched the lands capacity; individualising rights in arable land and where possible communal grazing areas; and providing security of tenure to boost soil conservation and agricultural production among Africans (Phimister, 1993). Through NLHA the government hoped to transform peasant agriculture (Drinkwater, 1989).

In 1965 the government declared unilateral independence. What followed were almost universal sanctions against it. Rural policy became somewhat inward. Its objective was to deal with sanctions. Specifically, policy aimed at stimulating growth in agriculture; attaining food and raw material security; diversifying agricultural production as imports could not be relied upon; and earning foreign exchange from agriculture (Mumbengegwi, 1986). The Government relied heavily on settlers to achieve these objectives. Incentives were given to them in the form of pricing, marketing and credit arrangements. In terms of pricing, the government started a scheme of pre-planting or pre-harvest producer prices for all controlled crops. This scheme, by guaranteeing minimum prices for crops, enabled farmers to plan. To this end, producer prices were generally high as they approximated world market prices (Shopo, 1987). In terms of marketing, the Agricultural Marketing Authority was set up in 1967 and the Cotton Marketing Board in 1969. Through these the government subsidised farmers by absorbing their losses on the trading account (Mumbengegwi, 1986 and Shopo, 1987). These policies achieved some success in that there was growth of around 8% per annum, while the country largely achieved crop diversification and self-sufficiency in food.

Post independence rural policies aimed at preserving growth in agriculture, while ensuring some form of equity for the majority of Africans whose hunger for land was real. Growth was to be achieved through preserving white (now known as

commercial) agriculture while equity was to be through land redistribution. Land redistribution was a long term goal in that the post-independence government had its hands tied by the constitution which guaranteed against land expropriation. Therefore, any land which was to be distributed had to be purchased at market prices. Between 1980 and 1985, 2.5 million hectares were purchased and distributed to 35,000 peasant households (Mumbengegwi, 1986). This, however, was negligible given that more than 200,000 peasants immediately needed land. In the short term the issue of equity was tackled through ending discrimination in pricing, credit, extension marketing, etc. The post independence government had expanded marketing depots of the Grain Marketing Board (GMB) to take into account requirements of people in communal areas (formerly reserves). Its Agricultural Finance Company (AFC) is a major lender to communal farmers.

Policy and Land Degradation in Zimbabwe:

More research has been done on the relationship between land degradation and the policy of land alienation in Zimbabwe. This research considers two factors: (1) reduction in soil depth especially loss of top soil through sheet erosion; and (2) reduced retention and hence productivity of rainwater due to runoff (Livingstone, 1989). These are then related to changes in primary production (i.e. vegetable species composition and herbaceous basal cover and changes in secondary production, i.e. productivity as measured by livestock birthrates, extraction rates and general productivity). Additionally, the reversibility of the process is considered.

A study by Kelly and Walker (1977) found that the species composition of Zimbabwe's communal grasslands had changed due to overgrazing. Specifically annual grass species were replacing perennial ones. Annual grasses are inferior given that in relative terms they do not promote as much infiltration and they constitute poorer dry-season fodder for livestock. Kelly and Walker (1976) also found a defoliation intensity of 89% in communal areas. These effects were

however in areas of low rainfall. "Most studies indicate that there are no changes in vegetable species composition in mesic and high rainfall regions" (Shackleton, 1993, p67). Similarly, studies show that the "influence of grazing on basal cover and yield increase with increasing environmental aridity, but that rainfall had the most pronounced effect. Grazing system appeared to have little influence but stocking rate did" (Shackleton, 1993, p68). Changes in vegetative species composition and herbaceous basal cover are not only affected by rainfall but are also mediated by soil type (Scoones, 1992). Studies in Zimbabwe's communal areas by Barnes (1965) and Carew (1976) show that stocking levels in sandy soils had little effect on grass composition and production, but high stocking rates on clay soils lowered vegetative and grass production. Although overgrazing is demonstrated to negatively affect primary production these changes may not be irreversible (Timberlake, 1987; Strung, 1974; and Shackleton, 1993).

How do changes in vegetative species composition and herbaceous basal cover affect livestock production? Kelly and Walker (1977) compared communal (continuous) grazing systems to controlled (rotational) grazing systems and concluded that production was somewhat lowered under communal systems. Scoones (1992) is not sure. He used data from dipping services done by Zimbabwe's department of veterinary services. The data covered the period from 1920 to 1992, although it had gaps during drought periods and during that country's war of liberation. Scoones (1992) found that cattle population densities were maintained from 1960 to 1986. Since correlations of time and rainfall were insignificant, cattle density changes could only be explained by changes in the environment. Since there was no change in cattle densities, Scoones concluded that there was little degradation. The similar was the case with regard to production parameters (cattle birth and death rates), cumulative stocking rates and extraction rates. Scoones (1992) concluded that all these measures did not provide evidence for land degradation but rather for reversible density dependent environmental responses.

The crucial point though is that whatever degradation is occurring relates to confinement of rising populations to communal areas created through deliberate colonial government policy which sought to confine indigenous people to reserves. After 1890, 6 million hectares, a sixth of the country was ceded to settlers (Blaikie and Brookfield, 1987). Government policy divided land into crown, reserve and trustlands. The Land Appointment Act of 1931 barred indigenous people from acquiring land outside reserves and Tribal Trust Lands (TTLs). This policy has proved legally difficult to undo up to now. Thus, communal lands (as TTLs are now called) still occupy only 42% of the country's total area of 389,000 km² (Darko, 1986).

The link between poverty and land degradation strongly asserts itself in Zimbabwe's communal areas. As the World Commission on Environment and Development (WCED) noted;

those who are poor and hungry will often destroy their environment in order to survive: they will cut down forests; their livestock will overgraze grassland; they will overuse marginal lands; and in growing numbers they crowd into congested cities (WCED, 1987, p.28).

Similarly, in Zimbabwe's communal areas, a rising population of 4.2 million people with a growth rate that could double the existing population by the year 2000 (Whitlow, 1988) survive on 16.2 million hectares of land, of which only 2.2 million are suitable for cultivation (Darko, 1986). "Locally within the more densely populated areas, densities in excess of 100 people/km² are not uncommon. In Zimunya communal land, for example, a recent study revealed densities of up to 300 people/km² associated with extreme land pressure" (Whitlow, 1988, p.423). Using stepwise multiple regression, Whitlow (1988) found population density, communal land tenure and land extensification for crop cultivation to be the most important factors affecting erosion in communal lands (at $r = .65$, $P < .005$). The stocking rate of 4.1 hectares of marginal land per

livestock head (not counting small stock like donkeys, sheep and goats) exceed the recommended rate of one tropical livestock per 10 hectares (Darko, 1986). Communal land tenure is such that land is accessed through group membership. Since no one really holds title deeds to land, individual users ignore the cost to others of their using land there by over exploiting it and exposing it to degradation. In a situation of rising populations the slow transformation from an agricultural economy places inordinate pressure on natural resources (Thiesenhusen, 1991). Given that Zimbabwe's communal areas have thin markets, a scarcity of capital, technology, manufacturing and entrepreneurial ability agricultural productivity cannot be readily increased resulting in land extensification. "Consequently, extensive areas of communal lands are devoted to cultivation, even in lower rainfall regions where crop yields under dry conditions are low and crop failures are not uncommon. This increases erosion" (Whitlow, 1988, p.425).

Policy has links to deforestation in Zimbabwe. Whitlow's (1980) study assessed the extent of woodland depletion in Zimbabwe. He systematically compared aerial photographs over a period of time to investigate changes in vegetation and woodland. Communal areas (and those with high population density) showed significant decreases in woodland. Some areas recorded as much as 8 to 10% decrease in woodlands per year. He also found that 67% of communal areas faced a shortage of firewood and timber for building. For 37.5% of them the shortage was extremely serious. Woodland depletion occurs because of fuel energy demands for rising rural and urban populations. In the past the mining sector used vast quantities of wood to provide energy in the form of producer gas to operate machinery (Darko, 1980). Tobacco farming is a serious business in Zimbabwe and vast amounts of wood are used as a cheap source for curing tobacco.

Poverty and Land Degradation

The colonial policy of land alienation led to inequality and poverty for the great mass of the people in Southern Africa. Zimbabwe experienced extensive land alienation while Botswana largely escaped. Much of the land reserved for Africans had poor soils and inadequate water supplies. Confinement of rapidly expanding African populations and their livestock to such areas resulted in pressure on natural resources. In particular fallowing periods were reduced and more marginal lands were put to use. Inevitably these resulted in ecological dents in the form of soil-erosion, overgrazing and deforestation. The effects of land alienation policies have persisted to date, in Zimbabwe, where there is a sharp division between communal (formerly reserves) and commercialised land.

Economic Growth and Land Degradation

The two countries have had post-colonial policies which aimed at boosting small holder arable agriculture through subsidies and favourable pricing mechanisms. This policy in the form of ALDEP has not had much success in Botswana given that country's semi-arid environment and reliance on imported food. In Zimbabwe sections of small holder agriculture have shown considerable success in growing crops such as maize, tobacco and sunflower. Monocropping and extensification of land use has resulted in soil exhaustion and deforestation in some places. For Botswana, the major policy designed to boost rural economic growth was the TGLP. To some extent TGLP did for Botswana what land alienation did for Zimbabwe i.e. commercialisation of land and confinement of people in communal areas. Botswana's communal areas experience a lot of pressure both from local animals and those released from ranches. This pressure has intensified with increased cattle production since TGLP was instituted. This pressure has resulted in severe range deterioration in places. The inequality resulting from TGLP has also intensified rural poverty forcing the poor to put pressure on resources in order to survive.

Implications for Sustainable Development

Government policy with regard to rural areas may be the mediatory variable in the relationship between poverty, economic growth and environmental degradation. Rural policy which promote inequality in land distribution may directly lead to land degradation by creating instant overpopulation in confined areas, and indirectly by creating poverty which lead to short sighted exploitation of resources. Policies aimed at boosting economic growth may also promote inequality and agricultural practices which harm the environment. Thus, monocropping and land extensification exhausts soils and lead to deforestation. For there to be sustained development rural policies must be tailored in such a way that they do not promote too much inequality and poverty.

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