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CENTRE FOR APPLIED SOCIAL SCIENCES TR  
UNIVERSITY OF ZIMBABWE  
P.O. BOX MP 167  
MOUNT PLEASANT, HARARE

**SAVANNA LAND USE:  
POLICY AND PRACTICE IN ZIMBABWE**

M. W. Murphree and D. H. M. Cumming

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Centre for Applied Social Science  
University of Zimbabwe  
P O Box MP167  
Mt Pleasant  
Harare, Zimbabwe

WWF Multisppecies Project  
P O Box 8437, Causeway  
Harare, Zimbabwe



## SAVANNA LAND USE: POLICY AND PRACTICE IN ZIMBABWE

M. W. Murphree<sup>1</sup> and D. H. M. Cumming<sup>2</sup>

1. Centre for Applied Social Sciences, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe.

2. WWF Multispecies Animal Production Systems Project, P O Box 8437, Causeway, Harare, Zimbabwe.

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### INTRODUCTION.

Zimbabwe is situated on the high plateau of east and Southern Africa and lies wholly within the tropics. There are four main physiographic regions with the eastern mountains forming a narrow band along the Mozambique border. The rest of the country is characterised by the north-east to south-west watershed - the "highveld" which lies above 1200m and which descends to the Zambezi River in the north and the Limpopo River in the south-east via a series of plateaux, with the middle veld (900-1200m) giving way to the lowveld (below 900m). The soils are mainly derived from the ancient basement complex underlying the continent and are consequently infertile. Apart from high rainfall areas of the eastern highlands the country is predominantly wooded savanna with a mean annual rainfall of between 400 and 1200 mm per annum with some 65% of the country receiving less than 750mm per annum. The moister, north-eastern sector, is able to support commercial farming based on cash and food crops and beef production. An equable tropical climate conferred by its altitude (about 66% lies above 900m) and the promise of high agricultural potential resulted in a relatively large, for an African colony, immigrant white population. This unusual situation led to early self governing colonial status, an entrenched dual land use system (Figs. 1 and 2), a dual agricultural economy, and delayed political independence. Within this framework we examine the developing political economy of Zimbabwe and its impact on changing land use patterns and savanna ecology.

This chapter identifies the principal components which have shaped contemporary savanna land use policy and practice in Zimbabwe and provides policy recommendations of national and international relevance. The analysis is loosely structured within the "Three E" framework outlined in Chapter 1. We examine policy components in terms of their economic efficiency and ecological sustainability but have had more difficulty in dealing analytically with the concept of social equitability, since the meaning of this term is largely determined by ideological climate, political stances or the value preferences of analysts. For Zimbabwe, with its legacy of a racially defined dual system of land use and agricultural policy, social equity is clearly of high political salience and structures political objectives in a variety of dimensions. For the purposes of this paper, however, our use of the concept places more emphasis on its implication of a negotiated consensus, of collective compliance based on perceptions of a balance between individual or sectoral interest and common good. This consensus and compliance to regulatory mechanisms and structures is the central link between policy and practice and determines the long term efficiency and validity of policy. It is not sufficient for land use policy to be economically efficient and ecologically sustainable; it must also be institutionally acceptable and effective. This perspective leads our analysis to place considerable emphasis on the politico-institutional components in land

and resource use.

### **EVOLUTION OF SAVANNA LAND USE IN ZIMBABWE: 1890-1980**

Agro-pastoral systems began in Zimbabwe about 2,000 years ago when domestic livestock first reached southern Africa. The period 700 - 1,700 AD saw the development of Mazimbabwe (towns and fortifications built in stone) and associated crop and livestock production in an arc extending along the eastern watershed of the country from the north east to the south west. These settlements were associated with granite areas and the lighter more readily tilled soils. They were also largely beyond the reaches of tsetse fly (*Glossina* sp.). By the fifteenth century the power of Great Zimbabwe had declined and was replaced by the Torwa states and cities of Matabeleland. At the time of colonisation in the late nineteenth century the Matabele had established their power over much of what is now Zimbabwe and had developed a predominantly cattle based agro-pastoral economy. Livestock was traded as far away as Kimberley. There is no evidence of truly pastoral systems ever developing in Zimbabwe (Beach, 1977).

The early white settlers who moved into the country on the pretext of mining concessions soon took to cattle ranching and buying stock from local people. After the Matabele rebellions of 1893 and 1895 stock holdings were seized as the spoils of war and the commercial cattle ranching industry of the colony began. This was set back in 1896 by the great rinderpest pandemic which reduced livestock and most game populations to very low levels.

The competitive interaction between indigenous livestock production and settler commercial ranching was thus established at the onset of colonisation. Competition for land for cropping was to follow later. The socio-political developments during this period and their environmental consequences are outlined below.

#### **Socio-political developments**

The area between the Zambezi and the Limpopo now known as Zimbabwe was, at white occupation in 1890, inhabited by an indigenous population of 600,000 - 700,000, with 80% being Shona-speaking and 15% Ndebele-speaking. The Ndebele in the south-west were under centralized rule, the Shona in the centre and east were organized under fragmented polities or chiefdoms, typically involving anywhere from 10,000 to 30,000 inhabitants. Population concentrations occurred in areas where soils and rainfall patterns conducive to dryland agriculture prevailed. These were, however, not the only conditions for settlement. The need for domestic and livestock water supplies, for defensible locations in times of political strife and major demographic movements during the 18th and 19th centuries were also significant factors which created imbalances in population distribution. (Beach 1977).

The base for both the Shona and Ndebele economies was agriculture, the staple crops being millet, sorghum and to a lesser extent maize, all under hoe cultivation. This base was however vulnerable to periods of drought, to plagues of locusts or birds or even to floods and constrained by inadequate means of grain storage. Hunting and gathering were thus important subsidiary activities, and amongst the Shona iron smelting, gold mining and a degree of internal and external trade mitigated against the uncertainties of agricultural production (Beach, 1977). The main insurance against the uncertainties of crop production was however domestic livestock, particularly cattle. Cattle were largely restricted to the tsetse-free areas of the Matabeleland and Mashonaland highveld, but

particularly in Matabeleland played a significant role in domestic economies. Palmer estimates that in 1890 the Ndebele held a herd of a quarter of a million head (Palmer, 1977); Beach estimates that at that date the basic herd in the whole country was about 500,000 (Beach, 1977).

A human population of 650,000 in 1890 suggests an over-all population density of 1.67 persons per km<sup>2</sup>. Coupled with the population clustering mentioned above, this clearly implies that large areas of the country were 'unoccupied' in terms of agricultural or grazing activities. It is important to recognize however that none, or very little, of this land was regarded as 'open access' (*res nullius*). Most land was under some form of putative claim, the boundaries of the various polities being contiguous and defined, supported by group mythologies legitimating occupancy and proprietorship. These polities or their sub-divisions thus constituted bounded areas of common property under traditional and collective regimes of communal property management (*res communes*). Within these areas arable land was allocated by traditional authorities to individual household heads, such land acquiring a quasi-privatized status, providing permanency of tenure (Cheater, 1990). Beyond such lands the use of the grazing commonage for livestock was regulated by communal sanctions and demarcated where necessary to distinguish between the rights of a community and those of its neighbours. This communal property regime was further extended to 'unoccupied' land beyond the grazing commonage, to land containing resources used in hunting and gathering and land containing "key resources" useful in times of stress (Scoones, 1989), this latter sometimes being the subject of reciprocity with other units of proprietorship.

This regime of land and resource utilization was informed by an ethno-ecological knowledge system evolved in the micro-environments of the region. Compliance to the regime was effected largely through the dynamics of social conformity, formalized by the weight of religious sanctions. The founding ancestral spirits were regarded as the "owners of the land," controlling the incidence of rain, the fertility of the soil and fecundity of natural resource production. These ancestors, through the spirit mediums (whose task it was to coalesce and articulate collective interest), laid down regulations governing the use of natural resources - the planting of crops, the take-off of fish and wildlife, the cutting of trees and use of fire. Breaches in these regulations resulted in the withdrawal of the benevolence of the land and its resources; we have here, in Rappaport's phrase, "a ritually directed ecosystem" (Rappaport, 1969). Beyond this the religious system closely linked public immorality with ecological irregularity, usually demonstrated in drought. Schoffeleers (1978) characterises this as a view that the management of nature depends on the correct management and control of society. He goes on to state: "This is a profound intuition, and it is also one which is at the heart of ecological thinking in African societies. It is a concept which the industrialized world has largely lost but which it has to restore to its rightful place if it desires a lasting solution to its ecological woes. Keeping or restoring the balance of the ecosystem is not only a matter of technology but also of an ordered social life." (Schoffeleers, 1978:).

What emerges from the above is a generalized picture of pre-colonial savanna land use in which agricultural production was paramount, supplemented by other forms of natural resource exploitation. Management was through communal property regimes, clearly bounded and with explicit rules of inclusion and exclusion, rights and obligations. Given the circumstances of the time, these regimes were economically viable, ecologically sustainable and organizationally efficient, compliance being internally generated rather than externally imposed.

These circumstances were to change with the coming of white rule under the British South Africa Company in 1890, although the changes were not immediately apparent. Indeed the period 1890 - 1908 has been dubbed the "era of peasant prosperity" for Shona farmers as they turned their agricultural skills to the production of surplus

crops for sale to growing populations in the towns and on the mines. However by 1908 the BSA Company had abandoned its hopes for "a Second Rand"<sup>1</sup> in Rhodesia and set a policy of diversifying the economy and encouraging white agriculture. In its evolved dimensions over the following 25 years this policy had a number of dimensions. The first was the appropriation of the most fertile and advantageously located land for white use, both as a factor of production and an object of speculation (Arrighi, 1973). Concomitantly a system of communal black lands was established (successively called 'native reserves,' 'tribal trust lands' and 'communal lands' in the country's land terminology), rationalized on the grounds that it protected black communal interests against the avariciousness of white land speculators. The efflorescence of this policy is found in the Land Apportionment Act of 1931, which made explicit an allocation of 198,539 km<sup>2</sup> to 50,000 whites, 117,602 km<sup>2</sup> to 1,080,000 blacks, the balance of 74,859 km<sup>2</sup> being reserved for national parks, forestry land and state land (Fig. 1). The indigenous population had thus lost proprietary rights to more than two thirds of the land they held in 1890, most of this being the best agricultural land located near urban markets and service centres (Fig. 2).

Loss of land was not however the only mechanism effectively barring blacks from commercial agriculture. Policy ensured that white agriculture was heavily subsidized through loan facilities, pricing policies and the provision of extension and infrastructural services. Black agriculture, up to the 1950's, enjoyed none of these advantages and was further restricted through limitations placed on the marketing of agricultural produce from the communal areas. The result was to squeeze black farmers out of commercial agricultural production and force them to become wage laborers in industry, mining and on white farms - which was precisely what the racially structured economy demanded. The communal lands became, in effect, a residential and subsistence base for the wage labour force of the economy and net supporters of industrial workers. This was particularly true of the post-employment needs of wage laborers, enabling wages to be set at levels which did not take this requirement into consideration. As Harris commented in 1974, "... the rural areas act as a social security system for industrial workers, supporting the entire family in the eventuality of the head of household losing his position, and in particular supporting the family in retirement." (Harris, 1974).

Within the communal lands, the official perspective was that land and resource use would continue to be governed by communal property regimes of management through traditional authorities. In effect however the conditions which had made such regimes effective in the past had been seriously eroded. Much of the land base had been removed, restricting the flexibility and adaptability of usage which ecological conditions required. Proprietorship over a range of remaining natural resources had also been expropriated, notably wildlife, certain timber resources and minerals. Perceptions of security of tenure, both individual and collective, had been shattered by large-scale translocations and by imposed land use planning within communal lands by government agents. Finally it became patently clear to local communities that they, and their traditional leadership, no longer had the autonomy required for effective self-management. The effect was that in most communal lands the mechanisms of collective conformity were curtailed and elements of an "open access" perspective developed, with individual entrepreneurship invading the commons as a collective sense of proprietorship was lost.

Land alienated to whites was privatized in large agricultural holdings, typically c. 1,000 to 1,500 ha. in high rainfall areas or in much larger units (e.g about 10,000 ha) in areas considered suitable only for ranching. In contrast therefore to the property-rights regime in communal lands, white agricultural land was under a private property

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<sup>1</sup>/ The Witwatersrand formed the gold mining centre of southern Africa on which the city of Johannesburg developed.

regime. Using a Hardin-type analysis (Hardin, 1968), such a regime would promote efficiency of management and also ensure long-term sustainability. The judgement on this thesis from Zimbabwean history must be a mixed one. White agriculture, based largely on the production of maize, tobacco and beef, has undergone fluctuating fortunes and at several stages in its history has had to be rescued by state intervention. At the same time it must be noted that current large scale owner-operator agricultural units in the country show a measure of investment, innovation and efficiency which the state is reluctant to abandon. Judgement on the second count, that of ecological sustainability, must also be mixed. During the first four decades of this century privatized proprietorship and a relative abundance of natural resources did not necessarily lead to a long-term, sustainable exploitation regime. Indeed the very abundance of resources and their apparent inexhaustibility led to a *laissez-faire*, "mining the soil" approach characterized by the stripping of tree cover, overgrazing and tillage methods which encouraged erosion. This approach was colourfully encapsulated by a member of the Southern Rhodesian Legislative Assembly in 1938 when he said, "There is a typical Rhodesian attitude towards these things (conservation) which may be expressed by the phrase ... "after me, the desert." (Phimister, 1986).

Conservationist concerns over this state of affairs in official circles resulted in the Natural Resources Act of 1941, which provided for a Board with powers to compel "farmers and landowners to construct and maintain soil conservation works, protect the sources and courses of streams, control water, regulate depasturing of stock ... adopt approved methods of cultivation, or prohibit or restrict cultivation on any particular piece of land." (Phimister, 1986). Under the Act conservation concerns were administered in white farming areas by Intensive Conservation Area committees (ICA's), typically involving 80 - 90 farms. ICAs were set up when a majority of farmers in the area concerned agreed, thereby becoming eligible for enhanced state subsidies. ICAs were particularly effective in implementing what Phimister terms "mechanical conservation" and by 1950 it was estimated that 91 per cent of all cultivated land on white farms were protected by contour ridging. By contrast "biological conservation," i.e. the integration of livestock farming and field husbandry, grazing control and ecologically balanced exploitation lagged behind, in part because this was more difficult to enforce and in part because this conflicted with larger national production concerns (Phimister, 1986). It is nevertheless clear that the ICAs have played a dynamic and positive role in the current economic prosperity and environmental stability of the commercial farming areas. The effectiveness of this role cannot however be attributed solely to the private tenure regimes in which they exist; the relative abundance of available resources and their access to state subsidies (direct or indirect) must also be taken into account. Importantly also the ICAs have represented collective regulatory units of manageable size, through which national conservation interests can be modulated through local organization.

The Natural Resources Act also applied to communal lands, but here implementation was not through representative local organizations analogous to the ICAs but rather primarily by Government agricultural extension services. As noted above, Government had been reluctant to provide such services earlier in the century, but by the 1950's an agricultural extension agency for the communal lands had been developed which, by comparative standards, was both active and extensive. The attempted mode of implementation of the Act was authoritarian; its motivation stemmed both from conservationist concerns and also from the imperative to maintain food supplies. This technicist and authoritarian approach, coupled with the disabilities of the land and resource management regime in the communal lands described earlier, did little to alleviate the situation. Communal land inhabitants, on an inadequate land base and with their capacity to implement collective and localised controls having been emasculated, were not in a position to respond.

Some recognition of this dilemma was found in official circles. More land was transferred from state to communal land categories and a longer-term solution was seen in stabilizing the communal land population by setting a limit on individual entitlements, the surplus being absorbed in an urbanized population supported by the country's growing secondary industries. This approach found its legal expression in the Native Land Husbandry Act of 1951 which sought to register and limit grants of individual farming and grazing rights, and to cluster settlement to facilitate the provision of services. In Yudelman's view, the Act proposed, "to replace the tribal-communistic system of allocating land according to need with a hybrid tribal-capitalistic system of individual holdings and communal grazing" (Yudelman, 1964). The farming and grazing rights were not, however, secure. They could be lost if the provisions of the Natural Resources Act were not followed; thus the conservationist component in the Act became the vehicle for perceptions of continued insecurity of tenure. Furthermore the Act in its planning and attempted implementation by government agents was seen as an exogenous imposition. It had no roots in local consensus and therefore lacked a localized institutional base for implementation. It was never implemented at the planned pace and was formally suspended in 1962. Its principal legacy over the following decade was to act as a rallying point for nationalist politics, which saw it as an example of land use planning and conservationist concern prostituted to white politico-economic ends.

#### **Ecological components and consequences of land use policy**

Major constraints to land use in Zimbabwe are summarised in the description of agro-ecological regions developed by Vincent and Thomas (1961). This classification also provides a convenient, although somewhat over-generalised, basis on which to examine land capability and use in Zimbabwe. The system, updated by Zimbabwe's agricultural extension service (Agritex), has formed the major basis for land use planning and analysis in Zimbabwe for the last three decades. Five agro-climatological regions (Fig. 3) are recognised as follows:

- Region I. In the Eastern Highlands, covering less than 2% of Zimbabwe. Rainfall above 1,000 mm. High altitude and low temperatures enable afforestation and intensive diversified agriculture including tea, coffee, deciduous fruits and intensive livestock production.
- Region II. The northeastern-highveld covering some 16% of the country. Reliable rainfall of 750-1,000mm between November and March; suitable for intensive cropping and livestock production.
- Region III. Mainly in the midlands and covering 18% of the country. Rainfall between 500-750mm but subject to mid-season dry spells and high temperatures; suitable for drought resistant crops and livestock. Semi-intensive farming.
- Region IV. Low lying areas in the north and south of the country and covering 37% of Zimbabwe. Rainfall between 450-650mm. Subject to periodic seasonal droughts and severe dry spells during the rainy season. Generally unsuitable for dry land cropping and suited to livestock production.
- Region V. Lowland areas generally below 900m and covering 27% of the country. Erratic rainfall usually below 650mm. Suited to extensive livestock production or game ranching.

Rainfall emerges as the greatest physical constraint to agricultural production in Zimbabwe and arrives in a single rainy season (November to March) with about 65% of the country receiving less than 750mm per annum. The combined constraints of rainfall and land capability (soil type and slope) reduce the area of arable land

available for intensive dry land cropping to about 7% of the country. The overall area of arable land is estimated to be about 22% (Republic of Zimbabwe, 1982). The distribution of arable land by land tenure is summarised in Table 2. However, the constraints of rainfall reliability and length of growing season (Table 3) in Natural Regions IV and V preclude the productive use of much of the available arable land.

Zimbabwe lies between altitudes of approximately 300m and 2800m with nearly two thirds of the country above 1000m. Mean annual temperatures are about 18-19°C. This means that temperature is not normally a limiting factor in plant growth. Frost occurs in low lying areas particularly in the arid south west and can have major effects on woody vegetation, grazing and on winter irrigated crops in the higher and moister areas of Zimbabwe.

Almost all soils in the country are deficient in nitrogen, phosphorous and sulphur and short (2 to 3 year) resting fallows covered by weeds and grasses are insufficient to restore fertility to cultivated land in the way that longer (15 year) traditional bush fallows did in the past (Grant 1981, 1987). Fertile irrigable soils are limited in distribution with the most extensive areas occurring in the arid south-east lowveld.

Apart from soil fertility and nutrients major constraints to sustainable cropping and livestock raising are imposed by combinations of terrain, soil type and rainfall patterns through their influence on soil erosion. Stocking and Elwell (1973) derived an erosivity index and applied it to the country as a whole. Their map (Fig. 4) indicates that some 30-40% of the country, and nearly all of the Zambezi valley is subject to a high risk of erosion.

The changing patterns of statutory land allocation and use from 1890 to 1980 (Fig. 1 and Fig. 2) when viewed in the context of land capability reveals that much of the prime agricultural land is not being used and much of the land under cultivation is not capable of sustained cropping.

The marked disparity between the quality of land in commercial and communal farming areas (Table 1, Fig. 5) is exacerbated by the great difference in population density in the two categories of tenure. In the large scale commercial farming areas human population density of landowners and resident labour in 1982 was about 7 per km<sup>2</sup> while in the communal lands it was about 26 per km<sup>2</sup>. In the small scale commercial farming areas it was c. 12 per km<sup>2</sup> (Whitlow, 1988). The broad ecological implications of land agricultural policies described in the previous section are now reflected in corresponding patterns of deforestation and erosion in Zimbabwe which have been extensively studied by Whitlow (1980, 1988). The differences between commercial and communal farming areas in levels of erosion (Fig. 6) are also reflected in levels of deforestation and overgrazing.

The often stark contrasts between communal and commercial farm lands reflect not only the result of differing policies but also a long history of differing technical approaches to the question of land use and practice. In the large scale commercial area the dominant thrust was towards conventional, specialised agricultural crop or livestock production with high inputs. The integration of diverse production systems and the introduction of farming systems research was delayed until the 1980's and environmental considerations beyond soil conservation were generally neglected. The technical approach towards the communal lands focused on soil conservation and on attempting to increase productivity with limited local inputs (manure) on progressively scarce land resources and minimal infrastructural development.

### Communal farm land

Four main technical phases of pre-independence development in the Communal Lands, suggested by Hughes (1974), were:

1. **Stabilisation** which covered the period 1900 to 1925 and was concerned to stabilise what were then termed *Native land holdings* and to reduce shifting cultivation and movement of African settlements. It was during this period that the first Native Reserves were declared.

2. **Centralisation** which covered the period 1930 to 1950 during which there was an attempt to bring households together in villages generally of fifteen families with surveyed and demarcated 1 acre plots, in lines, for the households and similarly surveyed and pegged fields for cropping and kraal sites. Grazing areas were designated and separated from those of neighbouring villages.

3. **Individualisation** (of tenure) was attempted in the early fifties through the Land Husbandry Act of 1951. This built on and extended the centralisation programme but incorporated measures which alienated communal land to individual households. Although considered technically sound at the time the social consequences were not acceptable. The programme failed and was abandoned by the end of the decade.

4. **Localisation** (of decisions regarding land use) was an attempt during the 1960's and early 1970's to devolve responsibility for land use decisions to local levels through the traditional leadership of chiefs and village headmen. Technical support was to be provided by government extension and community development specialists. The programme made little headway and dissolved with the onset of the independence war.

Ecological impacts of successive interventions in this sector are largely a result of human population growth and lack of inputs, infrastructure and markets which served to maintain, if not impose, subsistence agricultural practices and a subsistence economy on the communal lands. The level of erosion, deforestation and general land degradation in the communal lands is closely related to population density (Whitlow 1988).

### Commercial farm land

The following major technical stages in agricultural policy are apparent:

1. The initial, *laissez faire*, phase (1895-1930) was characterised by largely uncontrolled development of cattle and tobacco farming. A major ecological impact during this period was deforestation of miombo woodlands to provide fuel for curing tobacco. Large areas of the Mashonaland highveld and the Midlands were affected.

2. The introduction of **soil conservation programmes**, market controls, pricing policies characterised the period from 1930-1945. This period, through the implementation of the Natural Resources Act, led to improved management of soils on commercial farms and addressed problems of overgrazing.

3. The **post war settlement** of "Crown Land" and increased production of tobacco, maize and beef during the period 1945 to 1965 re-introduced the large scale clearance of miombo woodlands to provide fuel for flue curing tobacco. Systems of rotation of fields and fallow also led to an increase in areas cleared for cultivation. Declining viability of tobacco under marginal conditions such as in Region III led to the abandonment of fields and the regrowth of dense stands of mixed miombo woodlands and Terminalia scrub.

4. **Diversification** of production (1965-1975) was stimulated by international sanctions and the need for self sufficiency in food production and to circumvent the dependence of the agricultural industry on tobacco exports. This period was also characterised by the development of game ranching and wildlife utilisation on commercial ranches (Child, 1988; Cumming, 1989, 1990a).

Other important technical interventions on behalf of commercial agriculture which had major ecological impacts and which were not confined to a particular period were veterinary control measures, impoundments for hydro-electric power and irrigation.

Veterinary control measures were primarily aimed at protecting the commercial livestock industry. As early as 1919 game elimination programmes were started in an effort to stem the spread of tsetse fly which recovered as the game populations did from the rinderpest epidemic of 1896. Compulsory dipping of cattle was introduced in 1922 and contributed to the expansion of livestock. During the 1950's control through game elimination was replaced with bush clearing programmes which had long lasting effects on riverine vegetation where they were applied. In 1963 game elimination was re-introduced as a method of control but focused on selected species (elephant, buffalo, kudu, bushbuck, warthog and bushpig) which were systematically eliminated from fenced corridors 5-20 km wide extending along the tsetse front in the north and south of the country. The game elimination programme was increasingly supplemented by DDT ground spraying. During the 1980s hunting was completely replaced by chemical control methods employing ground spraying, aerial spraying and the use of odour baited traps. Tsetse fly have been eliminated from some ... km<sup>2</sup> of land since 1963. The tsetse control programme reduced the numbers and distribution of indigenous large mammals in Zimbabwe and the system of access roads needed to service fences and spraying operations greatly facilitated uncontrolled settlement in otherwise inaccessible and remote areas.

The control of foot and mouth disease (FMD) of cattle was accompanied by control of wild mammals by hunting and cordon fences. Some 6,000 buffalo were eradicated from commercial and communal farming areas in the south-east lowveld during the 1970s - a policy which later had markedly adverse effects on the developing game ranching industry in the region (Child, 1988). Game proof cordon fences extended from the Nata river in the South west to the Zambesi Valley in the north east and encircled the Gonarezhou National Park in the south east of Zimbabwe. Secondary cordon fences to control cattle movement extended over more than 2000km.

The development of major hydro-electric power and irrigation schemes began during the late 1950's and the 1960's. Large scale irrigation projects were introduced into the arid regions of the south east of the country and the Kariba dam was built to provide hydro-electric power. Both projects involved the development of large impoundments. In the case of Kariba this entailed flooding large areas of alluvial habitat along the Zambezi river and the displacement of Batonga peoples from the River to the hinterland. The subsequent influx of people and the expansion of subsistence agriculture in the wake of tsetse fly control in the region provided an important example of land use dynamics following large scale interventions in development and disease control.

The major result of these developments in the Sebungwe<sup>2</sup> over the last 30 years is that large areas of land with the highest erosion risk in Zimbabwe (Fig. 4.) have been settled by subsistence farmers and the protected areas have been deforested by overpopulations of elephants (Cumming, 1980). The two main forms of land use in the region are subsistence agriculture and Parks and Wildlife land - the juxtaposition of which has been instrumental in generating the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). This programme seeks to devolve to local communities the management responsibility for, and benefits from, natural resource management, particularly wildlife. (Martin, 1986).

By 1980 the overriding feature of land use in Zimbabwe, and therefore of the environment and its conservation, was the apportionment of land and the duality of the agricultural sector. The inequity of land distribution in relation to land capability and human population density placed the land issue and rural development at the centre of the government's development programme. The magnitude of the social and environmental problems is well illustrated by the distribution of commercial and communal farm land in relation to agricultural production potential (Table 1 and Fig. 5). The land apportionment policy started at a time when human populations were very low and its impact has since been greatly exacerbated by human population growth and the necessary accompanying growth in livestock and cultivation (Fig. 7).

#### LAND USE POLICY SINCE 1980.

The major objectives of Government agricultural policy as enunciated in the Transitional National Development Plan (1982) were as follows:

- "1. An acceptable and fair distribution of land ownership and use;
2. a greater degree of economic security and welfare for the rural population;
3. an increase in both land and labour productivity in all systems of agriculture;
4. substantial increase in employment to engage rapidly growing labour force;
5. achievement and maintenance of food self sufficiency and regional security;
6. extension of the role of agriculture as a major foreign exchange earner and source of inputs to Industry
7. integration of the commercial and peasant agricultural sectors into a national agricultural system;
8. conservation of land and environment for future generations;
9. promotion of local markets and integration of trade; and
10. development of human resources in rural areas to the full. "

These objectives were to be translated into the following policies and programmes:

- "1. Land re-settlement;
2. reform and expansion of structures of complementary services including agricultural credit, marketing, research and extension;
3. establishment of a number of production systems, including;
  - a) communal farming co-operatives
  - b) private/family and co-operative farms of a variety of sizes
  - c) state farms;

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<sup>2</sup>/ The area covered by Binga, Gokwe and Kariba districts in the north west of Zimbabwe.

4. pursuance of appropriate agricultural pricing policies to achieve the objectives of food self sufficiency and the extension of the role of agriculture as a significant foreign currency earner;
5. a closer alignment of land use patterns and land capability;
6. promotion of research in appropriate technology;
7. deployment of various means at government's disposal, including the land utilisation tax, to ensure that unused and under-utilised land and surface and ground water is efficiently used;
8. development of water resources, elimination of tsetse flies, improvement of conditions of health in all areas, and promotion of research into suitable crops for arid areas; and
9. encouragement and promotion of the establishment of small and medium scale agro-industries."

The central and overriding issue, however, was land allocation and redistribution.

### **Land distribution and resettlement**

On its accession to power in 1980 the ZANU-PF Government had as a central item on its agenda the issue of land redistribution. As the ZANU-PF Leader, Mr. Mugabe, later commented, "the land question was at the centre of the factors that propelled us to launch our war of national liberation." (*Herald*, 20/12/89). Action on this issue was therefore a political imperative in terms of the Government's promises to its constituency, as well as a concern in terms of social justice and longer-term politico-economic stability. At the same time there were constraints on any whole-scale and rapid transfer of land from the large-scale commercial farming sector to communal land farmers. These constraints included the provisions of the Lancaster House Agreement which stipulated that land could be acquired by government for resettlement from commercial farmers only on a "willing seller, willing buyer" basis during the ten-year life span of the Agreement. More importantly, the new Government was concerned to ensure that the agricultural productivity of the country was maintained and that the country's vital food supplies were protected. Palmer notes that in 1980 the white commercial farmers were producing some 90 percent of the country's marketed food requirements and comments that "At this precise and important moment in time, they seemed crucial to Zimbabwe's economic survival." (Palmer, 1990). A third constraint existed in the new Government's ideological, bureaucratic and conservationist concerns. Commercial farming land was not to be made available for resettlement simply to replicate on a larger scale existing communal land conditions. Resettlement was to promote collectivised modes of agricultural production, planned and implemented in line with sound ecological, agricultural and technical requirements and managed by state bureaucratic and technical agencies.

Government's resettlement programme was therefore launched in a nexus of compromise, limited both by the pace at which commercial farm land was made available and by the ability of government to budget for and technically implement resettlement in the manner envisaged. Resettlement proceeded under four models:

- 1) Model A which involved village settlements with individual allocations of arable land of +/- 5 ha. per family and grazing entitlements of 4 -10 livestock units depending on agro-ecological zone;
- 2) Model B, in which commercial farms were to be converted into producer cooperatives;
- 3) Model C involving a nuclear commercial estate with outgrower producers; and,
- 4) Model D, involving the provision of paddocked grazing areas, but not settlement, in neighbouring ranching areas.

In all cases occupancy was to be by permit, withdrawable if conditions were not followed.

Ambitious targets were set for the programme, the intention being to resettle 162,000 families (1,296,000 persons) by 1984. In the event resettlement under the programme proceeded at a far slower pace, particularly during the last five years of the decade. By the middle of 1989 a total of 2,713,725 hectares had been acquired for resettlement (Table 4) and a total of 52,000 families (416,000 persons) had been resettled, mostly under the Model A scheme.

The reasons for this failure to meet earlier and more ambitious targets were economic, political, technical and institutional in character. The direct costs of resettlement along prescribed lines had been far higher than originally estimated and the indirect costs in lost wages and communal land earnings were even higher. Kinsey calculated in 1984 that "the resettlement programme will, by the mid-1980's be generating an annual loss in terms of wages and income foregone of some Z\$83 million." (Kinsey, 1984). These high costs, coupled with an economic recession over the period 1983 - 85 which made government more vulnerable to conservative approaches to land reform espoused by the World Bank and Western governments, were a disincentive to vigorous implementation. Continued high productivity in the commercial farming sector, now involving a significant number of black elites, provided a further disincentive. In 1980, 42 percent of the country had been held by 6,000 white farmers. By 1989 these figures had been reduced to 4,319 farmers (no longer exclusively white) owning 29 per cent of the land but still an effective lobby in political circles. Productivity in sections of the communal lands also rose, with communal land farmers increasing their share of marketed food staples (Fig. 8) although their share of gross commercial sales has not increased proportionately (Fig. 9). All of this contributed to a diminished political immediacy over the issue of land reform during the second half of the decade even though the higher maize production in the Communal lands involved comparatively few farmers in the higher potential areas.

Institutionally the resettlement programme suffered from a number of disabilities, including a shortage of planning and implementing personnel and bureaucratic inefficiencies. More importantly however it was the technocratic and bureaucratic dimensions of the programme which impeded its development, both in its planned implementation and in its acceptance by the peasant cultivators for whom it was planned. It was these dimensions which, for Drinkwater, were "the most important legacy of the colonial state," more important than "the racially drawn economic divide between black and white." They "left the state at independence as the dominant source of power in the country and its generally centralised institutions in the habit of exercising this power through purposive-rational action. Those who work for state institutions are trained and socialized into the language of goals, policies, programmes and plans, and hence accept as normal that bureaucracies should function according to a purposive rationality." (Drinkwater, 1989). This stance, combining centralised bureaucratic control with assumptions about appropriate technological strategies for agricultural development and resource utilization, marginalizes locally-evolved and locale-specific ecological knowledge and inhibits the institutional dynamics necessary for effective communally-based regimes of resource management. Aside from the point that such strategies may be technically flawed (e.g. in over-generalizations on land classification and stocking rates), the resettlement schemes did not provide tenure arrangements either attractive to prospective settlers or necessary for long-term collective commitments to good husbandry. In these respects policy in the resettlement programme differed very little from the technocratic policy applied to the communal lands in the pre-independence period.

Resettlement during the decade also involved large-scale migrations of people onto lands already classified at independence as communal lands but which had previously been sparsely settled. The Zambezi Valley and its escarpment areas were a particular target for this migration, receiving 60,000 - 80,000 immigrants during the period. In some cases this immigration was planned, the Valley being perceived as an unexploited resource providing readily available land without any acquisition cost to Government. The Mid-Zambezi Rural Development Project, financed by the African Development Bank and FAO, provides an instructive example. In part the project resulted from the EEC funded tsetse eradication programme, which had been implemented without any land-use planning for the Valley. Subsequently FAO were brought in as consultants to government to develop a land use plan for the project area, which was elaborated broadly along the lines of the Model A resettlement scheme. It was planned to "rationalize" the settlement patterns and agricultural activities of the 4,600 households estimated in 1986 to already be in the project area and also to settle 3,000 new households in the area.

The project was therefore a resettlement scheme for an already settled area, combining Government's resettlement and agricultural reorganization objectives. In this it was consistent with the First Five-Year National Development Plan 1986-1990, which makes these objectives clear:

"In addition to the translocation resettlement which utilizes purchased former large-scale commercial farms, the re-organization of settlement patterns in the Communal Areas will become part and parcel of the resettlement programme. This entails replanning of land-use patterns in order to attain optimum exploitation of the agricultural resource potential on a sustainable basis and to ensure adequate provision of economic, social and institutional infrastructure." (Republic of Zimbabwe, 1986).

The project has to date had a difficult passage in implementation, suffering all the technical and institutional disabilities noted earlier for the resettlement programme. In a preliminary assessment Derman concludes that the project replicates the failures of top-down, highly centralized planning which have been demonstrated elsewhere. Its most serious long-term consequence lies in its suppression of a local sense of proprietorship and a resultant sense of dependency, illustrated by one of Derman's informants when he commented that "since the Government had taken responsibility for their lives it would be for Government to care for them when the project failed." (Derman, 1990.)

A further problem which has emerged in the Mid-Zambezi project is illustrative of the other form of resettlement which has taken place during the decade. Planned in 1986 to accommodate 3 000 new migrant households, at implementation it was discovered that there were already in the project area households in excess of the total of 7 600 considered appropriate; unplanned immigration had been ahead of government planning. In spite of official efforts to control it, voluntary and unplanned translocation into the Valley and its escarpment areas has been the dominant mode of in-migration during the period. These migrants are a mix of land-poor peasant farmers from high density communal lands, small-scale agricultural entrepreneurs and landless wage labourers retired from the country's industrial work force. A survey conducted in 1988 (CASS, 1988) found that 70 percent of these migrants had moved from communal farming activities elsewhere, but that among these only 59 percent gave landlessness as their motivation for moving. Among the remaining 41 percent a major motivation was the acquisition of more land for cash cropping, particularly of cotton. There was also a significant proportion of migrants (26 %) who had moved from wage labour sites in industry and commercial agriculture. Many of these were not only landless but also without any traditional claims to residential entitlement in any

communal land, being either long-term labour migrants from Mozambique, Malawi or Zambia or the children of such migrants. People in this ex-wage-labour category were seeking a residential and subsistence base for their post-employment retirement years and they figure prominently among those settler households to be found clearing and cultivating slopes on the Zambezi escarpment. They are, to return to a point made earlier, a prominent example of the way in which communal lands are made to subsidize wage labour structures in the economy which do not cover post-employment and social security costs. In their particular case it is the ecology of the Zambezi Valley which bears this cost, providing a further reminder that ecological sustainability is linked not only to rural land use and agricultural policy but also to industrial employment policy.

### **Macro-economic and trade developments**

At Independence in 1980 Zimbabwe inherited a diversified but centrally controlled economy highly dependent on commercial agriculture for food security and foreign exchange earnings. The war of independence also brought in its wake the need for rehabilitation of infrastructure, particularly in the communal lands. Government development priorities were properly directed to the rural areas not only in agriculture but also in health and education. Some of the key macro-economic programmes influencing rural land use during the last decade were:

#### Beef exports and the Lome convention.

The preferential prices offered for prime beef under the Lome convention stimulated massive investment in the cattle ranching and the beef industry. This involved the development of new abattoirs, stringent FMD control measures including the fencing of corridors and large vaccination programmes, and an extension of the tsetse control programme into the Zambezi valley. Resettlement programmes for the Zambezi Valley were facilitated by these developments.

#### Pricing and marketing measures for crops.

Pricing policies have stimulated the development of increased production of maize and cash crops in the communal sector. Increases in production are summarised in Figures 8 and 9. Pricing policies have however continued to tax the producer and effectively maintain the imbalance between rural areas and the cities by subsidising industry and city dwellers at the expense of the farmer (Table 5).

Government intervention in agricultural prices began with the Maize Control Act and the establishment of the Grain Marketing Board in 1931 and has since steadily increased. Cotton marketing was brought under statutory control in 1936 and the Cold Storage Commission was established in 1937. The Agricultural Marketing authority, formed in 1967, assumed responsibility for all marketing boards (Jansen, 1982).

Following UDI in 1965 and the imposition of sanctions food security and foreign currency, as in the 1930's and late 1940's, became primary concerns influencing pricing policy. Governments have become increasingly concerned to maintain low food prices and since 1976 many controlled food products have been subsidised either by the producer or from Government revenue (Jansen, 1982; Jansen, pers. com. 1990). Guaranteed pre-planting producer prices were introduced in 1975 but abandoned after independence. Producer prices, however, continued to be revised upwards for some crops such as maize as an incentive to producers while Government revenue met the subsidy to maintain low consumer prices. Jansen (1982) concluded that pricing policy in Zimbabwe had

achieved near self sufficiency through incentives to commercial farmers. Consumers had also benefitted but the subsidies had placed an enormous burden on Government revenue. Up to 1982 the only crop in which the producer had been effectively taxed was groundnuts<sup>3</sup>. Since then this situation has been maintained if the over valuation of the Zimbabwe dollar is ignored. At realistic exchange rates, however, all crops other than sorghum for the periods 1986-1989 and maize in 1986 show a substantial tax on the producer (Jansen, pers comm; Food Studies Group, 1990). Subsidies to crops, dairy products and beef have increased from \$46,000,000 in 1979 to \$177,000,000 in 1990 (Food Studies Group, 1990: Table A2:3). The subsidies over the last decade have, in each year, amounted to between 46% and 57% of the Ministry of Agriculture budget. Since a high proportion of the subsidies are benefits to urban consumers and producer prices reflect a tax, in real terms, on producers it is not surprising that small scale commercial and peasant farmers (other than maize growers in some regions) have not prospered. Pricing policies have in practice increased the pressure on the land and almost certainly contribute to the popular perception that the real rural problem is "land hunger".

The problems facing rural peasant farmers are compounded by poor rural transport and marketing systems and, together with pricing structures, have led to adverse terms of trade by comparison with large scale producers who have been able to diversify into other higher valued crops (Food Studies Group, 1990).

In practice there has been little major change in the overall patterns of land use, production and environmental effects compared with earlier decades. The developments of the 1980's can probably best be summarised as "more of the same". The eradication of tsetse fly from large parts of the Zambezi valley has opened up more land to settlement, both planned and un-planned and the ecological characteristics and effects of subsistence agriculture have been extended without substantially relieving pressure on the densely populated Communal Lands. The basic agro-ecological question of how to establish productive and sustainable agricultural enterprises with existing, if not increasing, human densities and needs remains unanswered.

#### **CURRENT CONSTRAINTS AND CHALLENGES IN POLICY AND PRACTICE**

By the middle of 1989 land had resurfaced as a major political issue. The government was facing a national election in the following year, which would coincide with the expiry of the Lancaster House restrictions on the acquisition of private land by the state. The ZANU-PF Government thus made land one of its main election issues, stating that the current position was "morally unacceptable, economically unjustifiable and politically untenable." (Palmer, 1990). Having won the national elections in April 1990 government then went on to state its intentions to acquire an additional 5 - 6 million hectares of commercial farm land for resettlement, most of it coming from Natural Regions II and III.

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<sup>3</sup> A producer is implicitly taxed if the government controlled price is lower than the import or export parity price for that crop at a realistic, as opposed to an over-valued, exchange rate.

This intention was elaborated in a fifteen point memorandum on land policy presented to Parliament by the Minister of Lands, Agriculture and Rural Resettlement at the end of July, 1990. Among these points were the following:

- a) Land acquisition. Government would amend the Land Acquisition Act enabling it to acquire land when and where it was required for resettlement purposes, compensation to be 'fair' but wholly to be determined by government and without recourse to the courts.
- b) Control of land prices. Government would control the price of agricultural land on the basis of variation in agro-ecological zones.
- c) Land tax. Government would impose a land tax based on the calculated production potential per hectare per natural region. This tax would only be levied on the commercial farming sector.
- d) Land inspections. Land would be systematically inspected and land found underutilized over a period of time would be acquired by the state.
- e) State farming. The state farming sector would continue to expand and "consolidate its role as an agricultural producer alongside other large-scale commercial farmers."
- f) Limitations on ownership and size of holdings. Government would legislate against the ownership of more than one farm unit by one individual or company, stipulate minimum and maximum farm sizes by agro-ecological region and prohibit the ownership of agricultural land by absentee landlords or foreigners.
- g) Settler selection. Government would in future select farmers for resettlement on the basis of proven agricultural competence. "In the future, all farmers should become commercial farmers."
- h) Land tenure system. Government would set up a commission to look into current tenure systems and "recommend the most realistic tenure system for the country."
- i) Structure of the agricultural sector. The agricultural sector would continue to be comprised of the large-scale and small-scale commercial sectors as well as the communal, resettlement and state farming sectors.

In the ensuing debates the Commercial Farmers' Union (CFU) has argued that while it accepts the need for land reform this should be "implemented in a manner that ensures land is used on a sustainably productive basis" and that the resettlement of 5.5 million hectares of commercial farm holdings would have the effect of reducing agricultural production by Z\$500 million and the value of agricultural exports by Z\$425 million per annum. It also argues that the proposed methods of land acquisition will inhibit investment in private sector commercial agriculture and in a set of counter-proposals suggests that the "rate of resettlement should be matched to the resources available, to meet the aspirations of the people, but without jeopardizing national productivity." The CFU counter-proposals suggest that "the lack of accountability for resources is probably the single most important contributory factor to their abuse" and recommends that in both resettlement and communal areas Government "should offer title to those farmers who have proved competent in utilizing the land on a sustainably productive basis." (CFU, 1991). In response the Minister of Lands, Agriculture and Rural Resettlement has stated that the only useful debate that Government is willing to entertain about the resettlement programme is on how it should be implemented and not on the need for such a programme. The Government would try to

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produce a pragmatic policy which tried to reconcile all the divergent political and economic interests encompassed by the land issue, noting that "We are a responsible government and we cannot afford to destroy the economic fabric that we have created." (Herald, 12/1/91).

Assuming that Government's intentions are implemented and that 5.5 million hectares are transferred from large-scale commercial farms to resettlement land but with small additions to state farms, small-scale commercial farms and urban areas, one could posit a land use classification scenario in the late 1990's as shown in Table 3 and Fig.1.

Land under private commercial agricultural production would thus have shrunk from 30.4 percent to 19.9 per cent, with a further 17.6% of the land being under direct state control, either as wildlife and forest estate or as state farms. Private commercial farm units would be diminished in size and land-use and production intensified. Where such reductions in farm size are accompanied by the full range of support systems (infrastructure, markets, inputs of equipment and energy, and fair prices for produce to the farmer) then adverse environmental effects are likely to be minimal. However, if the cost of intensification of land use has to be borne by the land then an expansion of the degradation (accelerated deforestation, erosion and declining productivity of arable land) that has characterised much small scale and peasant agriculture in Zimbabwe can be expected. A key issue in the intensification of land use is the provision of adequate energy and infrastructure. Most resettlement schemes on former commercial farm land made no provision for the additional energy needs of settlers with the result that deforestation was inevitable.

In addition a number of economic, technological and implementational constraints are likely to inhibit Government's land reform intentions at the levels projected. It can however be assumed that the decade will be marked by large scale transfers of commercial agricultural land to other categories in the range of 2.5 to 3.5 million hectares.

It is however with the greatly expanded area of land held under the communal land or resettlement categories that policy must be primarily concerned in terms of the criteria of economic efficiency, ecological sustainability and institutional viability. These are the challenges which policy must face if it is not to simply replicate the politically-driven short-term responses to land hunger which have characterized land use policy and practice in Zimbabwe for over half a century. The reallocation of large areas of commercial farm land to small-scale producers might meet the immediate aspirations of the Government's major constituency; it should also afford the opportunity to improve the economic efficiency and sustainability of resource usage throughout the country and to fundamentally revise the economic and institutional structures necessary for this goal. If this is not done the land reform programme of the 1990's will turn out to be no more than a replication, on a grander scale, of the incomplete and ineffective policies of land use reform of earlier decades.

In their current form neither the Government proposals nor the CFU counter-proposals fully address this potential. Both give some recognition to conservation and sustainability concerns and both emphasize economic efficiency in land use through more intensive management, agricultural competence and the provision of the necessary infrastructural services. But neither directly grapple with the manner in which land and resources under communal regimes indirectly subsidise the national economy nor do they recognise the opportunities provided to critically re-evaluate approaches which assign value to land only in terms of its use for conventional agriculture. These opportunities include the re-direction of resource exploitation strategies to take more account

of international markets where Zimbabwe is well-placed to compete favourably in place of the current emphasis on exports of cereals, cotton and beef.

With more than 65% of Zimbabwe's land area falling into Natural Regions IV and V and with limited potential for the development of irrigation there is little likelihood of successfully using this land for commercial, export orientated agriculture. Continuing use under high density subsistence agriculture is unlikely to be sustainable. The area in which Zimbabwe, and much of east and southern Africa, does hold a comparative advantage in world markets is in the use of its indigenous large mammals. Some 2,700,000 ha of commercial farm land and 1,200,000 ha of communal farm are presently being managed as multispecies wildlife systems for tourism, sport hunting and meat production, often in combination with domestic livestock. Preliminary indications are that this form of land use may be more productive economically than commercial cattle ranching with lower environmental impacts (Child, 1988). The intensification of wildlife based tourism promises to provide far greater returns to the land and in the western parts of Zimbabwe there is a marked swing to wildlife based economies both in commercial and communal lands. The potential in the region for this form of land use is enormous with about 17% of the land area of the SADCC region designated for wildlife utilisation (Cumming, 1990b).

Perhaps the most critical gap in the current Government land reform proposals lies in their failure to address the institutional components (land tenure and resource rights regimes, management options, motivational dynamics) necessary for efficient and sustainable land use in this category. Apart from the rather vague intention to appoint a commission to "recommend the most realistic tenure system for the country" nothing is said on this subject and one is left with the impression that, by default, the current situation will continue in which traditional and communal regimes are largely impotent and state technocratic controls are ineffective.

The CFU counter-proposals do address the issue in part, recommending individualization of tenure for the farmer in communal and resettlement lands "by way of a lease convertible to title to enable him to develop his farm in confidence" (CFU, 1991). However this proposal takes no account of scale, does not say how in a mixed production system involving cropping and livestock such privatization of title would operate or how the grazing commonage would be managed. Furthermore, given the Government's current ideological preference for an anti-individualistic socialism, it is unlikely that it will espouse recommendations for a thorough-going privatization of tenure in the communal and resettlement land categories.

Between the CFU and Government we have, therefore, two contrasting predilections for the management of resource exploitation on these lands: privatization or state technocratic control. There is a 'Hardinesque' quality to this situation, the available options conforming to Hardin's thesis that resources should either be privatized or controlled by central government authority to ensure sustainable use. (Hardin 1968). Both perspectives ignore the disabilities encountered by privatization or state control in the contexts concerned and both ignore the demonstrated potential of communally-based common property regimes to coalesce indigenous ecological knowledge with technological and economic change, motivate good husbandry, enforce collective conformity and collaborate with national concerns for ecologically sound and economically productive land use. All of these are institutional characteristics required for the implementation of a national policy at the variety of microenvironmental and context-specific levels exhibited in communal and resettlement lands and without them the objectives of economic efficiency and ecological sustainability will not be achieved.

The policy basis for the active pursuit of this type of resource management regime in the communal lands already exists in the form of Government's directives and legislation on decentralization and local government. These envisage a "decentralization of the planning and supervisory functions of Government" and seek "a comprehensive and more effective system of involving the local communities both horizontally and vertically in the process of planning and effecting their development." (Murombedzi, 1987). Pursuing these objectives the District Councils Act of 1980 established an administrative and planning structure for communal lands incorporating a hierarchy of units running from village development committees to ward development committees to the district council. This structure has to date met with mixed success and has not in general achieved the desired result in terms of the devolution of initiative and self-sufficiency to local levels. There are a number of reasons, including the lack of administrative skills at local levels and a resistance in bureaucratic circles to any genuine devolution of authority. More importantly however the district councils, let alone the ward or village development committees, have not had the financial base for any genuine autonomy in planning and implementation. Without any significant tax base, and without any legal proprietorship over collective natural resources they have been dependent on government grants for recurrent expenses and dependant on government and aid funds for development projects.

Significantly it has been the acquisition of proprietorship over a natural resource, wildlife, that has provided the catalyst for experiments by some district councils to break out of this syndrome of dependency. Using a provision of the Parks and Wildlife Act which allows for the conferment of custodial use-rights over wildlife to district councils, the Department of National Parks and Wild Life Management has developed the CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) Programme which now extends to 12 of the country's district councils. Among the informing insights of the Programme are the following:

- a) That wildlife should be promoted as an economic form of sustainable resource use for enhancing rural productivity in areas to which it is suited.
- b) That local communities and landowners are more effectively motivated to conserve wildlife when it is of direct economic benefit to them.
- c) That sustainable exploitation of the resource requires cause-and-effect relationships linking good husbandry with benefit.
- d) That proprietorship must include the authority to decide whether to use wildlife at all, to determine the mode and extent of its use and the right to benefit fully from its exploitation.
- e) That in communal contexts the unit of proprietorship, with rights of inclusion and exclusion, should be as small as management considerations permit, allowing conformity to management regimes to be enforced by collective and informal pressure. The unit of proprietorship should be the unit of management and the unit of benefit.

The Campfire Programme, having been implemented only in January 1989, is too young to be confidently cited as a success story. It faces a number of implementational problems, including bureaucratic resistance in certain circles and an inadequate legislative base. It has nevertheless already had a dramatic impact on the financial base of operations for certain district councils, council incomes having been sharply increased. In certain wards,

the producer communities, wildlife is now regarded as an asset rather than a liability and 'free rider' exploitation in the form of poaching has diminished. Communities have become more assertive over their claims to the proprietorship of all natural resources and have begun to make their own land use plans to exploit and conserve the range of resources available. Collectively more confident about their own prerogatives and abilities, they are more conservative about the allocation of their land and more aware of the linkages which bind them to regional and national structures of resource exploitation.

All of this is indicative of the potential for a communally-based resource management regime to meet the institutional requirements of a land use policy in the particular circumstances of Zimbabwe's communal and resettlement areas. Such regimes make administrative and economic sense in these contexts and provide for ecosystem and social system variation. They constitute an alternative to the 'privatize or nationalize' debate on land use management in Zimbabwe today, an alternative which deserves more serious consideration than current policy debates have yet provided. It is not suggested that a common property regime without any elements of state control or privatized tenure is appropriate for communal and resettlement lands. Different tenure arrangements for specific resources can exist within the same context leading to a mix of individualized and co-management arrangements. What we are suggesting is that the tenure alternatives are broader than policy debates have indicated and that a communal property system with respect to certain resources has the potential to be institutionally viable, economically efficient and ecologically sustainable.

## CONCLUSIONS AND RECOMMENDATIONS

From the analysis of Zimbabwean materials presented in this chapter four generalized conclusions and policy suggestions can be made. These are stated below with specific reference to Zimbabwe, but are likely to be of relevance for savanna land use policy in other countries with similar characteristics. Certain assumptions are made, namely, that: a) significant shifts in land categories will occur, transferring land under large-scale commercial production to small-scale agricultural production; b) no radical global economic recession will occur; and c) global environmental changes will not radically alter the Zimbabwean environment.

### Equity, Economics and Ecology

The gross inequities in Zimbabwe's dual agricultural and land use system have over time far exceeded the limits of national social acceptability and acquired a political salience which makes them a dominant consideration in Government policy. Economic and agricultural production considerations have however constrained policies driven solely by equity issues. The history of Zimbabwe has been marked by cycles of policy direction in which one or the other of these perspectives has been dominant, masking the conflicts involved and the trade-offs required. Ecological considerations have played an inconsistent role, at times being substantive but often being used as rationalizations for short-term political or economic imperatives. The current climate of heightened environmental awareness provides the opportunity for policy formulation which more candidly addresses the conflicts inherent in the equity-economics-ecology equation. This leads to our first policy prescription, which has to do with the policy process itself. Policy-making on land use, on environmental issues and on the economy should be far less fragmented and disjunctive than it is at present; more holistic and synchronised. This will require a major coordinative effort on the part of Government, with greater recognition of the political and economic compromises required and particularly the need to consult at lower levels.

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### **Macroeconomic Structures and Policies**

Essential for a viable and sustainable land use policy is a macroeconomic environment which inhibits "subsidies from nature" for the interests of commerce and industry, for the benefit of urban populations and at the expense of rural land managers. Marketing and price controls contribute to this characteristic, as do wage policies which require rural areas to provide the social security requirements of the wage sector in the economy. International Trade agreements and large-scale international aid projects involving widespread technological and environmental impacts may also contribute to an economic policy bias with this effect. Policy should therefore seek to redress this bias, giving special considerations to : a) the removal of adverse subsidies, price control and tax structures; b) the provision of wage policies in the formal economy which do not assume post-employment subsidies from the communal and resettlement lands; and c) a reassessment of international trade and aid agreements in the light of these long-term effects on the Zimbabwean economy and environment.

### **Diversification of Natural Resource Utilisation**

Two thirds of Zimbabwe comprises semi-arid or arid savanna and the country can no longer afford to ignore the wealth generating potential of diversifying its rural production systems to include the full range of sustainable indigenous natural resource utilisation. This range includes tourism, sport hunting, game farming and the presence of a number of economically valuable and exploitable species of flora and fauna not common elsewhere. In these assets, Zimbabwe has a comparative advantage in world markets which has not as yet been fully exploited largely because of conventional and commercially entrenched views on land use, reinforced by international aid and trade agreements.

Current constraints to the development of these diverse resources include outdated legal and bureaucratic structures, and in the case of some species the lobbying of anti-utilisation groups in the developed world. Zimbabwean policy should vigorously encourage the exploitation of these resources through innovative research and marketing and revise legal and bureaucratic constraints where necessary.

### **Tenure and the Institutions of Land and Resource Management**

Current policy debates on the tenure arrangements required for economic productivity and ecological sustainability are unduly restricted to privatized or state control options. The potential for communal property regimes of management has largely been excluded from the debate but in certain contexts which are prevalent in Zimbabwe they offer the most promise for the sustainable and efficient use of the environment. They also provide a good institutional base for the diversification in resource exploitation advocated above. The primary constraints to developing this potential are entrenched technicist and bureaucratic perspectives, together with inhibitive legislative structures. Land management policy in Zimbabwe, particularly in the communal and resettlement lands, should therefore seek to build on, and give institution and legal support to, generalised government intentions on decentralisation. This will involve not only a decentralisation of administration but also a genuine devolution of proprietorship and economic control and benefit as well.

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**Table 1.** Land Allocation in Relation to Natural Region and Land Tenure in Zimbabwe 1990 (Area in Km<sup>2</sup>)

Natural Region	Commercial Farm Land				Communal Farm Land		Parks & Forests		Total	
	Large Scale Area	%	Small Scale Area	%	Area	%	Area	%		%
I	4402	62.6%	73	1.0%	1283	18.2%	1276	18.1%	7034	100.0%
II	43245	73.8%	2521	4.3%	12551	21.4%	291	0.5%	58608	100.0%
III	32406	44.5%	5361	7.4%	28147	38.6%	6963	9.6%	73877	100.0%
IV	40258	27.2%	5320	3.5%	73073	49.4%	29269	19.8%	147830	100.0%
V	36484	34.9%	976	0.9%	47740	45.7%	19211	18.4%	104411	100.0%
	156795	40.1%	14161	3.6%	162794	41.7%	57010	14.6%	390760	100.0%

**Table 2.** Distribution of Potential Arable Land and Areas (Km<sup>2</sup>) Cultivated in 1980

Soil	Commercial Farm Land				Communal Farm Land		Total	
	Large Scale Area	%	Small Scale Area	%	Area	%		% of Zim.
Arable	48000	55.8%	5000	5.8%	33000	38.4%	86000	22.0%
Cultivated Crops	10200	29.1%	900	2.6%	24000	68.4%	35100	9.0%
Fallow	6200	24.5%	700	2.8%	18450	72.8%	25350	6.5%
Irrigated	4000	41.0%	200	2.1%	5550	56.9%	9750	2.5%
	1517						1517	0.4%

**Table 3.** Growing Season for Dry Land Crops in Natural Regions III, IV & in Zimbabwe.

Seasonal Parameter	Region III	Region IV	Region V
Mean Median start	10 Nov	18 Nov	3 Dec
Mean Median end	31 Mar	28 Mar	24 Mar
Mean Median Length(days)	131	121	96
Mean % Occurrence of Drought season	18	16	18
Mean % Occurrence of Intermediate season	5	15	30
Mean % Occurrence of No rainy season	0	1	5

Source : Hussien (1987)

**Table 4.** Land Classification by Use : 1989 and late 1990's

	1989		Late 1990's	
	('000 ha)	Percent	('000 ha)	Percent
Communal Area	16 355	41.9	16 355	41.9
Large-Scale Commercial	11 270	26.8	5 770	14.8
Small-Scale Commercial	1 400	3.6	2 000	5.1
Resettlement	3 090	7.9	7 820	20.0
State Farms/Cooperatives	884	2.3	1 000	2.6
National Parks and Wildlife	4 900	12.5	4 900	12.5
Forest Areas	977	2.5	977	2.5
Urban	196	0.5	250	0.6
Totals	39 072	100.0	39 072	100.0

**Table 5.** Nominal Protection Coefficients (NPC) and Nominal rate of Protection during 1981-1990 for major crops grown in Zimbabwe.

a) Nominal Protection Coefficients - at official exchange rate							
	Maize	Sorgum	Wheat	GroundNuts	Soyabeans	Cotton	Tobacco
1981	1.18	1.30	0.77	0.82	1.22	0.89	1.00
1982	1.84	1.30	0.81	0.88	1.00	1.31	1.00
1983	1.59	1.36	0.70	0.65	1.00	0.98	1.00
1984	0.41	1.59	0.77	0.66	1.00	0.67	1.00
1985	1.36	1.24	0.82	1.23	1.00	0.83	1.00
1986	2.23	3.76	0.66	0.72	1.00	1.23	1.00
1987	1.52	4.93	0.86	1.04	0.55	1.07	1.00
1988	0.74	3.84	0.85	1.10	0.60	0.87	1.00
1989	0.81	4.24	0.93	1.10	0.62	0.95	1.00

b) Nominal Protection Coefficients - at realistic exchange rate							
	Maize	Sorgum	Wheat	Groundnuts	Soyabeans	Cotton	Tobacco
1981	0.91	1.00	0.59	0.63	0.94	0.68	0.77
1982	1.22	0.87	0.54	0.59	0.67	0.87	0.67
1983	1.04	0.89	0.46	0.43	0.66	0.64	0.66
1984	0.29	1.11	0.54	0.46	0.70	0.47	0.70
1985	0.90	0.82	0.54	0.81	0.66	0.55	0.66
1986	1.38	2.32	0.41	0.45	0.62	0.76	0.62
1987	0.90	2.91	0.51	0.61	0.33	0.63	0.59
1988	0.45	2.36	0.52	0.67	0.37	0.53	0.61
1989	0.46	2.38	0.52	0.62	0.35	0.53	0.56

c) Nominal Rate of Protection - at realistic exchange rate							
1981	-9.4%	-0.2%	-40.9%	-37.1%	-6.4%	-31.7%	-23.2%
1982	22.4%	-13.5%	-46.1%	-41.4%	-33.5%	-12.8%	-33.5%
1983	4.3%	-10.8%	-54.1%	-57.4%	-34.4%	-35.7%	-34.4%
1984	-71.4%	10.8%	-46.4%	-54.0%	-30.3%	-53.3%	-30.3%
1985	-9.9%	-17.8%	-45.7%	-18.5%	-33.7%	-45.0%	-33.7%
1986	37.9%	132.5%	-59.2%	-55.5%	-38.2%	-24.0%	-38.2%
1987	-10.1%	191.4%	-49.2%	-38.5%	-67.5%	-36.8%	-40.9%
1988	-54.6%	135.6%	-47.9%	-32.5%	-63.2%	-46.6%	-38.6%
1989	-54.4%	138.5%	-47.7%	-38.1%	-65.1%	-46.6%	-43.8%

Source: Jansen (Pers. Comm, 1990)

Note : Nominal Rate of Projection NPC-1. (NPC = domestic price/world price equivalent).

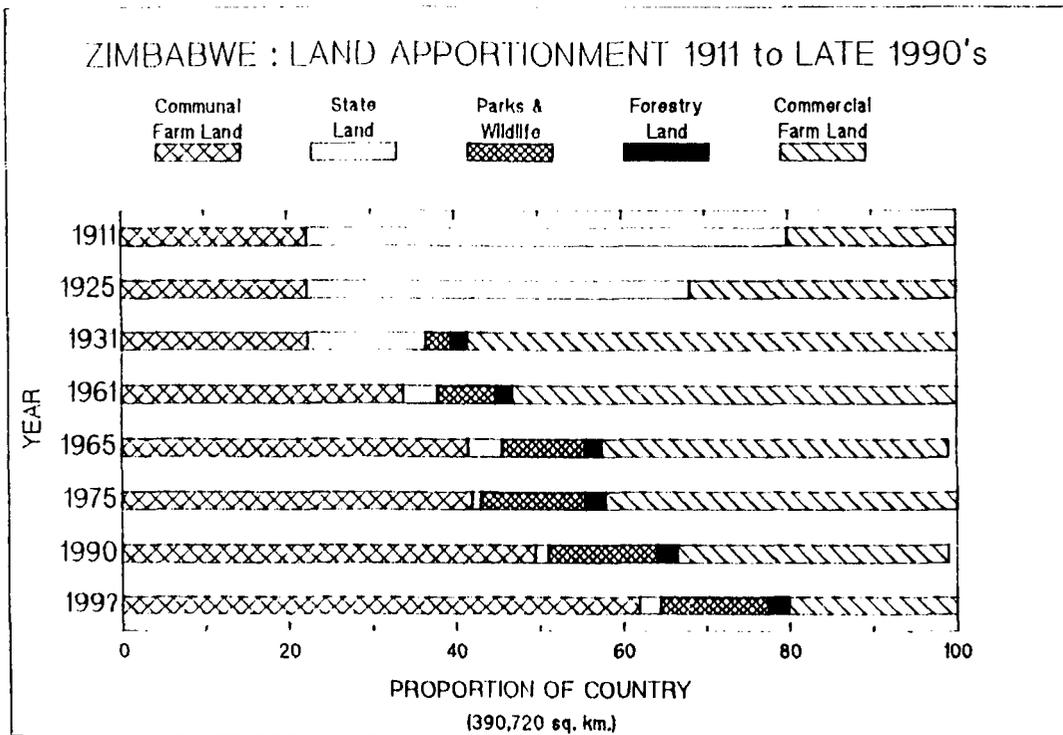


Fig. 1. Summary of changes, and likely changes in statutory land apportionment in Zimbabwe: 1911 to late 1990's. Resettlement Land is included within the Communal Land and Small Commercial farm land with Commercial Farm Land. (Adapted from Kay, 1970 and Cumming 1990).

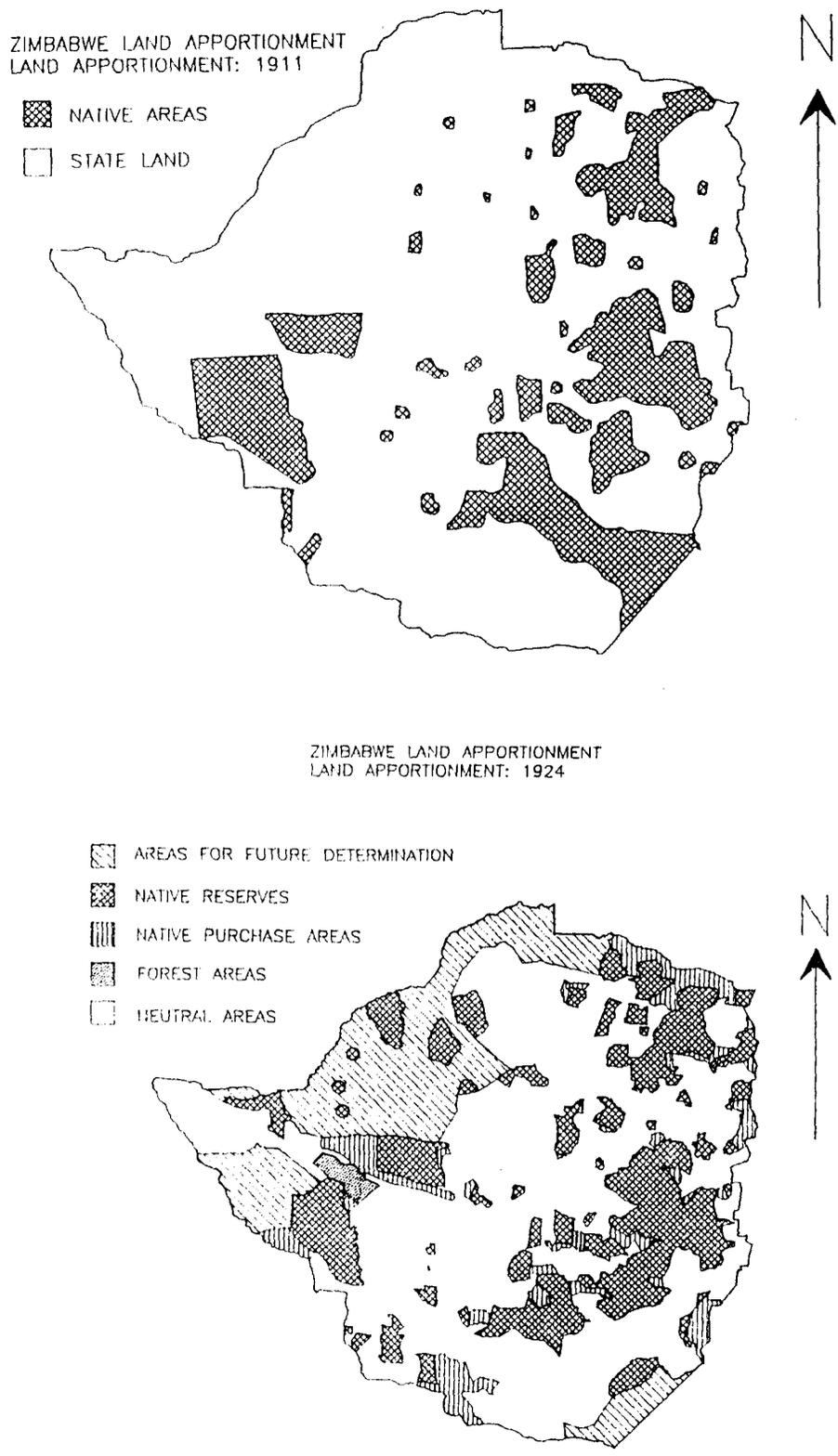


Fig. 2. Maps showing the changing pattern of land apportionment in Zimbabwe: 1911-1924

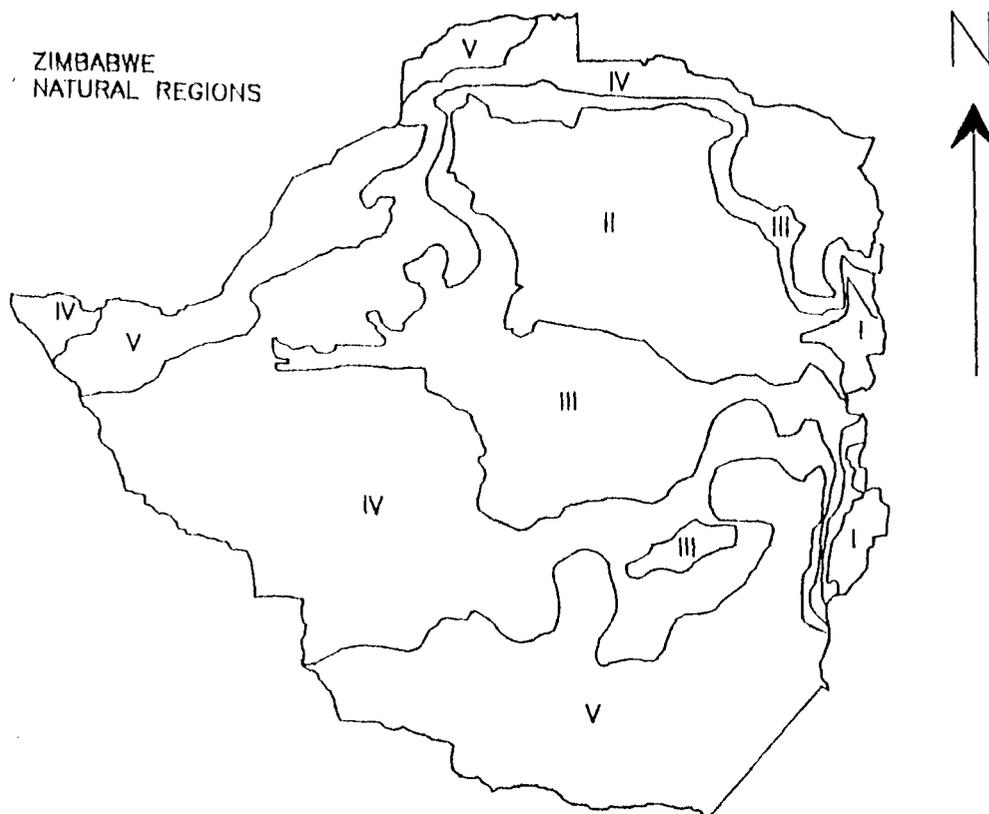


Fig. 3. Natural agro-ecological regions of Zimbabwe (see text for definitions).

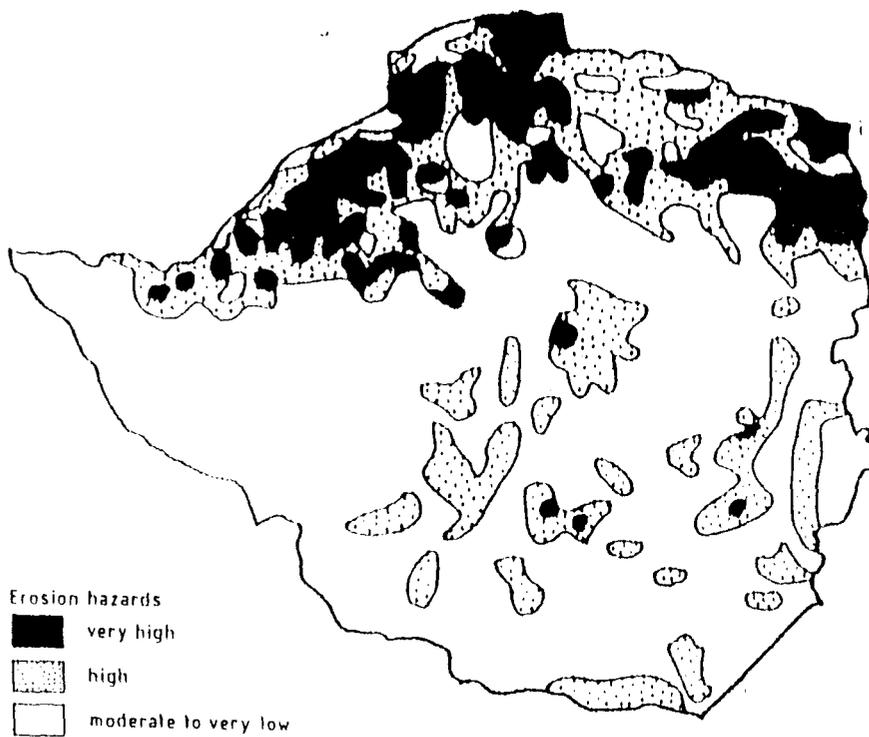


Fig. 4. Distribution of erosion hazard in Zimbabwe (From Stocking and Elwell, 1973)

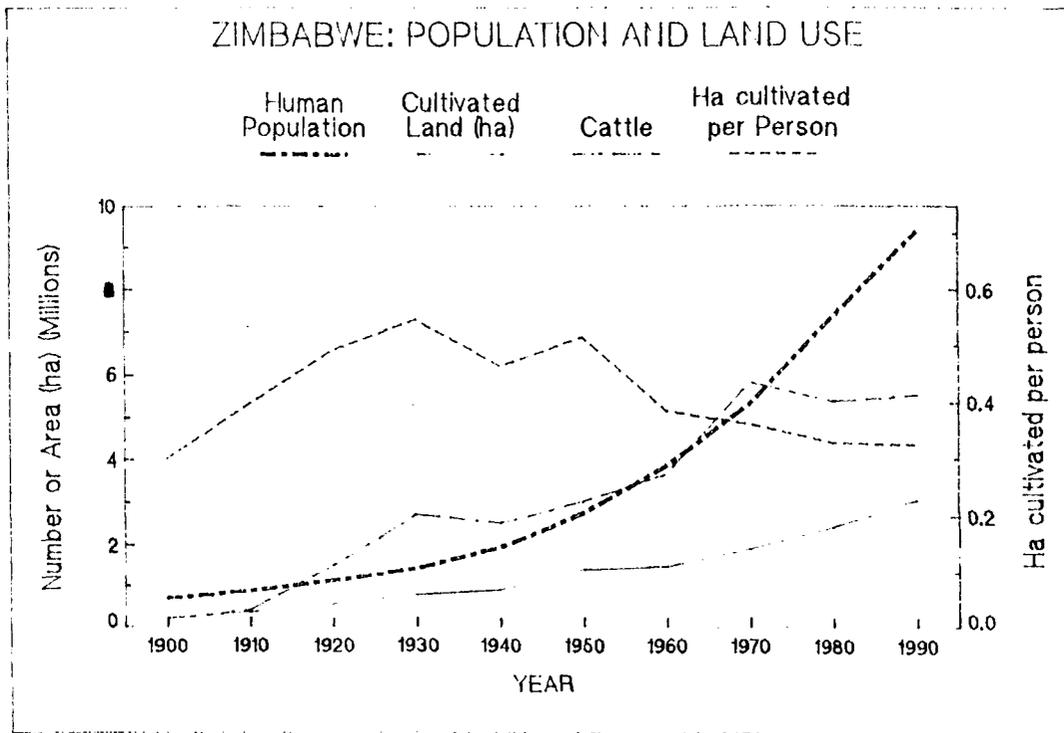


Fig. 7. Human population growth and accompanying growth in livestock and cultivated land in Zimbabwe since 1900. The per capital area (hectares per person) under cultivation is also shown.

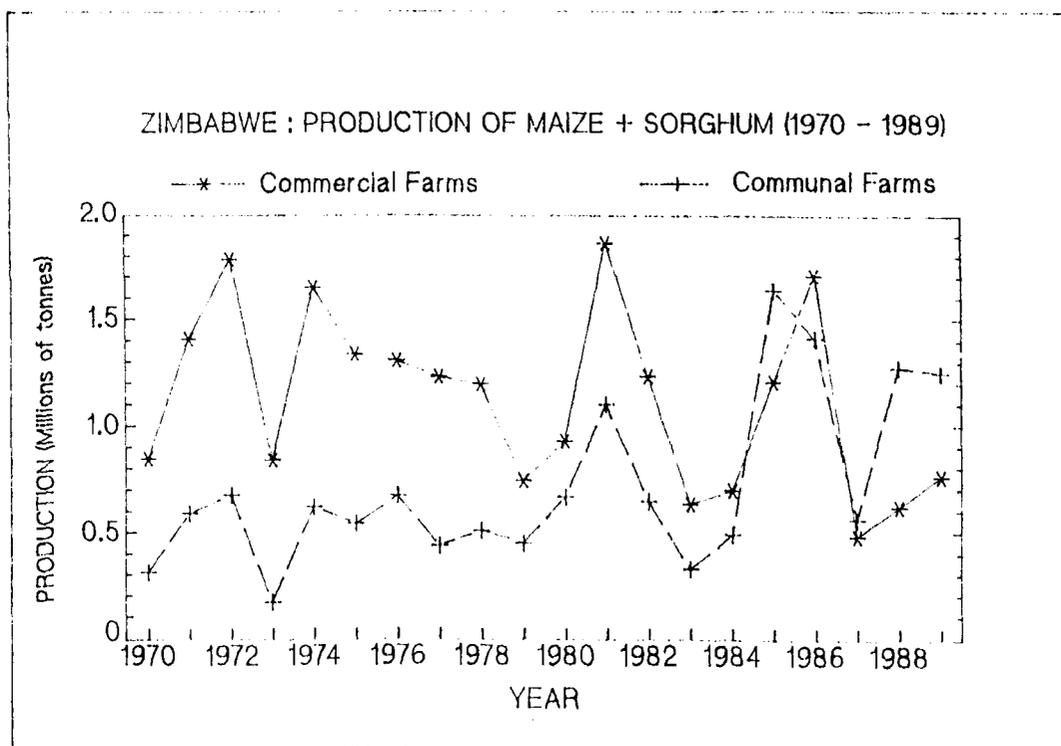


Fig. 8. Production of maize and sorghum (tonnes per annum) from commercial and communal farming areas in Zimbabwe between 1970 and 1989.

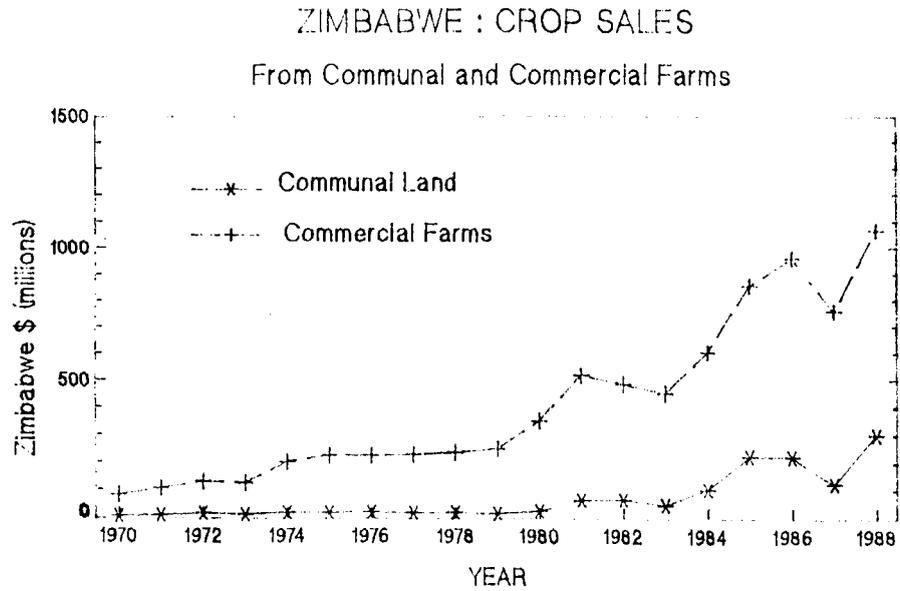


Fig. 9. Commercial sales of crops from the Commercial and Communal farming sectors of Zimbabwe between 1970 and 1989.

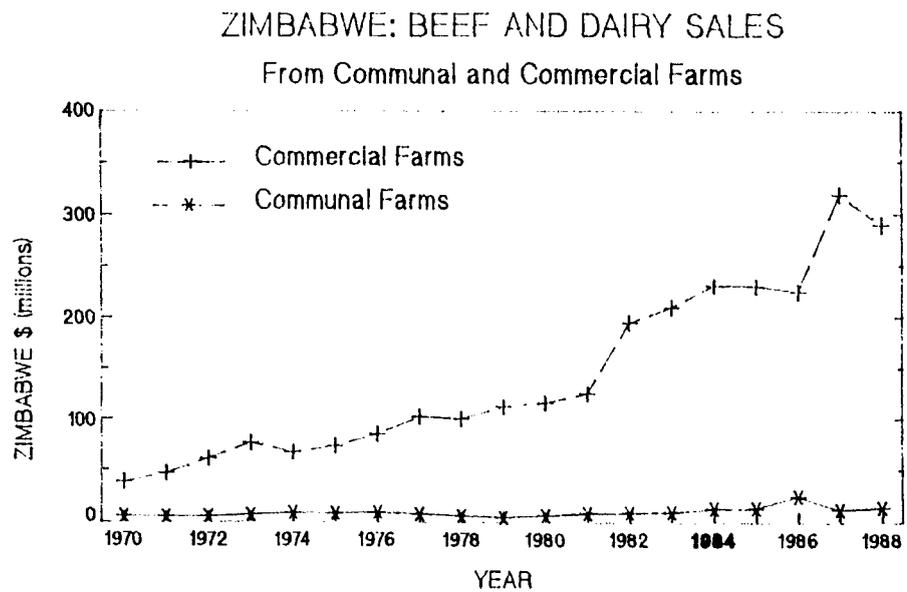


Fig.10. Sales of livestock and dairy products form the Commercial and Communal farming sectors of Zimbabwe between 1970 and 1989.



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