FOOD PRODUCTION STRATEGIES AND THE SUSTENANCE OF RURAL LIVELIHOOD AT UMZUMBE

By

Mduduzi. M. Ngidi

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SUPERVISOR: PROF. E.M. MAKHANYA

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DECLARATION OF ORIGINALITY

I, Mduduzi Moses Ngidi, declare that the dissertation : "Food production and the sustenance of rural livelihood at Umzumbe" is the result of my original research conducted under the supervision of Prof. Makhanya during the period 1995 - 1996.

Signed _____ at DURBAN

this 27th day of JANUARY 1997.

DEDICATION

Dedicated to my family for the moral support they gave me.

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IQOQO

Izinga lempilo yasemaphandleni aseMzumbe lincike ezintweni eziningi. Lezizinto zihlanganisa ubunini bezindawo, ukwesweleka kwemali nabasebenzi, kanye nezinkinga zomphakathi ezifana nokwanda ngokushesha kwabantu kanye nokucabanga kwabo maqondana nokukhiqizwa kokudla.

Inhloso yalofundophenyo (research) kwakuwukuhlola izinkinga eziphathelene nohlelo lokukhiqizwa kokudla ngabalimi abancane eMzumbe, kanye nokubheka ubungako bezinga lokukhiqiza ukudla okungasimamisa impilo.

Ngenxa yokungasebenzi kwabantu abaningi kutholakala ukuthi abantu ababambe iqhaza emnothweni walendawo bangamaphesenti angu 12,2 kuphela. Kulinganiselwa ukuthi umuntu ngamunye uthola imali ethi ayibengu R551.00 ngonyaka. Lemali incane kakhulu ekuthuthukiseni izinga lempilo.

Izindlela zokulima ezingezinhle zenza kubenzima ukukhiqiza ukudla okungathengiswa. Amasu okwabiwa kwezindawo adala ukuba amasimu abe mancane futhi abalimi bangakwazi ukusebenzisa izindawo zabo njengesibambiso sokuboleka imali emabhange. Kufumaniseka ukuthi nemfuyo incane kakhulu ukuthi ingadayiswa ezimakethe, kanti abalimi baswele imali yokunika abasebenzi amaholo anelisayo. Ukuba phansi kwezinga lemfundo kuhlangane nazozonke lezinkinga ezibalwe ngenhla kwenza izinga lempilo libe phansi eMzumbe.

CHAPTER ONE

CONCEPTUAL FRAMEWORK OF THE STUDY

1.1 INTRODUCTION

Since prehistoric times human life has been a long struggle for survival. Man has tried all sorts of strategies aimed at improving food production and the sustenance of a livelihood. The ancient methods of sustaining a livelihood included food gathering and hunting.

Food production involved, among other activities, the domestication of plants and animals. Domestication implies that the plants or animals have been manipulated to such an extent that generic changes have occurred resulting in new species or races (Bender, 1982, p. 1). While the manipulation can take many forms, there is evidence of agriculture, horticulture, mixed farming and herding. There were hunters that had so close a relationship with their quarry that it constituted a form of loose herding. Some culled (selectively killed) the herd thus operating a primitive form of active breeding. Some gatherers may have undertaken a little clearing or even planting. Bender (1982, p.2) observed, for instance, that the Siriona of Bolivia cleared and planted small plots of maize and manioc in a number of places. They then set off on their annual round of hunting and gathering and returned when the crops have ripened. Panite in the Owens valley improved the mild plant yields by periodic ditching and damming of streams. The Auen Bushmen burnt the vegetation in order to increase the yield of tubers (Bender, 1982, p.2).

The above discussion indicates the strategies employed by primitive peoples to sustain a livelihood. This chapter aims at looking at the recent ways that different societies have used to produce food for a livelihood.

1.2 SOME THEORETICAL CONSIDERATIONS ON FOOD PRODUCTION

Nattrass (1981) states that the agricultural sector in any economy plays an initial role in the economic development process. In the early days of development the agricultural sector dominates the economic scene, being both the major producer and employer in the economy. Makhanya (1979) maintains that Lesotho's production was almost entirely confined to an agricultural economy. These assertions emphasise the importance agriculture as a food production process, as well as its importance to the economy of different countries.

In South Africa, especially in KwaZulu/Natal, agricultural activities have been going on even before the arrival of white settlers. Literature indicates that before the advent of the European settlers the indigenous people consisted of groups of Nguni and Bushman (Makhanya, 1990). The Nguni group were mainly pastoralist-cultivators while the Bushmen were hunter-gatherers. In their mode of production the Nguni utilized family members for labour. Since money was unknown the produce was consumed either entirely by the family group or shared with neighbours.

Since land was owned communally, activities such as the grazing of cattle were carried out communally. People practised some forms of Nomadism or transhumance which were associated with an abundance of grazing land. The Nguni cultivated maize and millet and

they augmented their regular food supplies by hunting wild game.

In many developing countries agriculture appears to be practised by a greater part of a country's production and is a means of subsistence. Peasant farmers cultivating rarely more than three hectares of land dominate the production of industrial crops especially in West Africa and Uganda (Udo, 1982). During the colonial period in Sierra Leone, Ghana, Nigeria and Uganda local farmers were encouraged, by the British, to cultivate improved seedlings and to adopt better methods of processing their crops for export. From 1907 to 1925 the firm of Lever Brothers made several unsuccessful attempts to obtain concessions for cultivating oil palms in Southern Nigeria and were subsequently obliged to approach the then Belgian Congo administration which grated them rights to establish the large oil palm estates in Zaire. In Kenya and Zimbabwe, where the climate favoured European settlements, the British alienated large areas of African land for European settler-farmers. According to Udo (1982) large tree-crop plantations were established by private foreign firms in the Ivory Coast, Liberia, Angola and Congo Republic.

When European settlers first entered Natal they introduced the idea of trade among the nguni people. This led to the spread of market and monetization. The Nguni responded well to the new demands placed on their agricultural production (Makhanya, 1990). Bundy (1979) observed that large quantities of maize grown by Africans were exported to Cape Town, and that African peasants also sold wool on the Natal market. He quotes a letter dated November 1848, from an American Missionary named Grout, which specifies the variety of crops raised by peasants upon the garden plots attached to his mission.

By the 1850's and 1860's the peasants were pursuing profits through the sale of cash crops. The Nguni people became so prosperous in raising crops that by 1871 there was an elite group of Nguni sugar cane producers at Groutville, an American Board Mission Station named after Grout who encouraged the Nguni to raise the crop (Bundy, 1979). Other Nguni sugar cane growers are reported to have been at Amanzimtoti, eMfume, and at Verulam (Makhanya, 1990). It is important to note that sugar cane growing at Amanzimtoti was heralded by a Nguni named Nembula, who instituted a mill nearby (Bundy, 1979). According to Makhanya (1990) the Nguni were prosperous not only in actual raising and marketing of crops and livestock, but they were also catching up with the broader principles of the capitalist mode production. Their attitude towards land ownership was already undergoing a transformation in that by 1882 they are reported to have been purchasing land for agriculture.

The 1913 and 1936 Land Acts, which dealt with land allocation and land tenure had a dramatic impact on the agricultural activity in South Africa. There are three notable characteristics of the land allocation in South Africa; the first is the disparity in the allocation of land between Black and White South Africans. The second is the relatively low proportion of agricultural land that is under crops (less than 12 percent of the total) and the third is that it is not only the distribution of land between Blacks and Whites that is uneven, but there is also a very uneven distribution, in terms of average farm size, in the areas controlled exclusively by Whites (Nattrass, 1981).

According to Nattrass (1981) the two sections of South African agriculture are so different from one another that when one moves from a White-owned modern capital intensive farming

sector to a Black subsistence oriented and tribally organized farming area, it is almost like stepping through a time warp. Makhanya (1990) noted this difference when he asserted that the Black agricultural sector in South Africa was economically crippled and technologically backward; and that the economy of parts of KwaZulu was regarded as based solely upon subsistence farming. Table 1.1 reflects some data showing the difference between the two South Africa's agricultural sectors.

Table 1.1 A Comparison of South Africa's Two Agricultures

	Black Sector	White Sector
Total Land Area (Hectares)	15 076	87 795
Percentage Cultivated	14	14
Employment 1970	1 103	1 126
Land per Worker (Hectares)	13,7	78
Output per (Man/km)^2	R65	R1 298
Output per Ha Cultivated	R34	R119

Source: Nattrass, 1981.

1. The 1970 Census classified all Black women living in the subsistence sector, whose husbands were home working in agriculture, as economically inactive whether they were or not. This has led to an underestimation of the size of the work force in the subsistence sector, and a consequent overstatement of the average quantity of land per worker.

2. Subsistence based on Lenta's estimate KwaZulu in 1971 (Nattrass 1981).

The vast difference in productivity levels between the sectors is evident in terms of both

output per worker and output hectare cultivated. According to Nattrass 1981, the major portion of Black farming activity takes place in the rural areas. There is also some agricultural production by Blacks living on White farms, who have been given the right to cultivate certain portions of the farm as part of the reward for their labour. There is a small number of Blacks who are independent farmers in their own right in White controlled areas.

From a purely climatic viewpoint Black agricultural areas are very favourably situated. The Tomlinson Commission estimated that if the economic conditions in the Black rural areas were the same as those in White, the Black farming regions could produce more than 23 percent of the country's total farm output (Nattrass 1981, p. 111). Of the total agricultural production in the Black farm regions only about 10 per cent is offered for sale, the remainder is used for subsistence purposes by the farming families themselves.

Black farmers have not always lagged behind their White counterparts. In the 19th century Black areas in South Africa were marketing increasing quantities of produce in response to the high prices offered on the market in the growing industrial areas. The acreage cultivated by Natal White farmers in 1871 was 38 000 acres whereas Africans in the same year cultivated 137,000 acres. In contrast in 1945 Natal's Black farmer in the rural reserve areas produced only 25 per cent of the regions total output and by 1975 this percentage had declined still further to 17 per cent of the total (Nattrass, 1981).

The major foodstuffs in the Black agricultural sector are maize, sorghum (millet), vegetables and wheat. Table 1.2 contains output data for maize, sorghum and wheat for selected years over the period 1918-1975.

Table 1.2 Production of selected field crops in the African Rural Areas, 1918-1975 (tons)

Year	Maize	Sorghum	Wheat
1918	261 339	119 464	9 463
1925	299 643	78 214	2 857
1935	193 214	54 018	3 393
1945	181 161	52 143	3 661
1955	259 553	62 410	5 000
1965	189 784	29 670	8 317
1975	326 784	46 670	9 543

Source: Nattrass 1981

The data indicates that there has been virtually no change in the total volume of cereal crops production throughout the period covered in the table. The table also indicates that the increasing substitution of maize for sorghum resulted in a change in the crop mix. The figures reflected that, in general, productivity levels in Black agriculture were low. This factor accompanied by the fact that a major contribution of the Black agricultural sector to South African economic development was more as a labour supplier than as a food producer.

It was evident that this sector had problems, and that something had to be done to improve to improve agricultural productivity.

According to Meakins (1981), the starvation which became a reality in 1980, in the East and Central Africa, and Indo-China was an indication of the failure of the world to produce enough food for its people. He attributes this discrepancy to three major factors viz, the massive worldwide population expansion, unequal distribution of available foods and inefficient utilization of the limited land available. The population expansion is noted also by Nattrass (1981, p. 113) in her assertion that, "not only did the total output of the Black agricultural sector fail to expand to any great extent, but the same period of time saw a rapid rise in the rate of population growth in the Black rural areas." In 1962 the Food and Agricultural Organisation of the United Nations estimated, that the population of the "Third World" was 1 5000 millions, excluding that of the Peoples Republic of China with another 800 million. By 1985 this was estimated to have increased to 2 500 millions. This population increase necessitated an 80 percent increase in the food supplies to maintain the food availability (Meakins, 1981, p. 81).

Of the extra animal protein required by 1985 only one quarter could be produced by domestic livestock. For the levels of cereals needed in Asia, the Near East and most of Africa importation of an additional 90 million tonnes could be theoretically required. In order to meet this requirement another one million km^2 of land must produce cereal crops such as maize, sorghum, wheat millet and rice.

According to Meakins (1981), such extra food requirements could be met by increasing the

production of cereal grown by 3.6 percent per annum. This would involve an improvement of one percent over the rate between 1995-1965, and is generally unlikely because the rate between 1960-1965 in the "Third World" fell below 2,6 percent in all regions except South America.

The introduction of new varieties of cereals which are independent of weather, could mean greater yields per hectare and in many cases more than one crop per year.

Protein shortages could be avoided by greater diversification of protein sources. An increase in pig farming and poultry rearing inland fish farming and the planting of beans, peas and lentils would help. No single animal or plant could possibly meet our needs nor have the chemical industries much hope. We can convert oil into protein, but the farmer is now regarded as being more scarce than the latter, making any such conversion insensible.

There are many fundamental generalisations made about the supply of food which are based on false concepts. Most calculations concerning the World Food Shortages assumes that the major grain producers like USA, Canada and Australia, will always supply their excess production to the Third World on demand (Meakins 1981). This notion is obviously very erroneous because there is no country that is willing to give its resources to the first one who asks. Furthermore the strict control, by the United States of America (USA) and other producers, of the flow of foodstuffs out of their countries made it difficult for the needy nations to get their requirements.

The worldwide food shortages seem in the 1980 and expected in the 1990's have made it

imperative that each and every country improved its agricultural technology to try to meet its own requirements. The relevant agricultural technology is the one to increase the yields from grain by 50 percent or more (Griffin, 1974). The agricultural industry needs a kind of technology that will not only produce higher yields per crops, but also permit shorter cropping cycles and thereby enable farmers to economize on resources like water and land.

1.2.1 Food Production programmes in rural areas of developing countries

In the early 1950's when concern with development economics first began agricultural activities featured strongly. Development was concerned with the improvement of the living standards of the low-income population living in rural areas on a self-sustaining basis (Mabogunje, 1980 p: 94). It is also a fact that agricultural development forms the cornerstone of such rural development.

One of the major food production programmes ever launched was the "Green Revolution", which meant breeding plants that would bear more edible grain and thus increase yields without increasing areas of crop cultivation (George, 1977; Griffin, 1974). Traditional rice grains tend to be tall on the stalk for reasons on natural selection. That way they can get more sunlight, grow higher than the surrounding weeds, and resist flooding when heavy rain come. If one tried to produce double kernels on these long stalks, the plants would be too heavy, keel over and lodge in the soil. The problem was to produce plants with short, tough stalks that could bear new fertilizer sensitive hybrids. The new dwarf varieties capable of producing spectacular yields under ideal conditions, that were eventually bred, go under the name of high-yielding varieties, or HYVs (George, 1974), The high yielding varieties are

largely for wheat and rice, but improved varieties of other crops have also been developed, notably maize, sorghum and millet (Griffin, 1974). While these plants can be adapted to a number of environments, they present problems of disease resistance. Furthermore, they will not bear full fruit unless sufficient doses of fertilizer are applied and unless optimum is supplied.

According to George (1977), full benefit would be obtained from the 'miracle' seeds if they get plenty of water, fertilizer and chemicals for protection against weeds, pests and diseases. If one of these elements is lacking, HYVs can sometimes produce less grain than what could have been obtained with traditional varieties. In trying to provide these requirements for the production of rice, the wet paddy ecosystem was used in South Asia. This involved transforming a dry-land ecosystem into an aquatic one. Bayliss-Smith (1982) maintains that the agricultural system itself supplies nutrients, for instance, through the silt which is transported by the irrigation water. In addition to this waterlogging leads to three kinds of change in the soil that is physical, biological and chemical (Bayliss-Smith, 1982). All these changes prepare the ecosystem and make it possible for rice seeds to produce more grain.

The "Green Revolution" actually started in Mexico, in 1943, when four American genecists financed by the Rockefeller Foundation founded the CIWMYT (International Wheat and Maize Improvement Center). As soon as the new seeds were introduced on large farms yields began to increase. Between 1944 and 1967, wheat output tripled and corn doubled. Mexico began to export commercial grain surpluses. The success in Mexico led to the Rockefeller Foundation teaming up with Ford to repeat the performance in Asia - this time with rice. They founded the International Rice Research Institute (IRRI) in the Philippines

in 1962. The research proved to be so successful that the HYVs were seen to be able to produce not only more grain per unit area, but they could do it with a shorter growing cycle, allowing double or even triple cropping on the same land in a single year. The period 1965/66 to 1972/73 saw the wheat planted areas in developing countries increase from 10 000 hectares to over 17 million hectares; rice surface, beginning at 49 000 hectares in 1965 reached nearly 16 million in 1973 (George, 1977).

The technology of the "Green Revolution" was essentially very modern and strange to rural communities when one considers the traditional modes of production. The idea of ensuring a sustained yield from the land over relatively long period of time is the most critical aspect of man's technological capability with regard to agricultural production. Mabogunje (1980) pointed out that for many societies it is generally recognised that yields can be maintained by the application of domestic refuse or animal droppings on the land :

> "Since these materials are never enough for the total cultivated area, the tendency in most rural areas, in Africa, it to divide the farm land into two categories; one near the homestead, usually small but manured intensively and cultivated permanently, the other and larger area farther away from the homestead and alternating a period of cultivation with a period of fallow during which the land is allowed to recuperate naturally. While all known agricultural communities recognize these two categories of land use, with regard to development, it is the use of the larger field that has been critical" (Mabogunje, 1980, p. 78).

While agricultural development *per se* cannot be equated to economic development, many

developing countries have launched programmes aimed at improving agricultural production as a strategy to boost rural economic development. The Chinese experience sets a good example of such a model of rural development.

1.2.2 The socialist models of rural development

In the early 1950's, China's economic policy was largely based on the Soviet model of emphasising heavy industry and urbanisation financed by a surplus squeezed from the rural sector. But the Chinese leaders soon realised that the pattern of rapid industrial growth at the cost of agriculture was hardly suitable for a country where 80 per cent of the population lived in rural areas. By 1976 China began to evolve its own approach to socialism based on agricultural and rural development (Aziz, 1987). Initial efforts focused on traditional factors such as labour, intensive water control and management of organic manures since in this phase the social transformation of agriculture was the primary objective of agriculture. In the early period between 1960 and 1975 the third phase of rapid mechanisation in agriculture and selective modernisation in industry had started.

The agricultural communities were organized into communes consisting of groups of families. Communes collectively used land for agricultural production. China succeeded in generating surplus labour in the traditional rural sector and keeping it there. The labour surplus was retained in the rural areas through the taxation system, which levied a fixed amount of tax expressed in monetary terms. As the agricultural production increased the total agricultural taxes decreased from about 12 percent in the 1950's to less that 5 percent in the 1970's. The agricultural pricing system which paid higher prices for grains contributed by communes over

and above their basic grain quota, and the co-operative marketing arrangements for agricultural products to the exclusion of middlemen also helped to retain the surplus in the rural areas geared to bringing about rural development through the improvement of agricultural production.

1.2.3 Adoption of the Chinese model in Africa

The re-organization and resettlement of farming communities, similar to the communes of China, were started in many developing African countries (e.g. Kenya, Uganda, Tanzania and Ethiopia) after independence. While the strategies employed by the various countries were different, all the programmes had certain feature in common; the most important being initiating rural development through increasing agricultural productivity.

According to Udo (1982) the main objective of the Tanzanian Government after independence was the transformation of rural life. This led to its villagization policy called "ujamaa". Ujamaa is a Swahili word which means "family-hood" (Udo, 1982, p: 125) . At independence most Tanzanians lived in scattered settlements made up of the clusters of family huts. The strategy has been to establish large nucleated villages, so as to make it economical to provide rural people with basic services such as improved water supplies, schools, health centres and electricity. Over 5 000 "ujamaa" villages with an average population of 300 each were established. The general procedure in the village was that land was cleared and cultivated collectively. Thereafter individual plots are planted, weeded and harvested by heir owners in collaboration with their neighbours (Udo, 1982). Ujamaa presents an extended family system which is characterised by sharing and communal production.

In Ethiopia the mobilisation of the rural peasantry followed along the same lines as the 'ujaama' villagisation programme, though with some exceptions. Cohen and Isakson (1987) lashed out that

> "the extensive discussions that marked the drafting of the land-tenure reforms do not appear to have taken place in formulating the villagisation campaign. Apparently the government officials and party leaders based their strategy on assumptions rooted in theories of Marx and Lennin, namely that (1) man is a social animal, and the historical trend of rural people is towards village settlements; (2) that their creation is an essential step towards the formation of non-exploitative group farms that are the basis of agrarian socialism; and (3) that revolutionary restriction of the countryside requires strong political control at the grassroots" (Cohen and Isakson, 1987, p. 436).

According to Cohen and Isakson (1987) the objectives and rationale for the villagization campaign are given in an Amharic document entitled villagization Guidelines. Prepared by the Ministry of Agriculture, and dated October 1985, the major aims of the villagisation campaign were (1) enhancing extension services aimed at increasing agricultural productivity; (2) promoting more rational land-use patterns and conserving natural resources; (3) facilitating access of rural people to schools, clinics, water supplies and service co-operatives; (4) strengthening security and self-defence; (5) using villagization to advance the revolution, and ultimately collective agriculture; and (6) giving the regime enough political control to ensure agrarian socialism and reconstruction of rural society.

According to Cohen and Isakson (1987) Phase 1 of the actual implementation of the

villagization programme took place in 285 *woredas*, 48 *awrajas*, and 8 *kifle hagers*, albeit concentrated in *Shoa*, *Arsi* and *Hararge*.

> "This phase was primarily concerned with agricultural mobilisation since these three Regions contain 33 percent of Ethiopian farming population, produce 40 percent of the national cereals crop, and provide 55 per cent of the Agricultural Marketing Corporations grain purchase" (Cohen and Isakson, 1987, p. 437).

The programmes discussed above and many others were established and implemented in various developing countries throughout the world, with an aim of improving agricultural production. It is important to note that the implementation of these programmes was not easy. There were always problems though these were different and some unique to certain situations.

1.2.4 Obstacles to Agricultural Development

Throughout the developing world there are diverse environmental limitations that hinder man's attempt to exploit land resources. In some instances the obstacles may be overcome by the application of modern technology, but even with effective organisation and finance, success finally depends on the quality of the human resources involved. While problems that are involved in agricultural development are varied they all stem from or are associated with the combined effects of ecological factors, land tenure systems, capital, labour, management, attitudes and political idealogies.

1.2.4.1 Insect Pests and Diseases

The more common ecological factors that have a direct influence on agricultural productivity include climate, soil and relief. Closely related to these factors, and working against increased food production, is the annual loss of crops due to fungi, bacteria, viruses, parasites, insects and vermin. Many societies encourage the production of a staple food crop. In Asia this is mainly rice, and in Africa maize and to a lesser extent sorghum or millet (Meakins, 1981). Agricultural production is often directed to the growing of these crops over large areas. In this way the concept of monoculture has come to be understood. While the concept may seem sensible in that the land is fully utilized for the growing of the desired crop and can be more easily mechanized and sprayed, historical evidence reveals that monoculture can be a very dangerous practice.

Monoculture provides the best conditions for the spread of soil and wind borne pathogens specific to that crop. Secondly, it removes valuable nutrients from the soil which could be replenished by the equally old system of crop rotation, or by growing mixed crops in smaller fields. The problem of pathogens reduces the worlds' agricultural output by at least 20 percent, whilst the second destroys the bio-activity of the land leading to soil erosion and crop failure (Meakins, 1981).

The world has experienced massive food failures due to wind and soil carried pathogens. The potato famine in Ireland and Europe in 1945 was caused by a little fungus *Phrytopthera infesticants,* the potato blight (Haggett, 1979; Meakins, 1951). A complete failure of the potato crop was the result of both the failure to rotate crops (monoculture) and an exceptionally warm but dry summer. In Sri Lanka (Ceylon) the introduction of coffee plant

was initially so successful that in 1870 above 50 000 tonnes of coffee was exported. The coffee rust fungus *Hemeiolia vastrix,* probably established around 1875 and 1886 had destroyed about 2000 tonnes by 1889. In one plantations of *Coffee arabica* in the Ujamaa village of Utrin, Tanzania, over half the crop was diseased. Wheat is highly susceptible to wheat rust fungi. Some examples of the disease of maize include, amongst others, the American boll worm which damage the cob, aphids which suck the sap and transmits maize streak virus; Blanch maize beetle which eats holes in the plant below the soil level and chafes beetle which causes leaf damage. Pink stalk borer larvae burrow into the stem and the cob, stalk borer larvae bore into the growing tip and stem.

Diseases and insect pests have caused considerable damage to food production programmes of many countries. Meakins (1981) reports a locust outbreak that occurred in Niger in West Africa in July 1928 which, by September of that year, was in Mali. By 1930 it had spread throughout the countries between Liberia and the Cameroons. In 1931 it ranged from the Sudan/Ethiopian border to Zaire and Zambia. By 1932 its range included South Africa, while in 1980 they were reported in from Central and Southern Africa.

1.2.4.2 Land tenure systems

Many of the problems of rural development and more particularly, of agricultural development are blamed on the communal system of land tenure (Kotze, 1987). There are two schools of thought concerning the solutions to these problems. One suggests the reform of land tenure and ownership systems while the other suggests that reforms will not solve anything. The issue of land ownership is embedded in the social, political, economic and

religions ethos of the rural communities.

The two forms of land ownership discernible in rural areas, particularly in South Africa, are the communal land tenure system and the quitrent system (Kotze, 1987). The communal land tenure is based on the traditional system , by which all land belong to the tribe. The King or Chief (acting on behalf of the King) exercised control over it and acted as a trustee on behalf of the tribe. He controlled the way land was used, and settled lawsuits arising from land disputes. Members of the tribe had a right of cultivation whereby the head of the family was entitled to sufficient agricultural land. Members also had a site for grazing, drawing of water, cutting of grass and gathering of wood (Kotze, 1987).

Nattrass (1981) maintains that in rural areas farming is organized on tribal lines with no security of individual tenure. The local chief has power to allocate land and a married man seeking to set up a home in the chiefs' area applies to him for the right to settle and for a grant of land. The agricultural land is traditionally allocated on a strip basis the number of strips being largely determined by the availability of land (Nattrass, 1981 p: 112).

In Lesotho land use is allocated along the same lines as in South African rural areas. Makhanya (1979) states that land in Lesotho was traditionally granted to individuals solely for subsistence of the family group and it included a residential site with or without a garden, depending on local conditions, and three parcels of land for cultivation. There was no standard acreage laid down with regard to the size of these parcels and the right to land that a rural landholder enjoyed was only usufructuary (Makhanya, 1979, p. 30).

This system of land tenure has certain limitations placed on the individual's right to agricultural land. The individual did not have full rights over the land he uses because if a person failed to cultivate the land allocated to him it was reverted to the chief who could then re-allocate it to another person. The fact that the right to land is only limited to usufruct, means that the farmers cannot use the land for security purposes if they needed bank loans.

The communal system of land tenure involves practices such as communal and stubble grazing which encourage resentment to fencing and inhibit freedom of choice of the individual farmer (Makhanya, 1990).

> "The foundations of the land tenure in Lesotho was equity and subsistence... This meant that the size of land a villager held was determined more by what was regarded as his needs for subsistence, and not by his ability to use it, or by his dedication to farming (Makhanya 1990, p. 30).

This principle of equity and subsistence militated against the rise of the true farming class. This principle of equity also resulted in the plots or strips of land allocated to farmers being too small that "it would be very difficult for a villager aspiring to engage in commercial farming to acquire a viable land unit" (Makhanya, 1979 p. 30). This results in some of the most enthusiastic farmers being discouraged from farming.

Attitudes related to gender have a limiting factor. In rural areas the role of women is limited to the household chores. While women may be willing to study agriculture, they are constrained by the fact that farming as a profession is considered men's job. According to

the traditional land tenure system, arable and residential plots are allocated to male heads of household once they get married. "Women therefore only have limited *de jure* access to land" (Murphy, 1991, p. 12). Attitudes of this nature have negative effects on agricultural production.

1.2.4.3 Lack of Capital

The shortage of capital in developing countries is one of the most serious problems to agricultural development since agriculture is a risky enterprise that requires good financial backing (Makhanya, 1990). Farmers in many peasant societies have very low savings. There is argument that in some cases it is even zero. This situation of low savings is even aggravated by the fact that:-

> "Farms in most of the underdeveloped world are small and .... unless a farmer is growing a high-value crop .... production is to provide his family with food.... Only the surplus will be sold" (Grigg, 1978, p. 74).

Since the families in developing countries are large most of the produce is consumed and only a small portion can be marketed. Cash income fluctuates from year to year. Consequently farmers are highly exposed to risks such as droughts, floods, insect pest and epidemic diseases (Grigg, 1978; Makhanya, 1990).

According to Mabogunje (1980) the problem of capital among the Chinese peasants farmers was compounded by heavy rents, absentee landlords, use of primitive tools, lack of credit,

indebtedness to moneylenders as well as oppressive taxation by warlords (Mabogunje, 1980).

It is clear that the state must play a large role in investment in agriculture in developing countries. It is unfortunate that many underdeveloped countries have allocated a small proportion of public funds to agriculture. In Nigeria, for instance, "Federal investment in agriculture and non-mineral resources between 1949 and 1962 ranged between 3,6 and 5,6 percent annually; though it had been increased to 13,6 percent in the 1970's" (Grigg 1970, p. 100). In ceylon investment in agriculture has fallen from 42 percent of public funds in 1947-52 to 25 percent in 1961/64 (*ibid.* p 100). In South Africa, between the years 1910 and 1936 the state spent R224 million on White agriculture as opposed to just over R1,25 million on Black agriculture, a ratio of 187:1 (Makhanya 1990).

1.2.4.4 Infrastructure

Infrastructure can be regarded as part of the capital stock of a country. It is also described as the social overhead capital (Sundrum, 1983, 98). In practice it refers to such services as transport and communications, power, water supply, irrigation and storm water drainage systems.

Since infrastructure plays an important role in the development of an area it is imperative that its provision should be the responsibility of the state. Sundrum (1983, p. 99) identified three characteristics of infrastructure that qualify it to be the function of the state. They are:-

1. Infrastructure belongs to the category of public goods, that is, goods

whereby the consumption by one person will not reduce the consumption by others. If the allocation of resources between private goods and public goods were to be determined by a market in the same way as the allocation among private goods, the output of public goods will be less than optimal.

2. Infrastructure consists of large and costly installations. One consequence is that such installations may be beyond the capacity of individuals or small groups to establish.

3. Infrastructure serves as a means of promoting innovation. Infrastructure makes it possible for producers to gain access to modern technology.

The solutions to these problems vary from country to country. In some instances the problems are of a local scale, while in some instances they necessitate government intervention.

1.3 PREVIOUS WORK DONE THAT WAS RELATED TO FOOD PRODUCTION AT UMZUMBE

Studies related to food production that have been conducted in KwaZulu/Natal has been mainly concerned with maize cultivation This includes research conducted by the Institute of Natural Resources (INR). The INR was established in 1980 with an aim of focusing on the management of natural resources. The work of the Institute can be defined as the integration of development and conservation.

Lea (1991) has outlined all the technicalities involved in maize cultivation. Starting with a description of the different parts of the maize plant, he describes the life-cycle of maize, management objectives, and characteristics of maize strains suited to different conditions. This work is actually a guide to the farmers of KwaZulu/Natal.

In another booklet (Auerbach and Lea, 1994) describe strategies to be considered by small-scale farmers when cultivating maize. These include timing the planting season, controlling weeds, pests and diseases, seed selection, and enriching the soil. Their descriptions are related to subsistence, semi-commercial and commercial production programmes.

In his work Murphy (1991) describes the gender specific constraints affecting agricultural activity of women in the Nhlangwini ward. She describes the role women in agriculture and problems associated with gender that affect agricultural production. She points out that in KwaZulu/Natal maize cultivation, as one of agricultural activities, is one of the duties assigned to women.

Besides Murphy's work on gender specific constraints, the above works were mainly concerned with the technicalities of food production. None of the authors were geographers, and none had produced their work for academic purposes. The significance of this dissertation is that it is first of all work produced for academic purposes. Within the academic disciplines, it is a geographical treatise that looks at the problem from that point of view. The uniqueness of a geographical treatise such as this one is that it examines the problem of food production from the theoretical, ecological, and socio-economic points of view, using different methods of inquiry. Besides, it is area-specific. The study area being

well known to the author who resides therein.

1.4 STATEMENT OF THE PROBLEM

Umzumbe is a district of contrasts where a prosperous farming community engaged in the production of cash crops such a sugar cane, fruits and forestry lives side by side with peasant communities that are struggling to produce for family subsistence. The ecological conditions under which agriculture is carried out are, however, similar.

The peasantry at Umzumbe are characterised by high population densities, high rate of unemployment, high dependency ratio, high illiteracy rate and general poverty. A large number of the menfolk are migrants working in the distant towns and industrial areas throughout the Republic of South Africa, living the process of food production and social reproduction largely in the hands of the womenfolk. Just how the peasant rural households cope with food production and the sustenance of a livelihood, is the question that prompted the need for this dissertation.

1.5 AIMS AND OBJECTIVES OF THE STUDY

The aim of this research was to examine the problems related to the process of food production among the peasantry at Umzumbe, and to assess the extent to which food is secured for the sustenance of peasant rural livelihoods.

1.6 HYPOTHESES

This dissertation was based on the following hypotheses :

(a) Peasant farmers at Umzumbe lack knowledge of modern methods of crop cultivation.

(b) The peasants lack capital to improve their production.

(c) The system of land tenure is to blame for low agricultural productivity among the peasants in Umzumbe.

(d) Shortage of labour (manpower and machine) results in poor agricultural production among the peasants in Umzumbe.

1.7 METHODOLOGY

This study was accomplished by the use of diverse research methods, including mapping, field work and interviews as follows :

1.7.1 Mapping

A land use map of Umzumbe was drawn from blown up aerial photographs obtained from the survey section of the Department of Land Affairs in Mowbray. Measurements of the

land use categories were made from this made by the method of squares.

The population maps were generated by the Atlas GIS system from the population census data obtained from the Human Sciences Research Council (HSRC) GIS unit. Extensive calculations were made to convert the raw data into comparable ratios and percentages.

1.7.2 Field work

A number of field trips were undertaken to observe the methods used by the farmers in ploughing and soil preparation, planting, weeding, harvesting and general management of the cultivation processes. Field surveys were also conducted to check the mapping units during the drawing of the land use map.

1.7.3 The questionnaire survey

A structured questionnaire survey was conducted personally among the villagers in Umzumbe. About 40 homesteads were selected for the interviews by stratified random sampling, such that they represented both the northern inland areas as well as the coastal areas. Informal discussions were also held with the agricultural officers, the local *Amakhosi* (Chiefs), and officials of the Sezela sugar milling company.

1.7.4 Data processing

The data collected from the questionnaire survey was processed by the Statistical Package

for Social Sciences (SPSS) programme.

1.8 LIMITATIONS

The use of blown up maps was rather problematic in that the original sectors of land use maps were too big and had to be reduced several times before the composition of the final land use map. This has resulted in some distortions which somewhat affected the accuracy of the land use statistics. Margins of error can also be expected in the process of measurements using the method of squares. The land use statistics should therefore be regarded as estimates rather than absolute figures.

1.9 CONCLUSION

Now that the conceptual framework on which this dissertation is based has been outlined, Chapter two describes the salient characteristics of the study area with a view to laying the foundation for the examination and analysis of the different factors influencing food production and the sustenance of rural livelihood among the peasants of Umzumbe.

CHAPTER TWO

DESCRIPTION OF THE SALIENT FEATURES RELATED TO FOOD PRODUCTION AND THE SUSTENANCE OF RURAL LIVELIHOOD IN UMZUMBE

2.1 INTRODUCTION

Food production processes are a function of sound agricultural activity. Nattrass (1981) maintains that the agricultural sector in any economy plays a vital role in the economic development process. In the early days of development, the agricultural sector dominates the economic scene, being both the major producer and employer in the economy.

While agriculture is the mainstay of any country's economy, it is an undisputable fact that its proliferation is dependent upon a variety of factors. Agricultural production is influenced by such factors as temperature, rainfall, land tenure system and the availability of capital. In his address of world famines Meakins (1981, p. 83) points out that "Seasonal changes, such as seen in the Sahel draught of 1975/76 and the Eastern African droughts of 1979/80, clearly drain available food reserves and cause serious health hazards. Political instability is always reflected in reduced food production."

It is in this light that this section looks at the physical and social features of the Umzumbe region which may positively or negatively affect food production processes. Physical features like the geographical position, climate and vegetation of the study area will be discussed. Human related features like agriculture, trade and revenue will also be discussed

with a view to establishing the extent to which they influence food production.

2.2 SITE AND SITUATION OF UMZUMBE

The Umzumbe region is located in the southern part of KwaZulu/Natal (Fig. 2.1). Umzumbe region is situated between 30 degrees 18' S and 30 degrees 38' S; and 30 degrees 03' E and 30 degrees 37'E. It is bordered in the east by the Indian Ocean and the Mtwalume River in the north east. In the south the Umzumbe River forms the boundary while the Umzimkhulu River forms the western border.

The study area is divided into several agriculturally active locations, each of which is under the control of Inkosi. Fig. 2.2 shows the different Wards of the Umzumbe region. The Thulini and Qoloqolo locations occupy the eastern part of the region. The three Cele locations (combined) occupy the western part while Nhlangwini is in the north. The KwaHlongwa and Madlala are in the south. The locations like Mabheleni, Qwabe and Ndelu form the central part of the region. Scattered in and among the Black locations are White farms and estates.

The eastern parts of the region are low-lying with gentle undulating slopes and hills. These include areas like Nyangwini, Qoloqolo, Qwabe, Ndelu, KwaHlongwa and parts of KwaMadlala locations. It can be noted that these areas lie in the coastal belt. The terrain of areas like KwaQwabe, Mabheleni, Ndelu, the south eastern part of Nhlangwini is very rugged. It has many hills and mountains with steep slopes. V-shaped inner valleys are very common. Mountains like Isipofu, Ntabakayikhonjwa and Umsikazi are found in this area.

FIG. 2.1 LOCATION OF UMZUMBE IN RELATION TO KWAZULU-NATAL

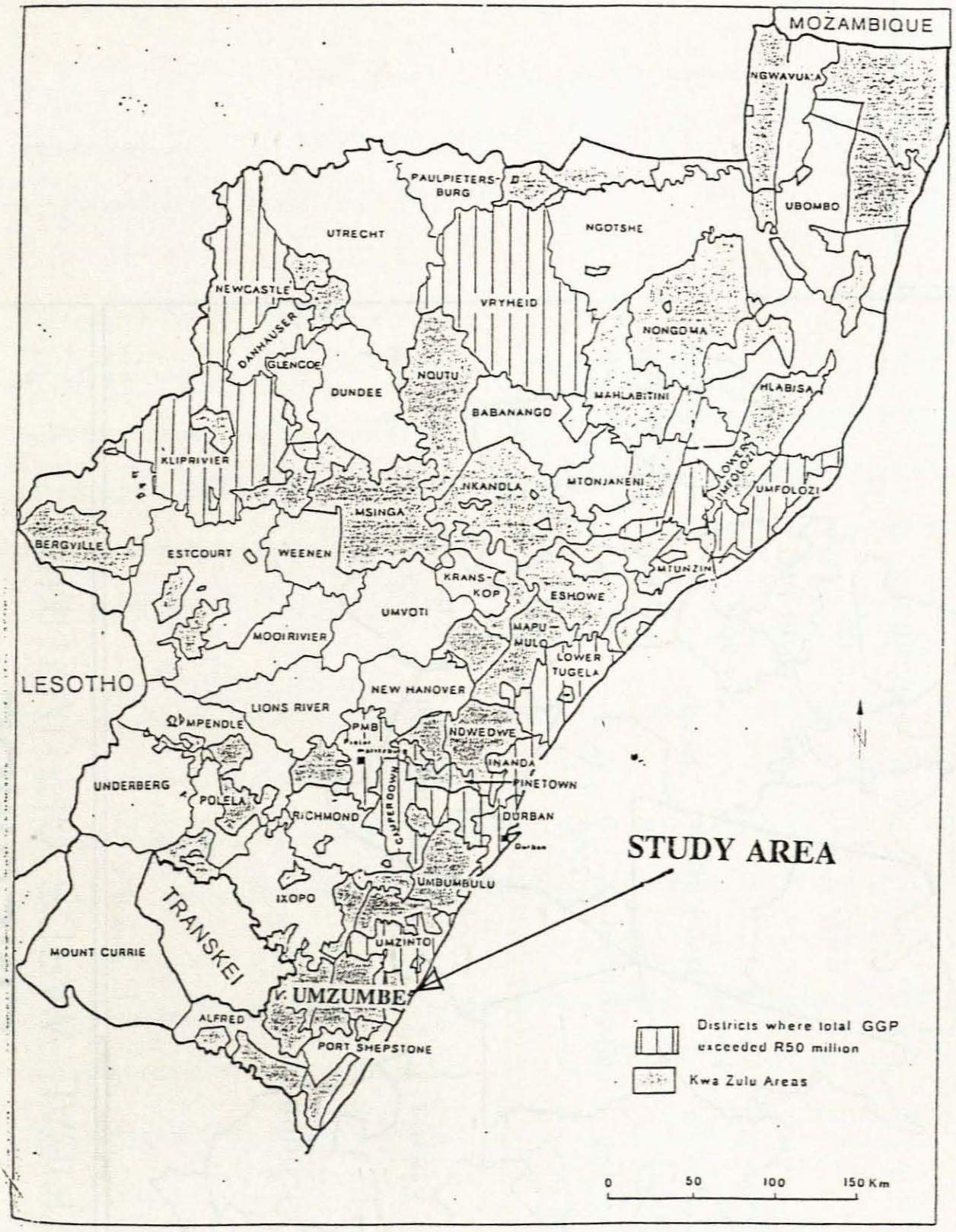
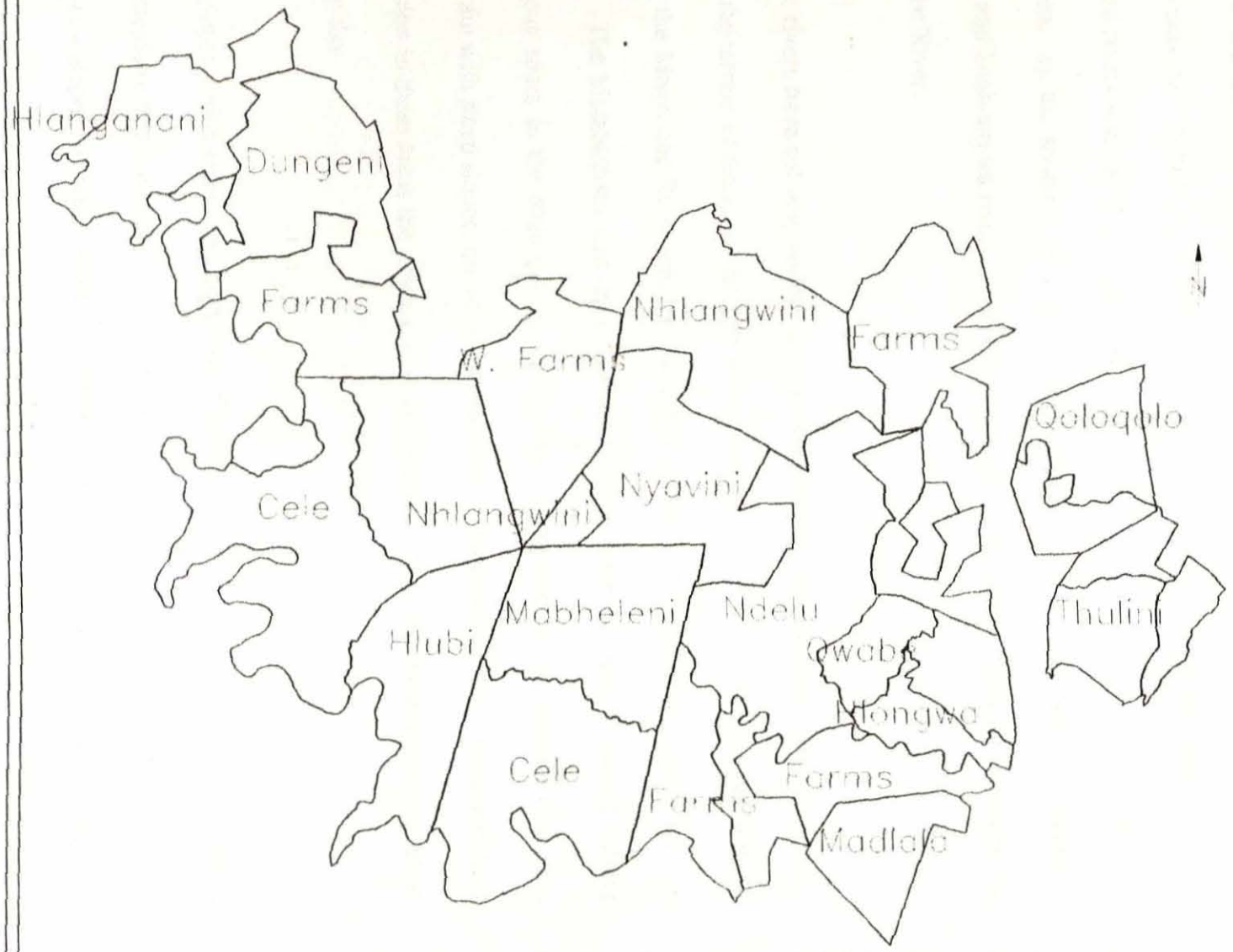


FIG.2. 2

EMZUMBE

TRIBAL WARDS OF UMZUMBE



The northern parts of Nhlangwini and Cele locations are (with exception of river valleys) predominantly flat. The Cele area which slopes to the Umzimkhulu river is too steep and it is inaccessible with regard to agricultural activity.

The region is drained by several rivers and streams. All the rivers are perennial while some streams are seasonal. Mtwalume river flows in the north eastern part of the region. Iquha and Umngeni rivers join the Mtwalume River. Umzimkulu River forms the western border of the region. In the southern part of the area are small rivers, like Mnafu, Makhoso, Mfazazana and Umhlungwa rivers. Umhlabashana and Malukhakhe rivers form tributaries of Umzumbe River.

Some of the rivers have cut deep valleys and canyons through the landscape and have greatly influenced the terrain of the areas through which they flow (Fig. 2.2). The Wilder Valley, drained by the Mtwalume River and its tributaries is very hilly, though the slopes are not very steep. The Mhlabashana and upper Umzumbe rivers have cut deep V-shaped valleys and numerous spurs in the Nhlangwimi area. This has resulted in the creation of a very rugged terrain with steep slopes, out of an area that was predominantly flat. Because of high rate of erosion in these areas the process of valley and spur formation is continuing even up to this very day.

The steep slopes which encourage high rate of erosion make it impossible for the people to practise agriculture in these areas. In the lower parts of Umzumbe river i.e. towards the sea, the river has widened to form a large and fertile flood plain. Agriculture is practised here.

The steepness of the terrain has resulted in the river courses being narrow while the deposition of eroded material makes the rivers to be shallow. The combined effect of these factors is responsible for the fact that the rivers cannot be used for transportation purposes.

The altitude of Umzumbe River ranges from sea-level to about 912 metres at Ophepheni Mountain which is the highest point. The geographical location in terms of latitude of the Umzumbe region is favourable for agricultural activity. this is due to the fact that the temperatures are moderate. While the steepness of some areas prevent agricultural activity, agriculture is practised in flat areas and the gentle undulating slopes.

2.3 CLIMATE

Climate as a phenomenon indicates the weather condition of an area as studied over a long period of time. The weather pattern must show some consistency progressing over the long period of study for it to be considered as the climate of the area. Weather on the other hand is the condition of the atmosphere as observed on a daily basis.

The climate of Umzumbe may be divided into two sections. The northern part of Umzumbe forms part of the Natal Midlands, while the southern part forms part of the Natal Coastal Belt. The northern part has a continental climate, which is characterised by great differences between day and night temperatures as well as between summer and winter temperatures. This consists of hot summers with midday temperatures ranging from 27 degrees Celsius to 38 degrees Celsius. The winters are cold and temperatures may reach down to 10 degrees Celsius. Frost is very common in this area, occurring mainly at night. The southern part

Table 2.1 Monthly Rainfall of Umzumbe North for the Years 1990/1994 (mm)

Month	1990	1991	1992	1993	1994	Average
January	1,25	75	75	50	73	60
February	227	38	41	40	63	82
March	76	44	68	81	-	67
April	35	14	22	47	-	30
May	10	38	-	-	-	24
June	13	20	-	2	-	12
July	8	-	-	-	50	29
August	37	3	11	13	-	16
September	20	62	32	67	-	45
October	125	117	51	107	21	84
November	32	84	72	44	40	54
December	152	86	77	146	156	125
Total	2 121	581	449	597	476	845
Average p/m	177	48	37	50	40	

Data Source: Agricultural Office - Phungashe

Table 2.2 Monthly Rainfall of Umzumbe South for Years 1990/1994 (mm)

Month	1990	1991	1992	1993	1994	Average
January	90	148	51	59	57	81
February	126	99	82	48	33	77
March	315	115	35	31	164	132
April	12	15	9	35	7	16
May	-	71	2,5	-	4	16
June	15	19	-	-	16	17
July	15	9	1	15	113	31
August	149	7	18	13	67	51
September	50	146	6	-	3	65
October	154	85	71	181	174	153
November	30	130	67	-	27	64
December	98	70	143	193	126	472
Total	2 835	1 014	538	677	788	1 170
Average p/m	236	85	45	56	67	

Data Source: Agricultural Office - Nyangwini

has a subtropical maritime climate. The summers are hot with midday temperatures ranging

from 27 degrees Celsius to 32 degrees Celsius. The winters are mild and frost free. The average winter temperature is about 17 degrees Celsius.

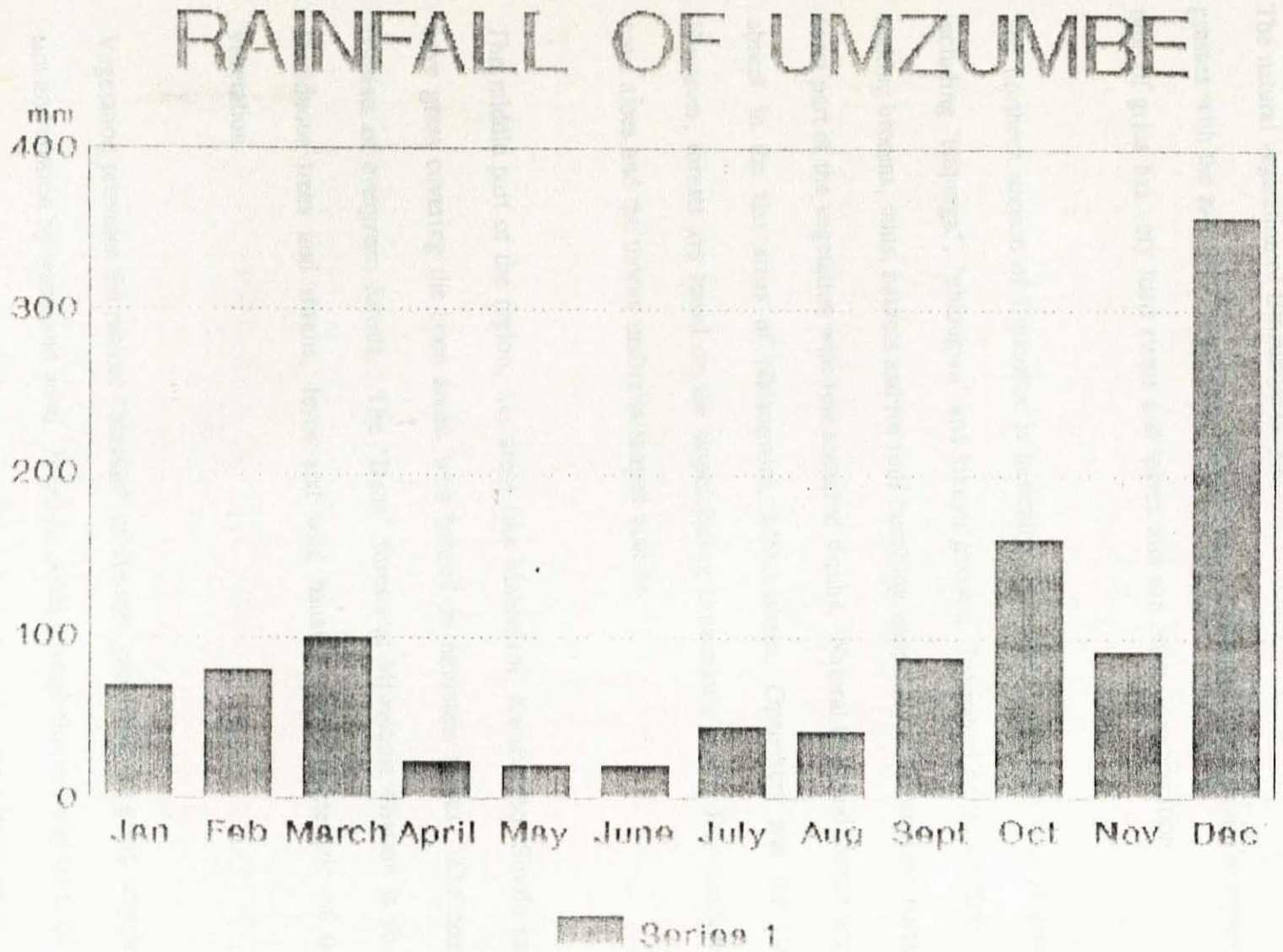
The rain falls mainly in summer. The type of rainfall is generally frontal which occurs as drizzles. Torrential rainfall accompanied by thunderstorms occurs mainly in the north. Tables 2.1. and 2.2. show the monthly rainfall patterns for Umzumbe over a period of five years.

Tables 2.1 and 2.2 indicate that while the rain may fall at any time of the year most of it occurs during the hot summer months as well as spring and autumn. In winter there is very little or no rain at all. Good rains begin in September and spread out to March of the following year. There is not much difference in rainfall between the north and the southern parts of the region.

The average annual rainfall for the north is 845 mm while it is 1170 mm for the south. The average monthly distribution of rainfall in the whole of Umzumbe from 1990 to 1994.

The year 1990 was a wet year while the years 1991 to 1994 were characterised by droughts. Other forms of precipitation in the region include hail and frost. Hail occurs throughout the region, especially in the north. In places like Nhlangwini, Oluphepheni, Mhlahashana and Hlokozi the hail is responsible for the destruction of crops like maize. In the coastal areas hailstorms are rare. Even if it does occur hail stones are not big as a result the storm does not become destructive. Frost is common in the north where the altitude is high, but in the south winters are frost free.

FIG. 2.4


RAINFALL OF UMZUMBE
mm
400
300
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Series 1

2.4 NATURAL VEGETATION

The natural vegetation of Umzumbe is typically subtropical. it consists of different types of grasses with the so-called "Ingongoni" (hard grass) distributed throughout the region. This type of grass has very hard stems and leaves and can resist decomposition.

The northern section of Umzumbe is basically a grassland area with various grass types including "isiqunga", "uhlongwa" and kikuyu grasses. Ingongoni grass is mainly used for making brooms, mats, baskets and for roof thatching, especially in the southern parts. Herbs form part of the vegetation with few scattered shrubs. Natural trees and forests are literally absent in the flat areas of Nhlangwini, Mhlabashana, Ophepheni and the Cele area. However, forests are found on the slopes facing Umzimkulu river. Dry sunbaked slopes have aloes and the thorny umbrella-shaped acacias.

The middle part of the region, i.e. areas like Mabheleni, KwaBombo, Sipofu and Ndelu, have grass covering the open areas, with forests on mountain slopes. The coastal areas consists of evergreen forests. The "Dada" forests at Mtwalume Mission is an example. Deciduous trees and shrubs, ferns and wild bananas are characteristic of the coastal vegetation.

Vegetation provides the natural "blanket" of the soil, protecting it against scotching by the sun and erosion by water and wind. It can be noted, though that in many parts of Umzumbe region natural vegetation has been removed to be replaced by agricultural crops like sugar-cane and maize. This tends to accelerate soil erosion in some parts where the natural

vegetation has not yet been replaced by agricultural crops like sugar-cane and maize. This tends to encourage soil erosion in some parts.

2.5 THE INFLUENCE OF SOIL EROSION ON FOOD PRODUCTION

Soil erosion refers to the continuous removal of soil from the fields where it is useful to where it is of little or no use at all.

In the south and south-eastern parts of Umzumbe the terrain consists of flat areas with gentle undulating slopes and dense vegetation cover. The rate of soil erosion in these areas is consequently low. Since, the ground is generally covered either by natural vegetation or sugar-cane fields, soil erosion is limited to sheet erosion by water or wind. Gully erosion occurs when a road has been constructed downhill and in paths made by large numbers of livestock (Photos 2.1 and 2.2).

In the rugged mountainous areas like KwaBombo Mabheleni, parts of Nhlangwini and KwaCele ward the rate of erosion by water is very high. Gully formation is a common feature in these areas. In some parts the slopes are so steep that each time heavy rains occur a lot of precious top soil is washed away in landslides.

Soil erosion has negative effects on food production. Tons of fertile soil are washed away and lost to the sea every year. This leaves the soil poor in plant food. There are several fields in the KwaBombo, Mabheleni, Nhlangwini and Cele wards that are not used for food production, because of soil erosion.

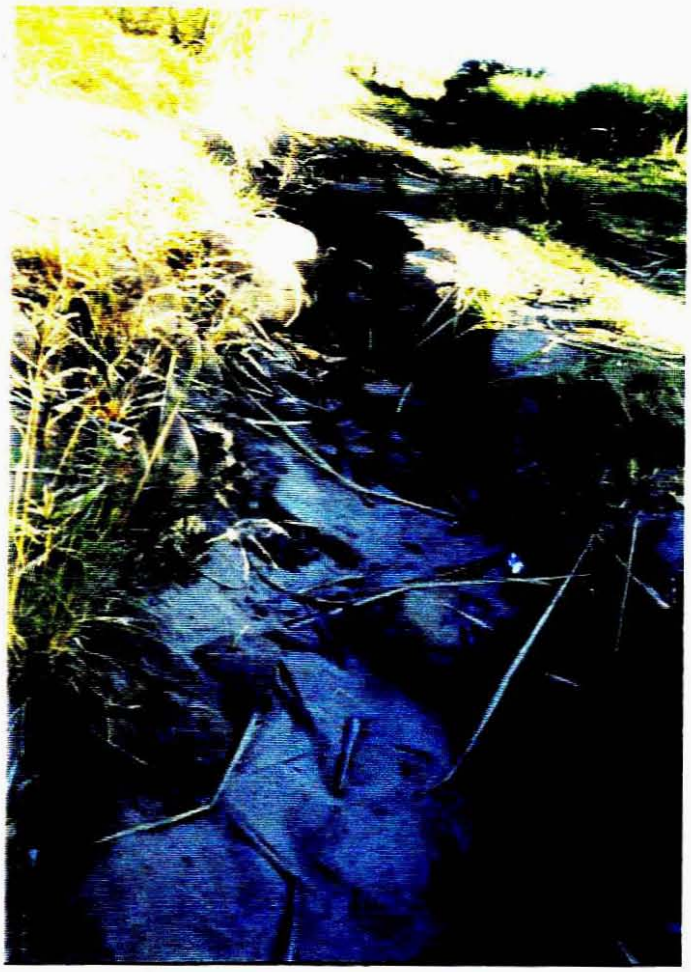


Photo 2.1 Disused road at Mathulini as a result of erosion

Photo 2.2 Deep gully at Nhlangwini

2.6 FOOD PRODUCTION FROM THE USE OF AGRICULTURAL LAND

Agricultural land is the most important commodity in the economy of Umzumbe. How much land a person possesses and how it is used determine the level of production and the wealth of the person. Land use patterns differ from place to place. While interests vary with regard to the purposes of land use it is clear that all the citizens off Umzumbe use land for agriculture, settlement and grazing purposes.

In parts like Nhlangwini, Mhlabashana and Northern KwaCele landuse has been arranged so that the area is divided into grazing land, settlement areas, cultivated land. In the south this division is not clear. The conspicuous land uses are fields for cultivation and dispersed settlements. Grazing land occurs in between the fields and houses.

2.6.1 Land use patterns and food production

Umzumbe is predominantly rural. The uses to which land is put can be basically be classified into four categories, namely, cultivated land, settlements, forest and veld. Results of this study shows that about 53.4 per cent of the land area in Umzumbe is cultivated land. This is made up of 31.4 per cent land belonging to the Trust Farms, 6 per cent from the White Farms and 15 per cent from the tribal areas (Table 2.3). This indicates that there is comparatively little land under cultivation in the tribal areas considering the high population of these areas. This also indicates the limited land resources for food production and food security in Umzumbe.

Table 2.3 Land Use in Mzumbe by Wards (in hectares)

Ward Name	Settle-ments	Cultivated	Forest	Veld	Total
	Ha	Ha	Ha	Ha	Ha
Thulini	29405	8822	2940	17643	58810
Qoloqolo	44112	11028	-	-	55140
Madlala	26633	-	-	8878	35511
Cele	76435	21838	10919	109193	218385
Mbhele	48392	16131	16131	-	80654
Farms	-	99836	4437	6656	110929
Trust Farms	-	454188	20188	50279	504655
Nhlangwini	32641	21761	3627	14507	72536
Hlongwa	17239	3042	-	-	20281
Qwabe	14917	639	1492	4262	21310
Ndelu	53727	21491	5373	26862	107453
Released Area	-	141234	6277	9416	9416
TOTAL	343501	800010	71384	227696	1442591

Source: Measurements from Fig. 2.3

TABLE 2.4 Land Use in Mzumbe by Wards (in percentages)

Ward Name	Settle-ments	Cultiva-ted	Forest	Veld	Total
	%	%	%	%	%
Thulini	2.0	0.6	0.2	1.2	4.1
Qoloqolo	3.1	0.8	-	-	3.8
Madlala	1.9	-	-	0.6	2.4
Cele	5.3	1.4	0.8	7.5	15.1
Mbhele	3.4	1.1	1.1	-	5.6
Farms	6.9	6.9	0.3	0.5	7.7
Trust Farms	-	31.4	1.4	0.6	35.0
Nhlangwini	2.3	-	0.3	1.0	5.0
Hlongwa	1.2	2.3	-	-	1.4
Qwabe	1.0	1.2	0.1	0.3	1.5
Ndelu	3.7	1.0	0.4	1.9	7.5
Released Area	-	3.7	0.4	0.7	10.9
TOTAL	23.8	53.4	5.0	17.8	100

Source: Derived from Table 2.3

Settlements are either scattered or nucleated. In the North, for instance areas like Nhlangwini (including Deyi), Mhlahashana and northern part of Cele (Phungashe area) have nucleated settlements. Land in these areas has been demarcated into residential, grazing and cultivated areas. In areas like KwaMadlala, Hlongwa, Qwabe, part of Cele (Dweshula-Mehlomnyama) in the South, Mathulini and Qoloqolo in the South-east and the mid-areas like Mabheleni and Ndelu scattered settlements are found.

The homesteads built by people of Umzumbe tend to reflect their interests as well as different economic levels. In the north a nucleated settlement style has been adopted. All residential houses are built apart from cultivated land and grazing land. Houses here are arranged in rows with roads in between the rows of homesteads.

The greater part of Umzumbe, especially areas like KwaBangibizo-Nyangwini, KwaHlongwa, Madlala, Qoloqolo, KwaBombo and Dweshula, have dispersed settlement. These settlements have very few roads, even the existing roads are sometimes very far from many homesteads. In some areas houses are far apart while in some places especially coastal areas like the KwaBongibizo-Nyangwini area, houses are so congested that there is no place large scale cultivation, except for small gardens.

The type of houses built vary greatly. Many households still have the traditional huts that are made of mud walls and thatched roofs. In the southern parts people use "ingongoni" grass while in the north they use "uhlongwa" grass for thatching. Some houses have walls made up of poles and mud with flat roof tops. The wealth families have proper western style houses made of block and roofed with either asbestos or tiles.

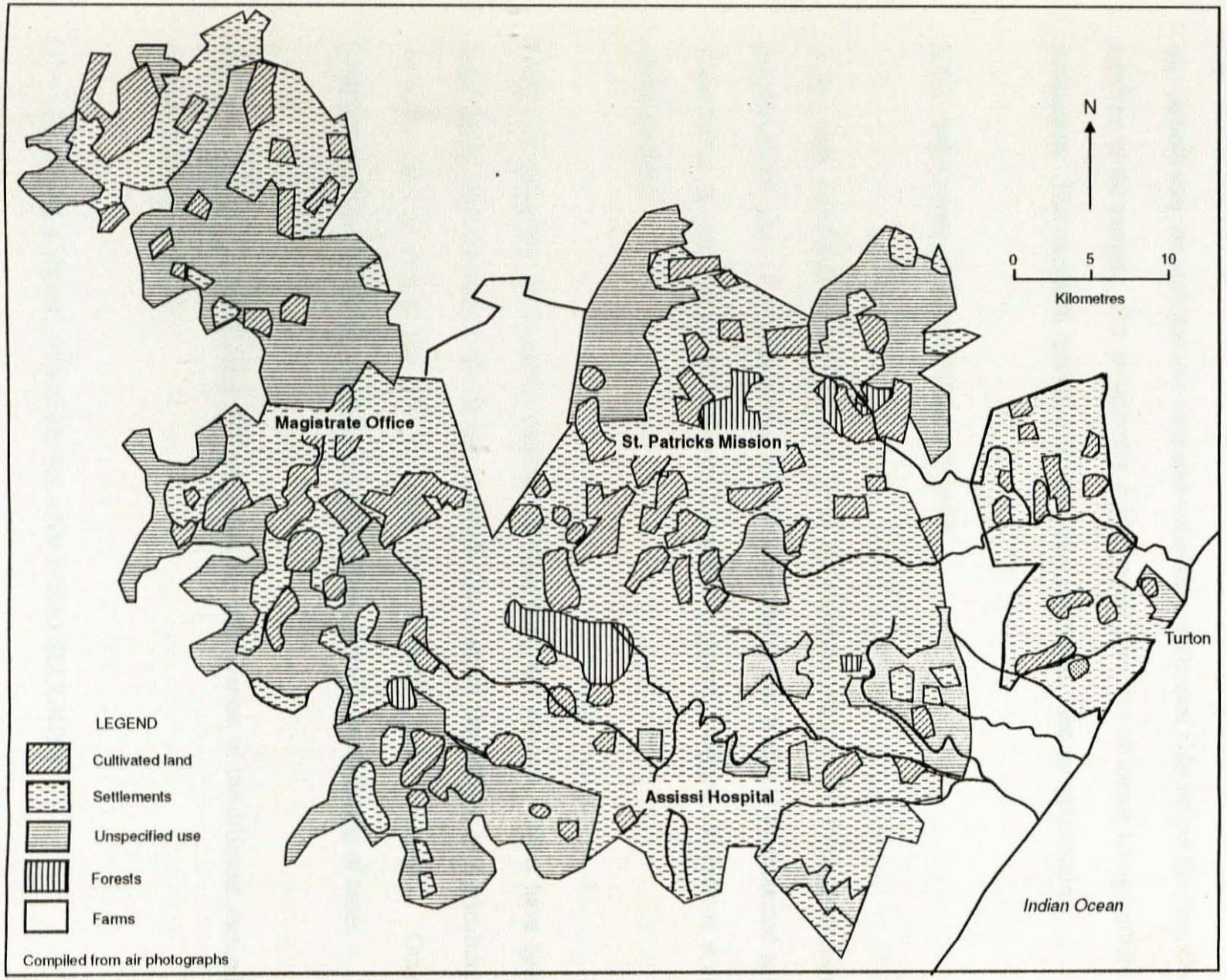


Figure 2.3 : Land use map of Umzumbe

What is obvious about the settlement is the fact that the rondavel type of huts are associated with the traditional way of life, and are mostly owned by the low income group and the poor lot. In both they are scattered and nucleated settlements the houses built reflect the financial standing of the people. The arrangement of the houses also has influence on agricultural production. The nucleated type of settlement leaves sufficient land for cultivation.

2.6.2 Soil Conservation for food production

It has been mentioned above that land forms an important asset in the food production process of this area. It is consequently of great importance that it should be protected and preserved at all costs. Since the terrain of Umzumbe is generally rugged soil erosion is an active process.

People of Umzumbe have various methods of preventing soil erosion. Dams have been constructed, with the help of the former KwaZulu Government Department of Agriculture, or water ways to prevent fast flow of water; thus preventing gully formation . Other common methods used include planting of grass strips, terraces and planting of trees.

These is, however, mixed feeling with regard to the effectiveness of the different methods soil conservation methods.

2.7 MANUFACTURING INDUSTRIES AND FOOD SECURITY

Umzumbe region is purely an agricultural area. Almost all production is of a primary

nature. The population still depends entirely on the primary sector which comprises exclusively of agricultural activity. Activities of a secondary sector are still few an very simple.

There are many reasons for the non-existence of manufacturing industries. The production yield is not sufficient to furnish raw material for sustaining the manufacturing industry. The population lacks both capital and expertise to establish and operate the manufacturing industry. Even cash crops like sugar-cane are not processed locally, but has to be transported to the Sezela Sugar Mill.

In winter, after the maize harvesting, milling machines that are operated by tractors can be seen alongside the road. Long queues of people with bags of maize can be seen moving slowly to the machine where the maize is converted to maize meal mainly for domestic consumption (Photos 2.3 and 2.4). The owner of the machine usually charges up to R15,00 for milling 50 kg of maize.

Some individuals engage themselves in the making of artifacts. Brooms, for instance, are made from "ingongoni" grass, palm stems and date palm leaves. Clay pots and vases are made by hand. All these products are made mainly for home use. Even if they are made for selling purposes mass production is a concept not yet known to the people of Umzumbe.

Many artifacts are made by hand at home. Clay pots for instance are made out of wet clay, collected from river banks. When a pot has been well shaped it is allowed to dry. When it is dry it is stuffed with dry grass and covered completely with grass and leaves, and burnt.

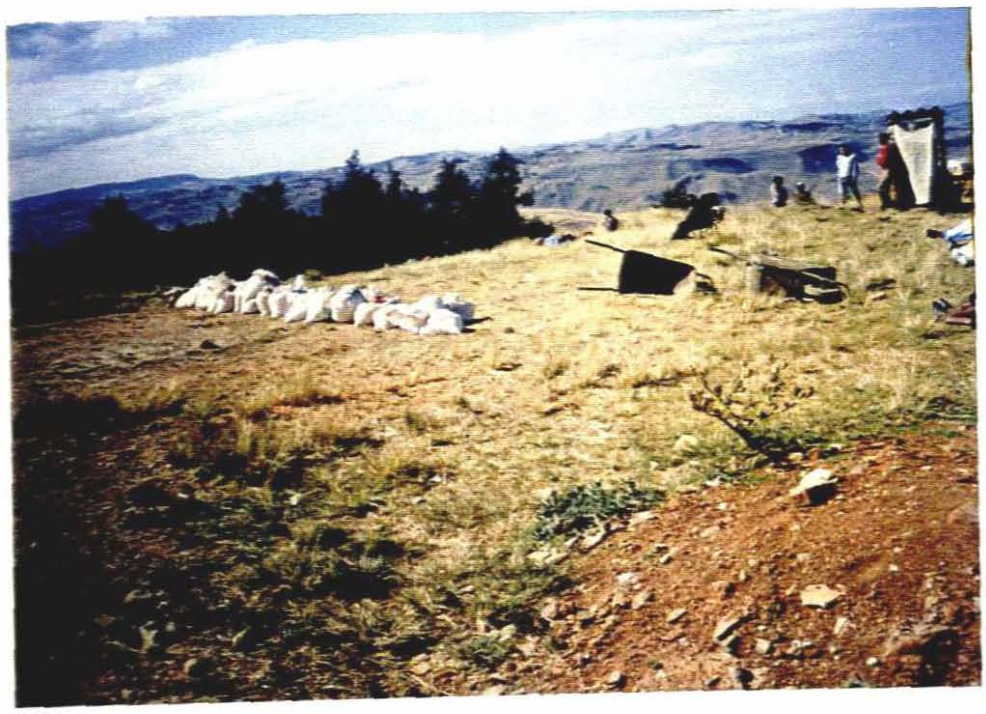


Photo 2.3 Bags maize queuing for milling at a mill machine

Photo 2.4 Maize milling machine at work

This strengths the pot and prevents it from cracking. Brooms are made from ingongoni grass by putting the stems together and tying them at one end. It is the decorative art of this lying that gives an added value to a broom and increases the chances of it being bought at a higher price. Brooms are also made from palms stems and date palm leaves.

One variation of making brooms with palm stems involves splitting one big stem to two or three pieces. One end is pounded with a back of an axe or big hammer against a rock until it forms fibres. The remaining piece is shaped with a knife to form a handle. A more elaborate tactic involves pounding the whole palm stem to make fibres. The fibres are then cut to size, i.e. about a metre long and tied to the end of a long or short stick. Again it is the art of tying the fibres to the stick that will give added beauty and value to the broom. Some individuals use cow-hide to weave whips. Whips are generally used driving oxen when ploughing, i.e. long handle-whips. Short handle-whips may be used for protection against dogs.

Since the manufacture of these artifacts is done by hand, it is a slow process that is both time consuming and painstaking. As a result mass production is impossible. The end result is that people engaged in manufacturing of artifacts do so for subsistence purposes.

The income derived from this activity is too little for manufacturing to be regarded as of any importance in providing food security and in the general upliftment of the economy of Umzumbe.

2.8 TRADE AND FOOD SECURITY

Since the production activities of the peasants at Umzumbe are mainly for subsistence purposes, the trading that takes place is not substantial. Agricultural produce is sold locally and in social gathering like on pension collection days.

Once in two months pensioners gather in a local shop to collect their pension for government officials. This becomes an important business day in rural areas. People bring everything that could be sold. Agricultural products like beans, amadumbe, fruit e.g. bananas, oranges, apples and vegetables are sold. On this day some people kill animals like pigs and sheep and bring the meat to this place for selling. Artifacts like clay pots, home-made brooms and various decorative ornaments are sold and bought.

Few individuals sell their produce to markets in Durban. Amadumbe are loaded in trucks and transported to Durban. Many trading points are mushrooming now near local shops, on bus stops and along the main roads. The fruit are the main goods sold at these points.

Since the large portion of the population is unemployed, there is, usually insufficient money for buying. As a result local trade is not a smooth process of food security. Foreign trade is an activity that is not yet in existence.

2.9 REVENUE AND EXPENDITURE

The revenue accrued by the people of Umzumbe is largely determined by the nature of their

economy, which depends entirely on agriculture. Production in the Umzumbe region is mainly geared for subsistence purposes. As a result mass production which creates a surplus does not occur. The marketing of the small surplus results in very little income that is earned by individuals.

Sugar-cane is the main cash crop in the region, cultivated mainly in the south. But since the growers own small land for sugar-cane production, coupled with the fact that they lack capital for maintaining the industry their average income is only about R2,700 per growing season (i.e. after 18 months).

Since income earned from the selling of agricultural crops is insufficient the majority of the working population are migrant labourers in towns and cities. Many people are employed in factories in the Durban-Pinetown area and in towns like Port Shepstone, Ixopo and Margate. Some work in the adjacent commercial (White-owned) farms.

2.10 THE ROLE OF IRRIGATION ON FOOD PRODUCTION

Due to the marginal rainfall in Umzumbe, Irrigation is one of the requirements for increased productivity in agriculture. Large areas of sugar-cane, bean and maize fields belonging to the peasants are, however, not irrigated. This is partly due to the shortage of capital. Dam building, from which water can be drawn for sprinkling, and the pipes for the actual sprinkling are very expensive.

The relief also prohibits irrigation. The rivers are usually too shallow while the banks are

too steep for the construction of furrows for flooding the fields, which are also on steep slopes.

However, smaller vegetable gardens are irrigated by hand. These are usually established near water sources. Water is fetched from a dam, river or water hole. Watering cans and tins with perforated bases are used for irrigating the vegetables.

The success of agricultural production (especially the growing of field crops) among the peasants in Umzumbe is, nevertheless, still largely dependent on the marginal and erratic rainfall. This factor is negative to food production and food security.

2.11 CONCLUSION

Food production processes in the Umzumbe region are strongly influenced by the factors discussed above. What follows in Chapter three is an analysis of the demographic factors affecting the production and consumption of food among the peasants in the district of Umzumbe.

CHAPTER 3

DEMOGRAPHIC FACTORS

3.1 INTRODUCTION

Demographic features of an area affect food production processes and life activities of that particular area in a variety of ways. The population size for instance, determines how much land is left available for agricultural activity, building schools, roads and shopping centres, after the rest has been occupied by people. The number of people at a productive age has an influence on the rate of production and economic development.

It is the attitudes and behaviour of the people that shape the economy of an area and decide on the standard of living. Habakkuk points out that economic development:

> "is not just a matter of natural resources, capital and labour. It is part of the whole social development of a society; it depends not merely on economic circumstances but on social structure and the attitudes of people to life as a whole" (Livingstone, 1981, p. 14).

This assertion indicates that for economic development to take place the people must have positive attitudes in the manipulation of resources; and the success of a business enterprise, be it commercial farming; forestry; bee-farming or fishing, shopkeeping depends to a certain extent on how the people in the area regard it - above all people provide the labour force and

the market for a business undertaking.

It is in consideration of the above argument that this chapter examines the demographic factors of Umzumbe. Issues like population distribution, density, growth and employment will be discussed.

3.2 POPULATION DISTRIBUTION

The population of Umzumbe is predominantly rural. According to the 1991 census Umzumbe has a total population of 217 399 occupying an area of about 1442,6 km^2. The distribution of this population throughout the Umzumbe area is influenced by different factors, some of which are terrain, distance from the sea, accessibility to the means of transport, availability of land for grazing and crop raising. Table 3.1 shows the area, population size and density of different wards of Umzumbe.

Table 3.1 shows KwaCele, lying along the Umzimkhulu River, as having the largest surface area. It stretches from the far North near Ixopo to Mehlomnyama Assisi near Port Shepstone in the South. It includes three Cele clans with different amakhosi. It is not surprising that the ward comprises 218,385 $2km^2$ of area and a population of 25,205. KwaHlongwa and KwaQwabe have the smallest areas. KwaHlongwa comprises 20,281 km^2 and a population of 4409, while Qwabe has 21310 km^2 and a population of 2450. Proportionally KwaHlongwa has a higher population occupying a smaller surface area than Qwabe. It can be deduced at a glance that Qwabe has more vacant land than Hlongwa. Table 3.1 shows that these are the only Wards that can be compared by size of the population. In the other

Wards the availability of space can be determined by using density figures.

Table 3.1 Population Distribution of Umzumbe

Wards	Area in km²	Population Distribution	Population Density
Thulini	58 810	20 849	354 515
Qoloqolo	55 140	11 966	233 760
Farms	110 929	7 675	69 188
Trust Farms	504 653	67 431	133 619
Madlala	35 511	12 000	337 928
Cele	218 385	25 205	115 415
Mbhele	80 654	10 608	131 526
Nhlangwini	72 536	17 998	248 125
Hlongwa	20 281	4 409	217 397
Qwabe	21 310	2 450	114 970
Ndelu	107 453	19 731	183 624
Released Areas	156 927	17 075	108 809
Total	1 442 591	217 399	150 700

Source: 1991 Census

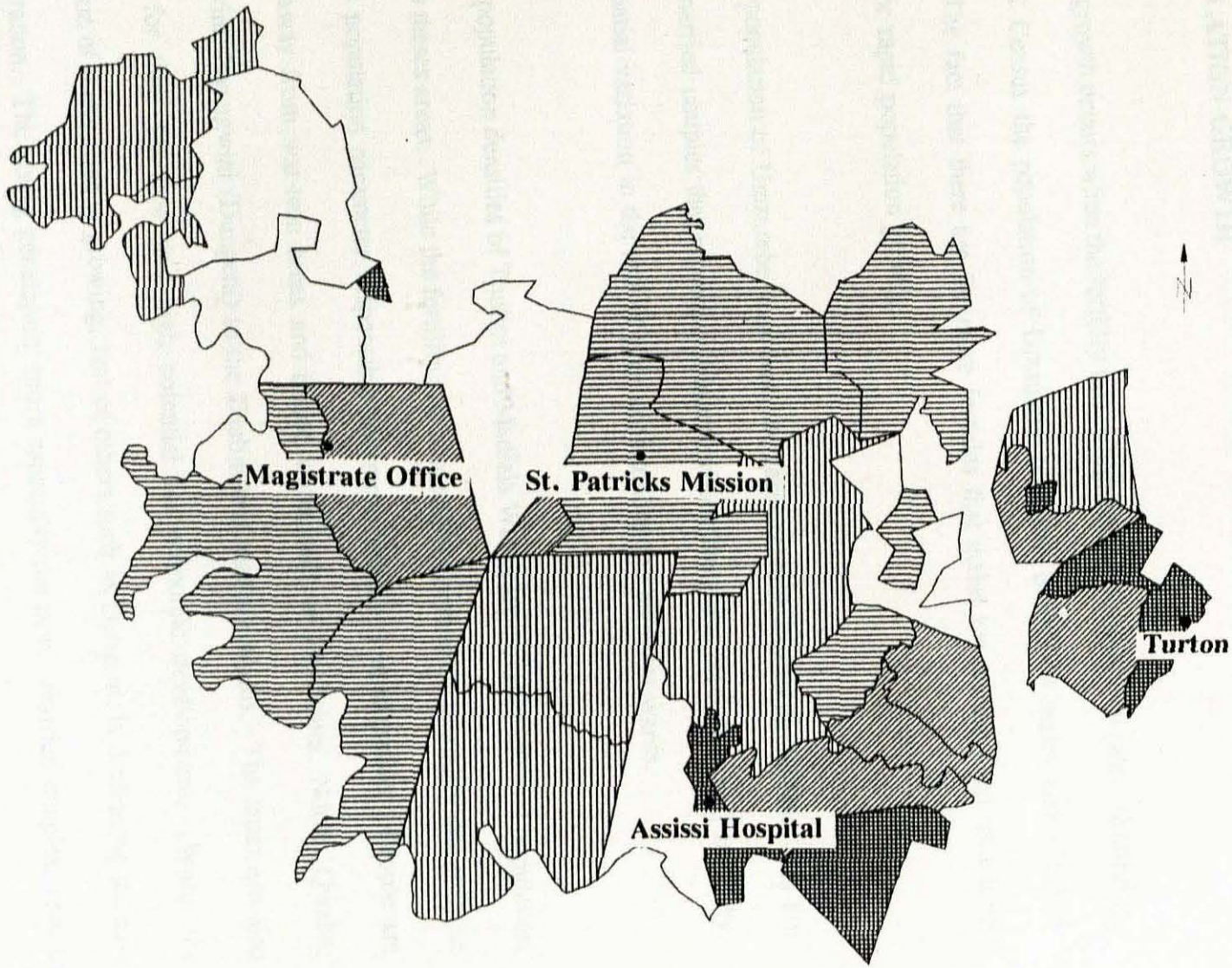
3.3 POPULATION DENSITY

Umzumbe has an average population density of 150,700 per km^2. The Thulini section in the south-east has an average density of 354,515 km^2; and Madlala in the south has an average density of 337,928 km^2. These are areas with highest densities. Fig 3.1 shows population densities of Wards. The map shows Madlala and Thulini areas as having the highest densities, i.e. densities between 298,328 and 701,289 people per km^2. These areas have an advantage of having flat and gentle undulating terrain. Thulini is next to the sea, while both of them have an easy access to the main roads. Consequently it is easy for people to reach Durban and Port Shepstone. The Qoloqolo area is having the same high density as Mtwalume Mission. It has the same physical features as the Thulini area. Areas like hlongwa and Qwabe have lower densities of between 183,624 and 298,328 people per km^2. Although their terrain is favourable for agriculture, these areas are located more inland and far from amenities. The western part of Nhlangwini in the north has high densities associated with its predominantly even terrain. Many people have been moved from steep areas to relatively flat areas. The inkosi of the latter area also encourages immigration. The Thulini Ward is characterised by a higher rate of immigration.

Areas like Mabheleni, Ndelu and the Northern parts of Qwabe and Cele have low densities associated with their extremely rugged terrain. The soil in these areas, however, favours the cultivation of beans. The Cele area has low densities, around 115,415 people per km^2. This is related to the ruggedness of the terrain that is covered by natural forests. Some parts of it facing the Umzimkhulu River are also dry.

EMZUMBE

FIG. 3.1 Population Density by E.A.



Legend

- 34.324 to 96.241
- 96.241 to 126.167
- 126.167 to 183.624
- 183.624 to 298.328
- 298.328 to 701.289

Km

0 5 10

Data Source: 1991 Population Census

These densities indicate that areas like Madlala and Thulini have very little farm land. Many Wards in the north, i.e. Nyangwini, Nhlangwini (east and Cele) are sparsely populated. These are areas that should be producing the bulk of Umzumbe agricultural products.

3.4 POPULATION GROWTH

Population growth occurs when the fertility rate is higher than the mortality rate. According to the 1991 Census the population of Umzumbe consisted of 96,054 males and 121,345 females. The fact that there are far more females that males means that there is a high potential for rapid population growth.

While the population of Umzumbe in general increases rapidly, due to the fact that it is not only the married couples that reproduce but everybody that have reached sexual maturity, there is spatial variation in the rate of polulation among the different wards.

The high population densities of Thulini and Madlala Wards are evidence of rapid population growth in theses areas. While the fertility rate is much higher than the mortality rate in these areas the population parameter responsible for most recruits is immigration. People are moving away from war-torn areas and inland wards such as Mabheleni, Ndelu, Qwabe, Nhlangwini, Nyangwini (Dungeni) to the Thulini and Madlala Wards. The latter are also famous for their sea-view and high potential for economic development. While the population of these areas is growing, that of others such as Dungeni, is decreasing because of emigration. The young generation, more especially the newly married couples, tend to leave rural areas for urban areas along the coast.

The implications of population dynamics are varied. Population growth may mean more economically active people being introduced in an area, hence more chances for rapid economic growth and development. On the other hand more people and houses mean less land left for food production. Emigration leaves more land for use by the remaining individuals for agricultural purposes, while it reduces the labour force at the same time.

For the Thulini area immigration has resulted in a large number of highly educated persons flocking to the area. These now constitute an asset for economic development in these areas.

3.5 EMPLOYMENT

Employment involves the act of giving services in return for a monetary reward. The money earned from employment services can be used to satisfy other physical and social needs. It is crucial that the income should be sufficient to satisfy the needs, otherwise the people concerned will suffer "chronic food insecurity" (Levin and Weiner, 1994).

Places of employment are the primary sector, i.e. agriculture and forestry, and secondary sector (manufacturing) as well as the tertiary sector. Many employed people in the Umzumbe region are migrant workers, working in factories, shops and offices in cities like Durban, Port Shepstone, Pietermaritzburg and some in Johannesburg. Umzumbe region does not have the secondary sector that can employ people. Many people who are employed locally work in farms (mainly White farms) and forest plantations (especially in the north). In the southern and south-eastern parts of Umzumbe. The main employer in the primary sector is the sugar industry. Many young men and women are involved in the planting.

weeding and cutting of cane.

The main employer of the skilled labour force of Umzumbe is the Department of Education. Many members of the community serve as teachers, school superintendents and clerks. Some are employed by the Department of Justice, working as policemen and court clerks. A few individuals are self-employed as building contractors, taxi owners and shopkeepers or petty commodity production. The taxi industry is developing to provide employment for many young boys who drop-out of school.

It is worth noting that of the total population of Umzumbe very few members are fully employed. Table 3.2 shows the employment rate of Umzumbe as compared to the total population.

Table 3.2 indicates that only 5,03 percent of the total population of Umzumbe are employed. According to the table Madlala tops the list with 14,0 percent of the population employed, followed by Mathulini with 8,0 percent employment rate. These two wards also have the highest densities. It can deduced from this that the high population densities in these Wards have reduced farming land so much that there is now a shift in occupation from agriculture to wage income. Cele has 7,0 percent of the population employed. Apparently the adverse ecological conditions have caused people to rely more on wage income than on agricultural food production. All the other Wards show very small percentages of employed people.

Nhlangwini with only 2,5 percent of the employed population, indicates dependence on agricultural products and, of course, a high degree of unemployment. The rate of

Table 3.2 Employment Rate of Different Umzumbe Wards

Name of Ward	Total Population	Employment Rate In No.	Percentage of Total
Thulini	20 849	1 659	8,0
Qoloqolo	11 966	558	4,6
Farms	7 675	366	4,8
Trust Farms	67 431	1 678	14,0
Madlala	12 000	4 560	6,8
Cele	25 205	1 747	7,0
Mbhele	10 608	153	1,4
Nhlangwini	17 998	452	2,5
Hlongwa	4 409	188	4,3
Qwabe	2 450	71	2,9
Ndelu	19 731	661	3,4
Released Areas	17 075	106	0,6
Total	217 399	13 240	5,03

Source: Census 1991

employment and food production processes determine the number of people that are involved in the economic development of an area. Areas like Mabheleni (1,4 percent), Qwabe (2,9 percent) and Ndelu (3,4 percent) with their low population densities and low rates of

employment can hardly be expected to retain many economically active people.

3.6 ECONOMICALLY ACTIVE PEOPLE

Fig. 3.2 shows the percentage of economically active people of Umzumbe Wards. Fig.3.2 indicates that Madlala, part of Cele (south), Nhlangwini(west) have more economically active people than the other Wards. Thulini, Hlongwa, Ndelu and Dungeni are runners-up on the list ranging between 0,4 and 0,7 percent. Qoloqolo, Mabheleni, Cele and Nhlangwini (east) range between 0,2 and 0,4 percent. Nyangwini (Dungeni) has a rate of 0,1 to 0,2 percent of economically active people.

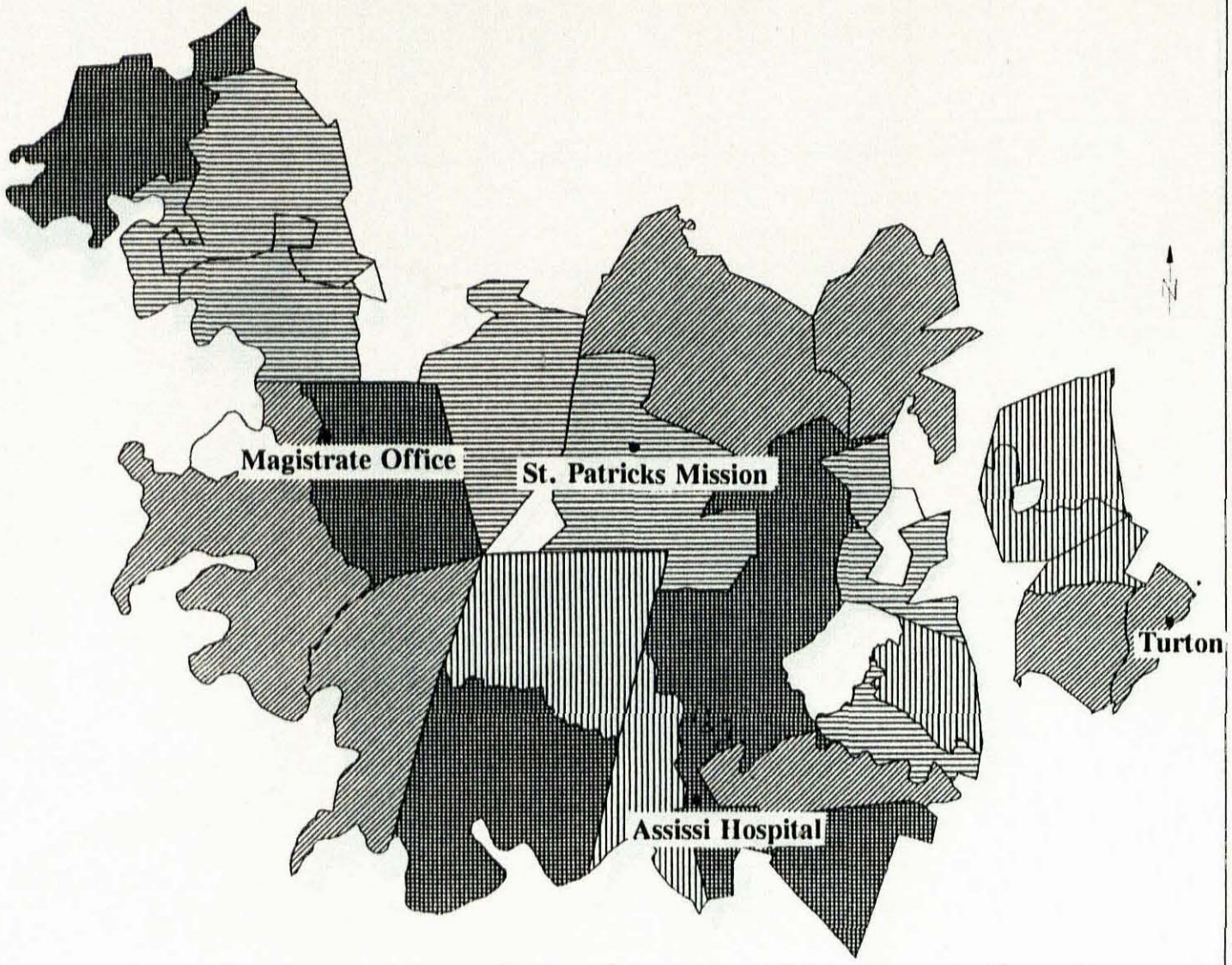
Fig 3.2 clearly shows that very few people contribute to the economic development of the region. Out of the 12,7 percent of income earning population about 12,02 percent earn less that R15,000 per annum (R1 250 per month). Fig. 3.3 shows the Ward distribution of the population earning more than R15 000 per annum in percentage. These statistics indicate that the population of Umzumbe is generally poor and consequently cannot be generate sufficient capital to improve their food production processes. With an average *per capita* income of R551 high food production levels cannot be attained. People of Umzumbe definitely need financial support if their food security is to be improved, otherwise production will remain at subsistence level and the standard of living will always be low.

The low income rate of the Umzumbe population has resulted in high dependency ratios in many wards of the region. Table 3.3 shows the composite dependency ratios of different Wards of Umzumbe region. The average dependency ratio of the whole region is 7,186.

FIG. 3.2

EMZUMBE

Economically Active People by E.A.



Legend

- 23 to 134
- 134 to 432
- 432 to 813
- 813 to 1481
- 1481 to 2335

Km

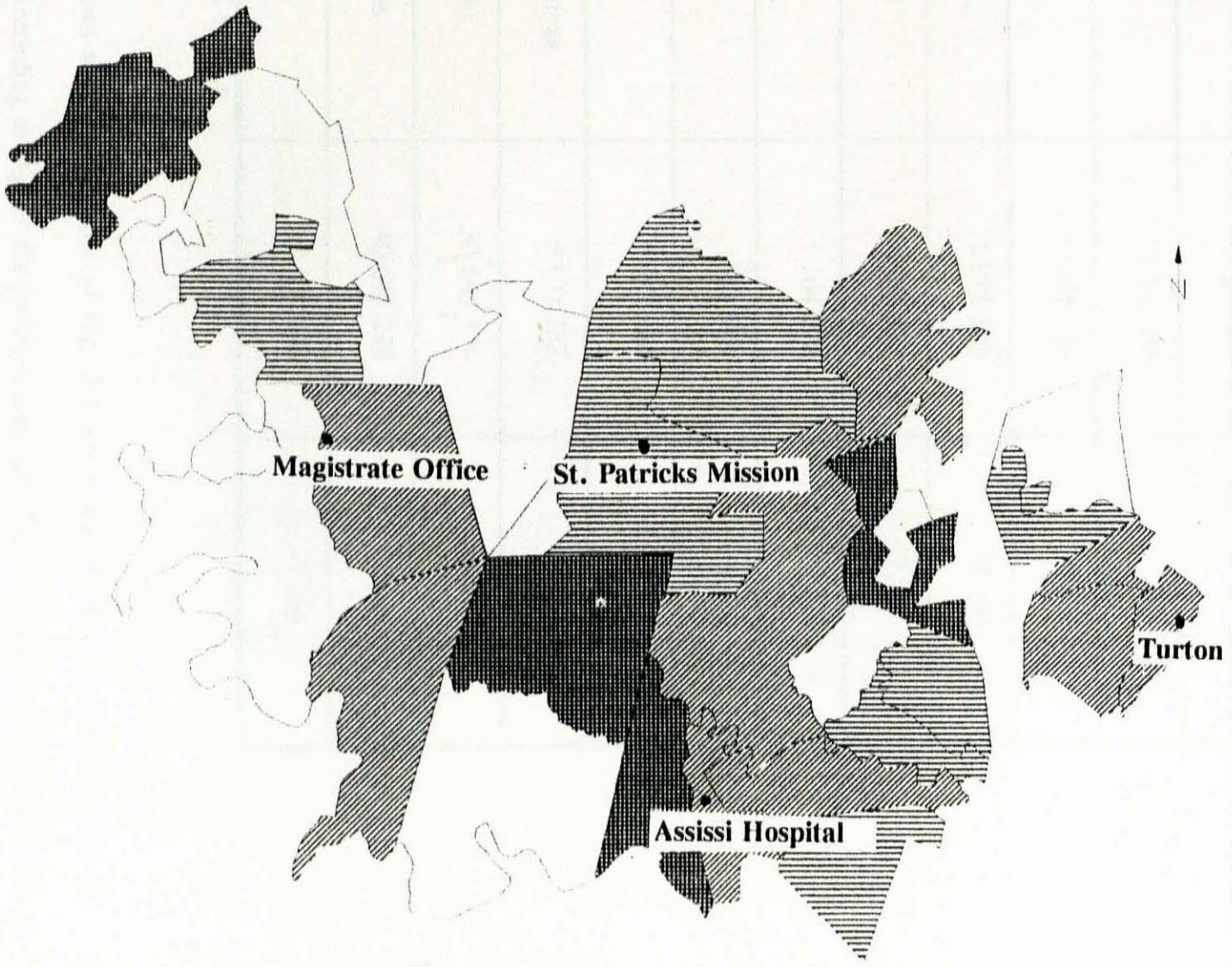
0 5 10

Data Source: 1991 Population Census

FIG. 3.3

EMZUMBE

PERCENTAGE PEOPLE EARNING >R15000



Legend

- 0 to 0
- 0 to 0.01
- 0.01 to 0.01
- 0.01 to 0.04
- 0.04 to 0.6

Km

0 5 10

Data Source: 1991 Population Census

Table 3.3: Dependency Ratio of Umzumbe Wards

Name of Ward	Total Income	Dependency Ratio
Theelin	15 245 092	6,071
Qoloqolo	5 137 644	9,084
Madlala	13 561 499	4,329
Cele	17 425 964	12,109
Mabheleni	1 078 304	12,194
Nhlangwini	4 169 377	7,857
Hlongwa	1 164 878	10,393
Qwabe	554 536	20,491
Ndelu	7 698 444	12,076
Released Areas	9 932 232	9,535
White Farms	30 695 574	9,318
Trust Farms	40 680 299	15,503
Total	119 717 583	7,186

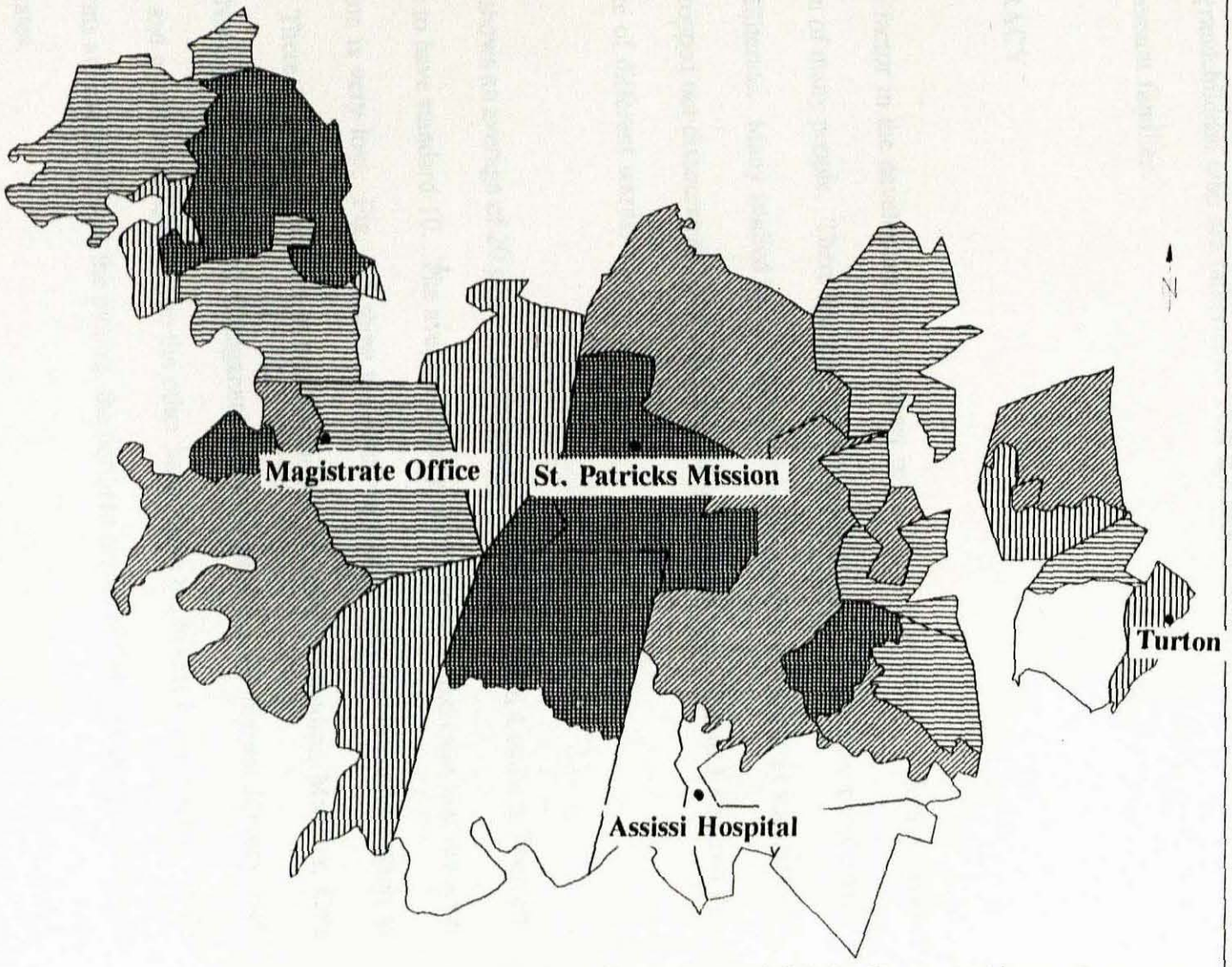
Source: 1991 Census

Table 3.3 shows some resemblance of Fig. 3.4 which also reflects dependency ratios of Umzumbe. According to Fig 3.4 the southern areas and Thulini in the South-east have the lowest dependency ratio. Mabheleni, Nyangwini, Cele (north) have the highest dependency

FIG. 3.4

EMZUMBE

Dependancy Ratio by E.A.



Legend

- 3.286 to 4.41
- 4.41 to 7.897
- 7.897 to 9.478
- 9.478 to 12.076
- 12.076 to 89.174

KM

0 5 10

Data Source: 1991 Population Census

ratios ranging between 12,076 and 98,174. These ratios are unacceptably high. The dependency ratios are high because there are many people who are unemployed while the fertility rate is uncontrolled. It is very common to find that bread winners are widows and pensioners who support their grandchildren. Dependents vary from unemployed husbands and sons to grandchildren who are fatherless. This situation seriously affects food security among the peasant families.

3.7 LITERACY

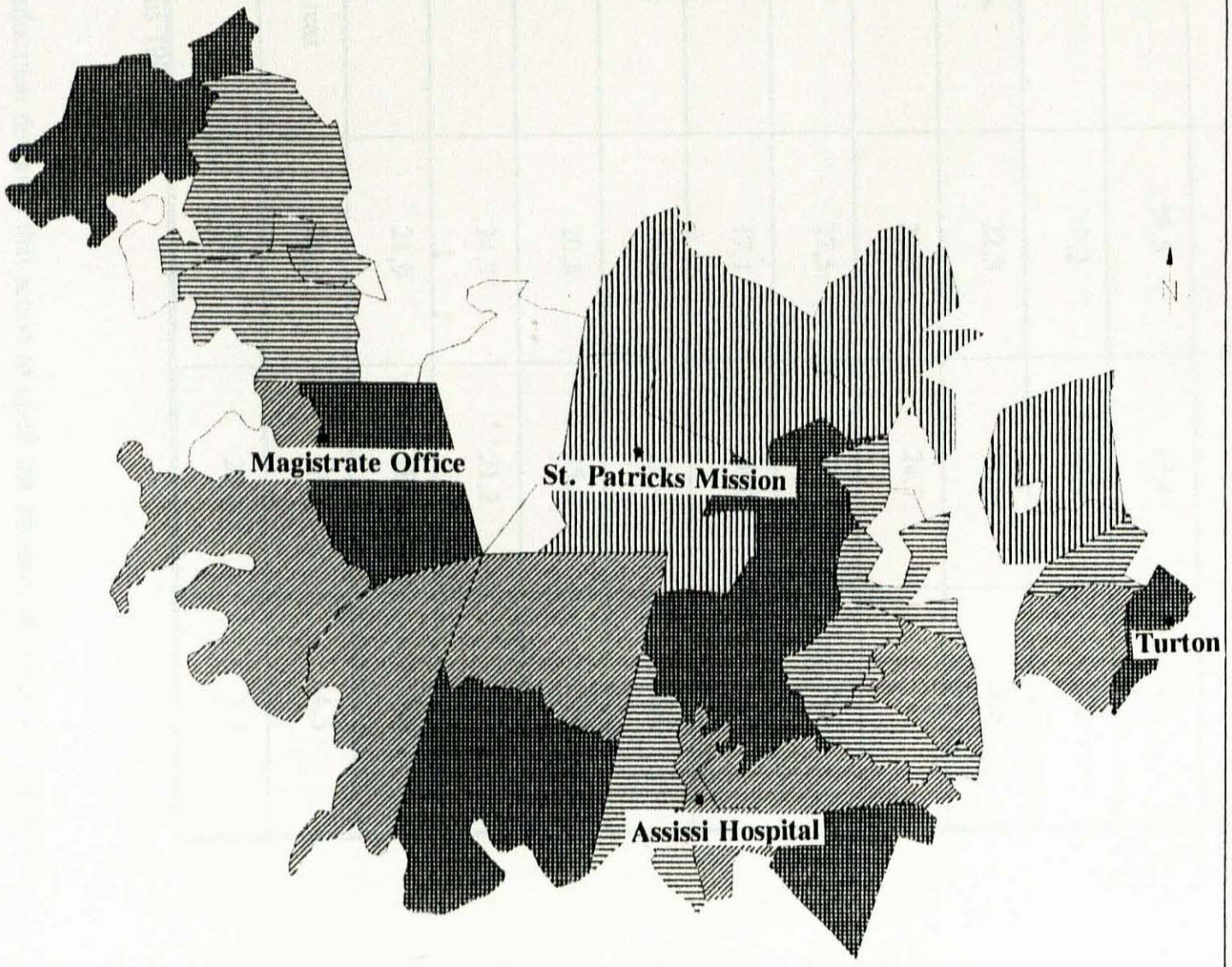
A crippling factor in the development of economy in the Umzumbe region is the low level of education of many people. There are still many areas of Umzumbe that have people who are totally illiterate. Many studied up to standard 2, while some went as far as standard 6, and then dropped out discouraged by the fact that they could not pass. Table 3.4 shows the literacy rate of different wards.

Table 3.4 shows an average of 20 percent of the population with standard 4 while 3,7 percent are shown to have standard 10. The average literacy of 23,7 percent indicates that the level of education is very low. Fig. 3.5 show the percentage of literacy in Umzumbe region as a whole. There is spatial variation in the distribution of literacy. Thulini, Madlala, Cele (South), Nhlangwini, Ndelu, and Hlanganani in the north have the highest literacy rate. Hlongwa and a portion of Qwabe, on the other hand, have the lowest literacy rates. If the White farms are excluded from the picture, the northern corner of Cele has exceptionally low literacy rates.

FIG. 3.5

EMZUMBE

TOTAL PERCENTAGE LITERACY



Legend

- 0.2 to 0.5
- 0.5 to 1.1
- 1.1 to 1.6
- 1.6 to 2.6
- 2.6 to 4.9

Km

0 5 10

Data Source: 1991 Population Census

Table 3.4: Literacy Rate of Umzumbe

Name of Ward	Average Literacy	Std 4 Percentage	Std 10 Percentage
Thulini	29,3	24,7	4,6
Qoloqolo	19,5	17,4	2,1
Farms	19,2	17,2	2,0
Trust Farms	22,3	19,0	3,3
Madlala	30,0	24,7	5,3
Cele	27,5	22,0	5,5
Mbhele	17,1	16,0	1,1
Nhlangwini	26,8	22,4	4,4
Hlongwa	20,8	15,0	5,8
Qwabe	24,7	21,2	3,5
Ndelu	21,9	18,3	3,6
Released Areas	28,1	23,6	4,5
Total	23,7	20,0	3,7

Source: Census 1991

The state of education demands that action to uplift the standard of education. However, with the help of the department of education a number of adult learning centres have been

established in many parts of Umzumbe. It seems the situation will only be remedied by enforcing compulsory education for every individual within the school-going age.

3.8 CONCLUSION

It is apparent from the previous discussion that the population of Umzumbe is growing rapidly. It is reaching densities where the land may fail to support the resident population. This necessitates that highly efficient methods of food production are employed so as to maximize production and to ensure that the soil is not degraded in the process.

The problem of overcrowding is compounded by the fact that the majority of the population is unemployed. There is a problem of an excess of consumers over producers, which implies a deficit in food security.

CHAPTER 4

THE PROCESSES OF FOOD PRODUCTION AMONG THE PEASANTS IN UMZUMBE

4.1 INTRODUCTION

Food production processes include all the endeavours and tactics employed to make food available to all people. Bernstein distinguishes between food security and food insecurity. Quoting the World Bank, Bernstein (1994) defines food security as:-

> "--- access by all people at all times to enough food for an active healthy life. Its essential elements are the availability of food and the ability to acquire it. Food insecurity, in turn, is the lack of access to enough food. There are two kinds of food insecurity: chronic and transitory. Chronic food insecurity is a continuously inadequate diet caused by the inability to acquire food. It affects households that persistently lack the ability to buy enough food. It results from instability in food prices, food production, or household incomes and in its worst form it produces famine" (Bernstein, 1994, p.86).

This chapter looks at the different facts of agriculture as a major food production processes and a pillar of rural economic development. The first section looks at land allocation and tenure which is discussed on the understanding that the success of agricultural production depends entirely on the availability of land and how it is uses. The size of land owned by

an individual and the means of ownership (that is whether he holds a "title deed" or not) is important to him, because it does not only determine agricultural production but also indicate how much chance a farmer has of acquiring financial assistance in the form of loans. Land can be used as security, the banks need to guarantee payment.

The next section reviews the different crops produced by people of Umzumbe. A focus is placed on the methods of production, and the quantity of production to determine if agriculture is viable as a means of sustaining a livelihood. An analysis of production is made to determine the role played by each crop in the lives of the people. Lastly stock farming is reviewed with a view to assessing the types of animals raised, their contribution to food security and different uses associated with the lives of people.

This chapter concerns itself with all the strategies involved in agricultural activity that aim at maximising food production.

4.2 PEASANT LAND ALLOCATION FOR FOOD PRODUCTION IN UMZUMBE

Historically, the "Amakhosi" have played a central role in the allocation of land in South Africa. Their power to allocate usufruct rights to land is attributed to tradition and customary law. Umzumbe region has about twelve "Amakhosi" (chiefs), and land distribution and land use rights fall within their powers. While these powers were traditional they were further consolidated by the state, during the colonial era, in a bid to impose indirect rule. Levin and Mkhabela (1994, p. 222) argue that "during the colonial period, the state, often in the interests of promoting indirect rule, sought ways in which to reinforce the

rule of 'tribal chiefs' in pursuit of political stability".

At Umzumbe land allocation is controlled by a bureaucratic system, that has inkosi at the top with induna (headman), councillors and inkosi's "police" helping him. Land is usually allocated to an adult male who has proof that he is married. An adult female will only be allocated land if she is a widow and has a son who will serve as a guarantor.

When land has been allocated to a person it cannot be taken away from him, even by an inkosi, unless that person has been ousted because of some reason. All land that is not owned or used by anybody belongs to the inkosi. In areas like Qoloqolo, Mathulini, KwaHlongwa and Qwabe the inkosi cannot allocate a person land that belongs to or used by somebody else. If there is no freely available land the person who needs land has to go around asking land holders for a piece of land. He may be given land free of charge or required to pay a fee ranging from R500 to R1 500, depending on the size of the land. The recipient of land has to pay for occupation rights to the induna a sum of R250. This increases every year.

Land is allocated solely for usufruct purposes. This is reflected in the fact that if a person who has been given land does not show signs of using it (building a house or planting crops) within three months of allocation it is taken away from him and given to somebody else. In places, like Nhlangwini, where land use has been divided into fields, grazing land and residential areas, land that is left uncultivated for a year is immediately confiscated by inkosi, and used either by him or given to another person who would use it.

There is no individual ownership of land (that is people do not hold title deeds), as a result people cannot use their land as security against bank loans. Land is communally owned. In many parts of Umzumbe, except in the sugar-cane growing areas, like Mathulini and Qoloqolo sections, time for cultivation is set aside, that is from September to May. From June to August of the following year all land is used for grazing. Inkosi's local "police" usually go from house to house telling people that they should remove their stock from the fields to the camps, because it is cultivating time. They do the same when it is time for open grazing.

In the Mathulini area especially along the coast land ownership is steadily undergoing a change. While the inkosi is still recognised as the trustee of land people exercise some degree of ownership. Once a person is allocated land it is not taken away from him even if it is not used for cultivation purposes. If a person leaves the place for another area, he may sell his place for a value determined by him and the buyer. While people do not hold "Deeds of Grant", there are some who have "Permission to occupy" certificates issued by the Department of Home Affairs. These certificates are limited to people who own small pieces of land, who went to build houses through employer subsidies.

What is happening at Mathulini location is a reflection of reduced role of inkosi in controlling landownership. This state of affairs is acknowledged by Levin and Mkhabela (1994) in their argument that:-

> "In South Africa today, there is ambivalence surrounding the institution of the chieftaincy and its continued role in land allocation, as a consequence of

existing myths, and ambiguities around concepts of "traditional" communalism and reciprocity. These exist in part because of the historical restructuring of the chieftaincy" (Levin and Weiner, 1994, p. 233).

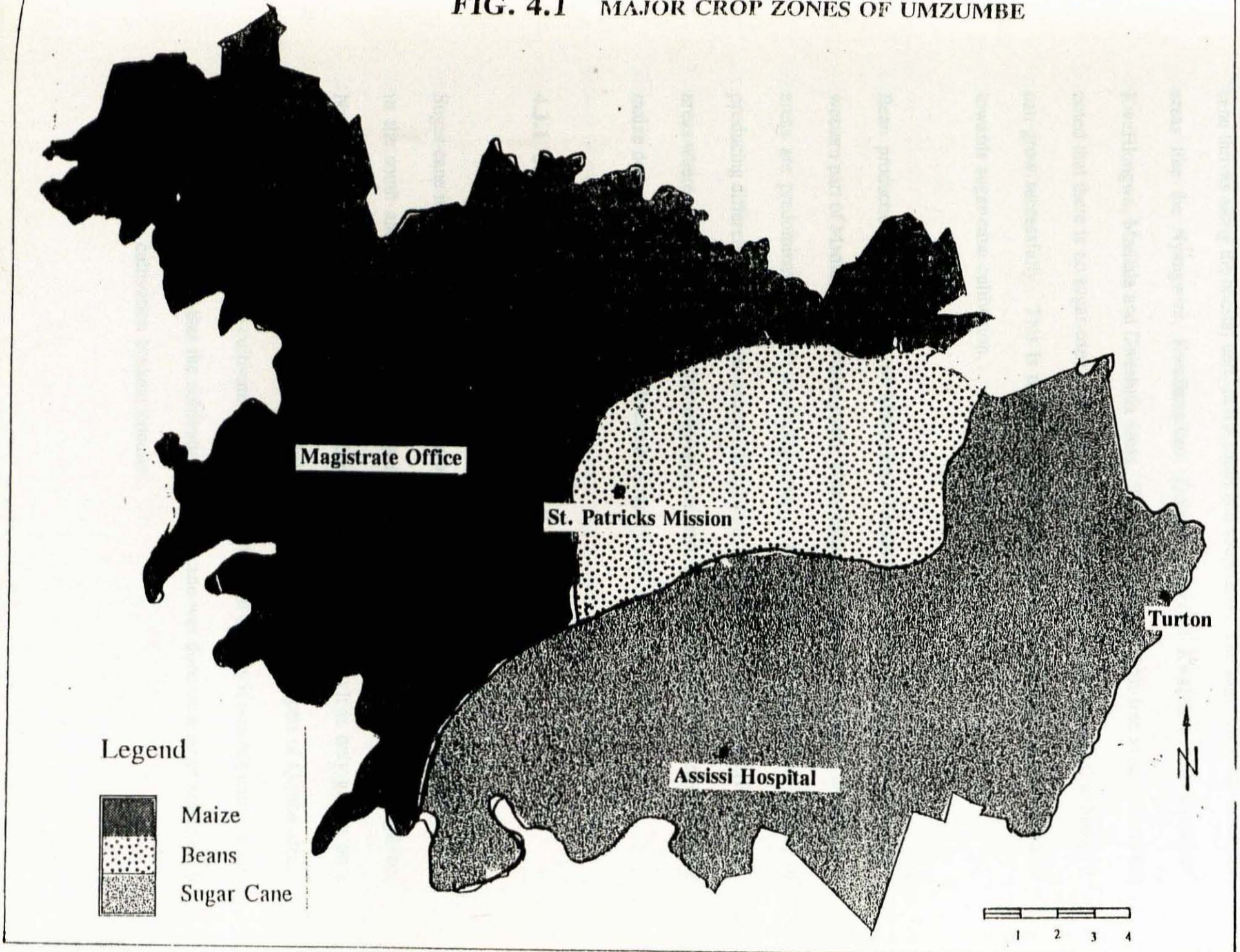
Land tenure in the Umzumbe region is still in a state of confusion. Most of the principles involved in the land rights relate to understandings of relationships based on landholding rather than to property rights. In its perceived nature, land is as much of a relation between people as it is the means of production. This relationship is bound to have detrimental, if not crippling effects on production. When an inkosi allocates land he does not have improved production in mind, instead he is merely executing powers given to him through the Bantu Laws Amendment Act of 1952 when chiefs and headman first became salaried government officials.

4.3 PEASANT AGRICULTURAL PRODUCTION IN UMZUMBE

Agricultural production is the basic activity of the people of Umzumbe whereby food security is attained. Every household in the area uses the soil to produce some crops for subsistence. The level of production differs from household to household with the difference in land size. The climate and vegetation of Umzumbe indicates that the production of a great variety of crops is possible.

The types of crops cultivated include sugar-cane, which is produced mainly in the Qoloqolo and Mathulini areas; maize, which grows everywhere in the region, but concentrated in the northern areas are beans, amadumbe, sorghum and vegetables. Fig. 4.1 shows the

FIG. 4.1 MAJOR CROP ZONES OF UMZUMBE



distribution of major crops, viz maize, beans and sugar-cane. The map indicates that sugar-cane thrives along the coastal belt, in the south and south-east. The sugar-cane belt includes areas like the Nyangwini, KwaBangilizo, Qoloqolo, part of KwaNdelu, the whole of KwaHlongwa, Madlala and Dweshula areas. These are basically frost-free areas. It can be noted that there is no sugar-cane at Dweshula, Madlala and KwaHlongwa areas, although it can grow successfully. This is the result of various reasons including a negative attitude towards sugar-cane cultivation.

Bean production covers areas of Mabheleni, KwaBombo, Ndelu, Qwabe and the north-western part of Madlala. The Nhlangwini, Mhlahashana, Phungashe (KwaCele) and Hlokozi areas are predominantly maize producing areas. All areas of Umzumbe are capable of producing different types of crops except Nhlangwini, Mhlabashana and KwaCele(Phungashe) areas where sugar-cane does not thrive because of frost, and KwaBangibizo-Nyangwini where maize does not grow successfully because of sandy soil.

4.3.1 Sugar-cane production

Sugar-cane is one of the most important crops grown by the people of Umzumbe especially in the south and south-east. While sugar-cane can thrive in areas like KwaBangibizo, Nyangwini, Qoloqolo, Ndelu, Qwabe, KwaHlongwa and Madlala. It is only grown on a large scale in KwaBanilizo-Nyangwini, Qoloqolo (Wilder Valley) and part of Qwabe areas. While sugar-cane had been cultivated in the area for the past century it was not until the late 1960's and early 1970's that the cultivation of sugar-cane was done on a large scale, i.e it was then that its cultivation became popular.

Among the crops produced by the residents of Umzumbe sugar-cane is the only crop that does not have an immediate use, i.e. after harvesting it cannot be used directly as food. It has to go to a sugar mill and further processing to be converted to sugar before it can be used for home consumption. Secondly sugar-cane is the only crop in the region that is produced solely for commercial purposes. Coupled with the fact that it takes eighteen months for sugar-cane to be ready for harvesting, these are some of the reasons for some areas, like KwaMadlala choosing not to produce sugar-cane.

Since sugar-cane is produced for the market the grower are compelled to have contract with a sugar-mill)in this case it is Sezela sugar Mill). Obviously it would not be possible for them to continue cultivating sugar-cane if they were not on contract basis with the sugar mill, because they would have no market for their sugar-cane. The contract exists in the form of a quota as stipulated by Government Legislation in 1936, that all planters Black and White should be on quota. According to the quota a sugar-cane farmer should have a certain piece of land on which to produce sugar-cane and bring it to the mill. A grower who has a quota has a number that is registered with the sugar mill.

Sugar-cane cultivation is a very popular agricultural activity in the southern part of Umzumbe. About seventy (70) percent of cultivated area of Nyangwini-KwaBangibizo and Qoloqolo is covered with sugar-cane. This is favoured by the high summer temperatures, frost-free winters and relatively high rainfall. Photograph 4.1 shows a luxurious sugar-cane planation at Mnafu (Nyangwini). Apparently the luxurious growth has been promoted by heavy rains which in October 199 to February 1996. The look of the sugar-cane growth promises a good yield.

Table 4.1 Sugar-cane Production of Umzumbe for the seasons 1984/85 to 1995/96

Season	Total Cane Areas (Ha)	Harvested Area (Ha)	No of Growers who Delivered	Cane Production Tons/Crowers	Total Cane Production
1984/5	6829	5500	2619	55,8	146 119
1985/6	6829	5900	2809	55,8	156 796
1986/7	6939	5945	2830	59,1	167 300
1987/8	6951	3623	1724	122,4	211 167
1988/9	6799	3984	1897	73,9	140 112
1989/90	6614	3898	1856	70,8	131 364
1990/91	6821	4509	2147	78,3	168 069
1991/92	7765	3744	1783	49,1	87 549
1992/93	5758	4246	2022	34,4	69 626
1993/94	5428	4072	1939	67,2	130 346
1994/95	6353	4139	1970	99,3	248 179
1995/96	6980	4930	2288	108,3	348 292

Data Source: Sezela Sugar Mill, Department of Agriculture

While sugar-cane had been cultivated by Blacks in the area for the past century it was not until the late 1990's and early 1970's that the cultivation of sugar-cane was done on a large

scale. According to the Department of Agriculture of the Sezela Sugar Mill, by 1980 the production of sugar-cane by the Nyangwini-KwaBangibizo growers was 9 000 tons. Table 4.1 shows the sugar-cane production by Umzumbe growers (The Sezela supply area: Qoloqolo, Mathulini and KwaQwabe) for the seasons 1984/85 to 1995/96.

Table 4.1 shows that sugar-cane production increased from the 1984/85 season to 1987/88 when it reached 122 167 tons. After that production saw a persistent decrease until it was 69 626 tons in the 1992/93 season. From 1993/94 production increased again to 348 292 tons by April 1996. This trend of production fluctuation tends to coincide with the changes in annual rainfall (see Table 4.2). It is interesting to note that the increase in the number of growers who deliver cane to the sugar mill does not necessarily correspond with the increasse in production. In 1986/87 for instance the number of growers was 2830 and production was 167 300 tons, while in 1987/88 the number of growers who delivered cane was 1725 and production was 211 167 tons.

The decrease in annual rainfall, especially in the late 1980's, had a negative impact on sugar-cane production. Table 4.2 shows an annual rainfall pattern for the cane growing areas for the period 1985 to 1995.

Table 4.2 reflects dramatic changes in the annual rainfall pattern which culminates in a sharp drop to 1 003 mm in 1990, 931 mm in 1991 and 389 mm in 1992. Annual rainfall as low as 389 mm is bound to have adverse effects on sugar-cane production which is a crop that requires an average annual rainfall of 1 200 mm. This in turn affects the income earned by the sugar-cane industry in general and the cane growers in particular.

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Table 4.2 Annual Rainfall Distribution of Cane Growing Section of Umzumbe for the Period 1985 to 1995.

Year	Rainfall (mm)
1985	1 237
1986	1 102
1987	1 599
1988	1 279
1989	1 297
1990	1 003
1991	931
1992	389
1993	784
1994	630
1995	918

Data Source: Department of Agriculture, Sezela Sugar Mill

Table 4.3 Pricing System in Relation to Sucrose Production of Umzumbe for 1985 to 1996 (April)

	Preset Value	Sucrose Produc-tion	Percent	Preset Value	Actual	Differe-nce	Grower
Year	Cost Ton	Tons	Percent	Price Sucrose	Price Sucrose	Percent	Income
1985	5,60	19 565	13,39	858,06	236,64	72	6 410,14
1986	4,54	19 458	12,41	959,17	298,90	69	6 644,32
1987	5,00	20 160	12,05	810,93	299,68	63	5 776,73
1988	5,54	26 459	12,53	789,76	339,10	57	12 113,94
1989	17,92	17 598	12,56	795,94	387,32	51	7 383,79
1990	20,10	16 762	12,76	786,89	436,19	45	7 106,59
1991	5,79	21 378	12,72	737,03	468,25	37	7 338,80
1992	26,30	12 117	13,84	969,88	705,88	27	6 591,03
1993	25,73	7 910	11,36	947,12	797,24	16	3 704,88
1994	19,52	15 420	11,83	892,68	833,50	7	7 099,09
1995	9,39	28 640	11,54	886,27	886,27	0	10 156,69
1996	8,60	41 412	11,80	764,73	835,77	-9	9 847,70

Data Source: Department of Agriculture, Sezela Sugar Mill

Table 4.3 shows sucrose production which corresponds with the cane production fluctuation over the twelve year period. That shows unchanging quality of cane produced. The sucrose prices show a marked variation in the period between 1985 and 1996 (April). In 1985 the actual price of sucrose (R236,64) was very low, i.e. about 72 percent lower than the preset value price (R858,06). It increased steadily until it caught up with the preset value price at R886,27 in 1995. By April 1996 the actual price of sucrose (R835,77) shot above the preset value price by R71,04 (9 percent higher).

These changes indicate a strong influence that politics have on market prices. The recession in sucrose price follows the 1976 Soweto riots in which many pupils, protesting against the use of Afrikaans in schools, were killed by police. Many anti-apartheid countries blamed South Africa for this. The recession also coincides with the country's wide political uprisings in the early 1980's. These political upheavals might have caused countries abroad to boycott South African sugar, leading to the subsequent drop in the actual price of sucrose.

Table 4.4 indicates that the average size of area harvested by each grower is only 2.1 hectares. The total production of cane per grower is consequently low (see total cane production in tons, Table 4.1). The income earned by each grower is consequently very low. In the 1984/85 season the average income per grower was R86,15. It decreased to R84,75 in 1985/86. From 1986/87 it reflects a steady increase in income until it is R1240,36 for the season 1995/96 (April). While the Table reflects an increasing level of income per grower in the successive seasons in real, terms it is not substantial when one considers a corresponding increase in the rate of inflation. While sugar-cane is a popular crop in the Umzumbe region, it is apparent that the income earned through cane production is not

sufficient for sustaining a living.

Table 4.4: Income on Production

Years	Cane Prod. (Tons)	Sucrose (Tons)	Sucrose (Percent)	Average Plot Size	Production Income in Rands	Income/ Grower in Rands	Cost/ Ton in Rands
1984/85	146 119	19 565	13,39	2,1	225631	86,15	1,54
1985/86	156 796	19 458	12,41	2,1	221 960	84,75	1,42
1986/87	167 300	20 160	12,05	2,1	309 117	118,03	1,85
1987/88	211 167	26 459	12,53	2,1	501 976	191,67	2,38
1988/89	140 112	17 598	12,56	2,1	1221661	446,46	8,72
1989/90	131 364	16 762	12,76	2,1	1463717	558,88	11,14
1990/91	168 069	21 378	12,72	2,1	617 867	235,92	3,68
1991/92	87 549	12 117	13,84	2,1	1675500	639,75	19,14
1992/93	69 626	7 910	11,36	2,1	1508203	575,87	21,66
1993/94	130 346	15 420	11,83	2,1	2376000	907,22	18,23
1994/95	248 179	28 640	11,54	2,1	2330000	889,65	9,39
1995/96	348 292	41 412	11,89	2,1	3248499	1240,36	9,33

Data Source: Department of Agriculture: Sezela Sugar Mill

Photo 4.1 A healthy stand of sugar cane on a loading zone

Photo 4.2 Stacks of sugar cane on a loading zone

Sugar-cane harvesting occurs eighteen months from the time of planting. This is usually the job of contractors who bring their workers and tractors. Sugar-cane is cut by hand with cane knives, especially prepared for this purposes. Cane is then piled into stacks of three to our or five tons. These are carried by tractors to loading zones where they are recorded. Many growers complain that some of their stacks are not recorded in their names. In the leading zone cane is loaded into trucks, usually Unitrans, which carry it to the sugar mill. Photographs 4.2 and 4.3. show stacks of sugar-cane at a loading zone and a Unitrans truck being loaded. Contractors and Unitrans have a big share in the grower's income, which further reduces the earnings of a grower.

4.3.2 Maize Production

Maize is a staple crop of the Black communities of Umzumbe. As a result it is grown all over the Umzumbe area. Almost every household does plant maize. But in the areas along the coast for instance KwaBangibizo-Nyangwini and Qoloqolo, maize cultivation remains only tradition, because it is only small gardens that can be seen. The reasons for this are varied. Since the late 1970's there has been a shift of interest from the cultivation of maize to the production of sugar-cane, so that people only grow maize close to their houses and in strips between cane fields. The area along the coast, that is KwaBangibizo and Nyangwini consists of entirely sandy soil and maize does not thrive here. The cultivation of maize demands a great deal of fertilizer, which is expensive. Lastly the coastal areas are overcrowded. Because of high population density there is hardly any space for cultivating anything including maize.

Photo 4.3 Unitrans truck removing cane from a loading zone

. . . . . **Photo 4.4 Maize field ready for harvesting cane from a loading zone**

Photo 4.5 A pile of maize cobs left by harvesters

Photo 4.6 Harvesting women posing for a photo

Maize cultivation requires good loam soil, high rainfall of about 500 mm to 800 mm per annum, and hot summers with temperatures up to 27 degrees C. Since it is a short rooted crop it prefers flat areas and gentle slopes, because it is easily washed away by water on steep slopes. Areas that are highly suited for maize cultivation include the whole of Nhlangwini, Mhlabashana, KwaCele (Phungashe) and the Hlokozi area. Fig. 4.1 which shows the distribution of major crops indicates the whole of the northern part of Umzumbe as a maize belt. It is in these areas that maize is grown on a large scale. Enthusiastic cultivation of maize in these areas is also encouraged by the fact that sugar-cane does not thrive here because of frost in winter.

The planting of maize begins in October and November because of the fear that earlier planting attracts the maize stalk borer. In the northern areas the soil is usually still very cold for maize cultivation in August. In the south people start planting their small maize plots in September, while some put their seed in the soil as early as August. They do not have a problem here, because it is not very cold and winters are frost-free. The duration taken by maize from planting to harvesting varies. Some varieties especially the new hybrid varieties take only three months to be ready for harvesting. The old varieties, which usually grow very tall, may take up to five months before they are ready for harvesting. While some fields are ready for harvesting as early as April the actual process of harvesting begins early in May and stretch up to June. These are generally dry months.

Land preparation for maize cultivation begins in September with the ploughing under of weeds and remains of old maize stems. The field is then rested to allow for the decomposition of material. In October, November or even December the soil is ploughed

again and harrowed. Planting is done at this time. Seeds are planted in rows of one metre apart. The distance between the seeds is about ten to fifteen centimetres. Planting is mostly done by hand. But a few people use planting machines. Farrows are about 30 cm.

Many people use fertilizers for planting and supplement it with kraal manure. The fertilizer that is suitable for maize planting is 3:2:1. This is used during planting and top dressing six weeks after planting. There are usually problems in getting the required fertilizer, stemming from the shortage of money and unavailability of the fertilizer itself. This usually results in farmers using 2:3:2 fertilizer as an alternative.

Weeding is done twice before the maize is ready for harvesting . Photograph 4.4 shows a maize field that is almost ready for harvesting. The tall hight shows that it is the old type variety which takes five months before it is ready for harvesting. It is interesting to note that people do not like the three month varieties. In the south and middle sections of Umzumbe farmers grow white grain maize, while in the north they tend to grow the yellow grain maize. Photograph 4.5 shows a pile of yellow maize cobs left during harvesting. Harvesting occurs in May and proceeds up to June, especially in the north. In the south where only small maize plots are cultivated, harvesting may be done even as early as March and April. While maize harvesting machines are available in the market, they are too expensive for the Black maize farmers. As a result harvesting is always done by hand. Depending on the size of the field from two to more than ten people may harvest a maize field. This is usually done by women, which is another limitation in the food production process in rural areas (Photo 4.6). Maize cobs are removed from the stems, coverings taken off and put in piles. Maize is then collected from the fields by tractors or oxen-drawn sledges to the households.

Tractors may be hired or owned by the farmer, while the oxen are almost always owned by the farmer.

The people who help with harvesting may be relatives, neighbours or even hired labour. In cases where fields are large and farmers do not have sufficient money to hire labour rotational assistance is employed. In this case a group of neighbours go from household to household harvesting maize until all the fields, of that group of neighbours, have been harvested. In some the owner of the field to be harvested prepares sorghum beer. All persons in the neighbourhood, male or female, who indulge in sorghum beer come to do the harvesting and drink beer at intervals. This form of labour is also used for weeding purposes. Table 4.5 shows the type of labour involved in the planting and harvesting of maize.

Table 4.5: Labour Utilisation for Planting and Harvesting

Type of Labour	Percentage for Planting	Percentage for Harvesting
Relatives	12,5	12,5
Neighbours	10,0	12,5
Hired labour	27,5	15,0
Other	50,0	60,0
Total	100,0	100,0

Table 4.5 shows that farmers tend to use hired labour more than they use relatives and

neighbours which constitute free-labour. The bulk of the labour used falls in the other column, which is 50 percent for planting and 60 percent for harvesting. It includes a combination of relatives, neighbours and hired labour; rotational assistance and the use of semi-hired labour where people help in return for a drink of sorghum beer. The amount and quality of labour involved in maize cultivation determines to a great extend the level of production that will be attained.

According to an agricultural officer, in the Nhlangwini, Ophepheni, Mhlabashana and the KwaCele areas, from 3 to 4 tons of maize are produced per hectare, if there have been good rains and timeous planting. Most of the maize produced is consumed within the family. In the south most of the maize is eaten while it is still green, and nothing is left to dry up. In the north where large fields are cultivated, a small portion is eaten as green maize while a substantial amount is left to dry up.

After harvesting maize is temporarily stored. Some of it is milled with maize milling machines that are operated by tractors along the road. The maize is milled to produce millie rice and millie meal. Some maize is sold locally to private individuals. A questionnaire survey revealed that out of a sample of forty individuals interviewed 7,5 percent did not use maize from their fields but only bought maize products, 65 percent had their maize consumed entirely by family members; 15 percent sell some of the maize to private individuals; 7,5 percent consume the maize and sell some to private individuals; 5 percent combine home consumption with both selling to individuals in the community and to local merchants. Some people keep some maize to use as seed for the following planting season.

The people of Umzumbe do not have a market for selling their surplus maize produce. That is why there is a high percentage of home consumption. Many people even give maize to relatives and friends free of charge. This is a way of getting rid of the surplus. Some maize rots in the storage chambers, while some is fed to fowls and goats. One respondent made it clear that if there were a stable market she would not eat her maize at all, instead she would sell the whole lot to the market, and earn money to buy other things she needed most. Since they sell their maize produce just to get rid of the surplus the income earned is very little.

Table 4.6: Comparison of Crop Distribution

Crop	Population Growing Percent	Population not Growing Percent
Maize	92,5	7,5
Beans	52,5	47,5
Potatoes	60,0	40,0
Vegetables	35,0	65,0
Sorghum	25,0	75,0
Sweet Potato	20,0	80,0
Amadumbe	7,5	92,5
Peas	5,0	95,0

Source: Questionnaire Survey

While maize is the most grown crop (about 92,5 percent of the population) its potential as a means of sustaining a livelihood is not fully utilized. The lack of reliable markets for maize is responsible for the development of negative attitudes, such as the notion that eating maize products, more especially the home made products, is being old fashioned and naive. It is such attitudes that retard economic development. Table 4.6 show the comparison of crop distribution with sugar-cane excluded from the list on grounds that it cannot be immediately used. It has to be processed first before it can be ready for home consumption.

4.3.3 Bean Production

Beans are one of the most popular types of crops grown by the people of Umzumbe. Table 4.6 shows that 52,5 percent of the population cultivate beans. While the production of beans is scattered through the region it is important to note that about 60 percent of bean production occurs in the middle part of Umzumbe region. in areas like Mabheleni, Bombo, Ndelu, the Quha area and northern parts of KwaQwabe.

Bean cultivation is a delicate activity because bean plants are highly sensitive to both high light intensity and excessive rainfall. If there is too much sun without rain bean plants die, and if it rains heavily bean plants turn yellow on the first two bright sunny days. This has resulted in great losses suffered when a farmer plants a large yield with bean seed, only to find that is no or very little field. In the areas with steep slopes large quantities of bean seed are washed away by water during torrential downpours.

However, in the Mabheleni, KwaBombo, Ndelu and the other mid-Umzumbe areas large

bean fields are cultivated. In the south beans are cultivated in small pieces of land usually close to households.

Beans are usually used for home consumption. Beans are used in making soups, salads, mixed with samp or maize, or eaten as dry bean mash. The people that produce large quantities of beans sell the surplus at the "pension collection" assembly points. A 20 L tin of beans costs anything from R250 to R300. Many people cannot afford this amount, as a result bean is sold in small 500 g jam-tins, which cost about R5,00 per tin. The high cost of beans is related to demand. Beans are rich in proteins, and used in the place of meat in many homes. It is also very common that many people who plant beans do not harvest anything because of the delicate nature of bean plants. Each time there is failure of bean crop, there is a higher demand for beans for consumption and used as seed for the next planting season.

Beans are a herbaceous species of crop with a short growth term. Consequently it can be cultivated two times in one season. With high production per period of cultivation bean has great potential of sustaining a living in rural communities.

4.3.4 Other Food Crops

According to table 4.6 other food crops grown in the Umzumbe area include amadumbe, potatoes, sweet potatoes, sorghum and vegetables. Potatoes are grown by 60 percent of the population. This is due to the fact that it is easy to plant potatoes and they thrive in almost

any part of Umzumbe. Potatoes are readily available for use. It is easy to cook potatoes by simply boiling them. Many people even use potatoes to make stews, eaten with dry porridge (Uphuthu).

Every homestead in the north grows potatoes for subsistence. While potatoes can easily be sold to earn more money many people who produce potatoes do not sell them. They are used for home consumption and whatever remains is kept for replanting.

Sweet potato is a crop that is almost the same as potatoes. It is a root crop and stores starch, but has sugar which differentiates it from the potato. While the stem of the potato plant is erect and stronger the sweet potato has a weaker stem that grows prostrate to the surface of the soil. The stem is more of a stolon (Photo 4.7). Sweet potatoes are grown in the southern part of Umzumbe, while the north some people do not even know the crop. Even in the south very few people cultivate this crop. Table 4.6 indicates that only 20 percent of the population cultivate sweet potatoes.

Sweet potatoes are planted only during or immediately after heavy rains, because it is the cuttings that are planted in deep trenches. Getting hold of the cuttings is not an easy mater. These are reasons for many people avoiding the planting of sweet potatoes though they like to use them as food. The few people that grow sweet potatoes eat them and sell them locally. Those that manage to plant large fields even take their produce to Durban for selling.

Sorghum is a crop that is no longer common in the area, it was widely grown in the past.

In fact sorghum was grown by every household, just like maize. However, about 25 percent of the population especially in the north, still cultivate sorghum,sometimes together with amber-cane (Photo 4.8).

Sorghum is used mainly in the making of sorghum beer. Some people grind the grains, using big stones like a pestle and mortar into a meal. This is cooked and eaten as light porridge or made into dry porridge which is mixed with "amasi" to be eaten as such. It is interesting that people do not sell sorghum. It is grown solely for home consumption. some people may even give their friends and relatives free of charge.

Amadumbe (corn), like maize, are cultivated throughout the Umzumbe area. While they are suited to any type of soil, they thrive in boggy areas where trenches are made for drainage purposes. Table 4.6 reflects only 7,5 percent of the population cultivating amadumbe. This is due to the fact that in the north people tend to concentrate more on the cultivation of maize and beans than amadumbe. In the south many households only cultivate small plots. But in areas like KwaMadlala some people do cultivate large fields of amadumbe.

Amadumbe are generally used for home consumption. There is, however, a growing sale of amadumbe. With the massive influx of rural people into the metropolitan areas and the rapid mushrooming of squatter settlements, there is a fast growing market of rurally produced crops. This in turn has led to the development of many small entrepreneurs who by amadumbe from the farmers and transport them to Durban for reselling. As a result a new breed of amadumbe farmers is developing. They produce their crop and sell to these traders. A 20 L tin full of amadumbe is sold at a price of R30,00. A long wheel-base van

Photo 4.7 Plot cultivated with sweet potatoes at Mnafu

Photo 4.8 Sorhgum field in the Mhlabashane area

load of amadumbe may earn a farmer up to R3 000, while the same load may earn the intermediate trader up to R8 000, when he sells amadumbe in Durban.

Bananas are planted in small plots by many households in areas along the coast. While the climate of Umzumbe especially areas like Qoloqolo, KwaBangibizo-Nyangwini, KwaHlongwa and Madlala favours subtropical fruit, bananas are not cultivated for commercial purposes. This is due to a large extent to the absence of a lucrative and reliable market. People who used to sell bananas along the road were harassed by police on grounds that they ought to have hawkers' licences. Since it was difficult in the past to obtain a hawkers'' licence, the residents were discouraged. This resulted in a loss of interest in bananas and the consequent dwindling of banana plantations. The relaxation of the harassment has ;made it possible for residents to sell their bananas either from house to house or along the road.

Vegetables are cultivated on a club basis throughout the whole of Umzumbe. A group of individuals, especially women, from different households organize themselves into a club. A field near a water, usually a valley, is selected and demarcated by the local induna. This is then divided into several plots of equal sizes. The plots are divided amongst the members who get two to three plots of about 5 m squared each.

Club members are required to pay a club fee of about R1,00 per plot. This money is used to buy seeds in bulk which are distributed among the members. Vegetables of different types are grown. These include cabbage, tomatoes, spinach, potatoes, onions, beetroot, carrots and green beans. These vegetables are rotated with seasons (Photo 4.9).

Photo 4.9 Vegetable gardens at Mtwalume Mission (Qoloqolo)

The gardeners are occasionally gardeners are occasionally incited by an agricultural officer who comes in to check on progress and to advice the gardeners on the methods of cultivation. The vegetable fields are usually fenced with fencing material. supplied by the ex-KwaZulu Department of Agriculture and Forestry. Fertilizers are bought out of club fund and equally distributed among members.

The above discussion indicates that Umzumbe region is capable of reducing a great variety of crops on which it can subsist. With proper guidance and utilization of resources the regions economy can develop.

4.4 PEASANT LIVESTOCK PRODUCTION IN UMZUMBE

Livestock production is a potentially highly efficient form of land use and one of the most effective ways of producing human livelihoods from the quality natural resources. According to Cousins (1996) the various reasons for this include the following:

1. Livestock are secondary producers which convert the energy, nitrogen, minerals and water stored in plants (primary producers) into forms which can be utilized by humans.

2. Secondary production can take a number of different forms. Animals which are alive can supply milk and blood for human consumption, wool and mohair for transformation into useful foods, draught power for transport and cropping operations such as ploughing and cultivation, and manure for use as

fertilizer, building material and fuel. Animals which have died or been slaughtered supply meat, hides or pelts, and hoof, horn and home meal.

The uses of livestock cited above are as important for the rest of South Africa as they are for Umzumbe region. The discussion that follows seeks to look at the different types of livestock dept by people of Umzumbe and their importance in sustaining a livelihood.

4.4.1. Cattle production

Cattle farming is a traditional practice among the rural Black people. While the people keep cattle for various purposes, the traditional attitude of keeping cattle as a symbol of richness and status still exists. This is reflected in the poor quality of animals they keep.

The number of cattle kept varies from household to household, and from ward to ward. The average number of cattle per household is 10 in the north while it is 5 in the south. Table 4.7 shows a summary of (cattle) stock register of selected wards of Umzumbe between 1994 and 1995. Table 4.7: Summary of cattle register of Nhlangwini, KwaCele (Ophepheni), Mathulini and Qoloqolo Wards

Table 4.7 indicates that Nhlangwini and KwaCele (which are northern locations) had more cattle than Mathulini and Qoloqolo in 1994. With a 1,3 percent increase for Nhlangwini and 0,4 percent increase for KwaCele the cattle of the two locations increased from 1432 and 978 to 1436 and 982.

purposes, used to obtain milk which is consumed fresh or fermented into "amasi". Amasi and meat are favourite food among the Black communities of Umzumbe. Cattle are also used as draught animals for ploughing, carrying logs for building houses and carrying harvested crops. Skins are used to make whips, harnesses for donkeys, drums and shields.

Cattle are not raised for a market. A person sells one beast only when he is in need of immediate cash. The traditional attitude of keeping cattle as a means of boosting social status still persists. This results in many cattle being kept until they are very old and ornery instead of being sold or slaughtered for meat while they are still fresh and healthy, to earn more money.

4.4.2 Goats and Sheep production

Goats and sheep are a dwindling stock in the Umzumbe region. Although goats are slaughtered every weekend very few are kept by people of Umzumbe.

Goats are found in areas like KwaMadlala, KwaBombo, MaBheleni and Nhlangwini where some families still keep up to 10 goats. Sheep still occur at KwaBombo and Nhlangwini keep the black sheep which are neither for wool nor meat. Nhlangwini people own white sheep for wool production, but they are not used for this purpose.

Goats are mainly used for ceremonial purposes and traditional rituals while sheep are only slaughtered for meat. While goats may be used for milk production, this practice is not entertained by the people of Umzumbe. Milking a goat is regarded as a disgrace. The skins

Many people buy the boer goats from traders to be slaughtered for their ceremonies and traditional rituals. The few goats and sheep that they keep are practically not used for commercial purposes.

4.4.3 Poultry production

Poultry farming is a widely practised activity at Umzumbe, although in many cases it is not scientific. Every household keeps fowls. On average every family keeps ten fowls. In fact a household is not regarded as complete without fowls.

Fowls are an important source of proteins since they are readily available. Whenever a family needs meat they would kill one or two fowls. Eggs are also consumed to provide proteins. Since fowls are usually so many they are even used as gifts and means of payment. In some cases they are sold whenever a person needs immediate cash. Feathers of fowls are used to make pillows, which are not sold.

A few individuals have tried to commercialise poultry farming. They buy one-day old broiler chicks, and raise them for meat; raising broilers needs substantial capital because it is expensive. Chicks need to be fed with starter mash for two weeks, number 1 finisher pellets for two weeks and number 2 finisher pellets for two weeks. At the end of six weeks the fowls are ready for selling and eating one bag of starter mash costs about R80,00, number one finisher pellets costs R73,00 and number two finisher pellets cost R75,00. The cost involved in this type of poultry farming has resulted in only the affluent individuals practising it.

The other forms of poultry are not popular. Very few households keep ducks and geese. These are only used for family consumption and nothing for the market. It is quite interesting to note that some people use geese like dogs to keep strangers away. The poultry industry does not bring substantial income, and it is important only for subsistence.

4.5 CONCLUSION

The diversity of crops grown in the Umzumbe region indicates the interest of the people on agriculture and their determination to increases food production. The methods used, however, are still traditional. A great deal of technical support is needed to enable the peasants to produce beyond subsistence.

There are differences in interest with regard to the crops grown in different parts of Umzumbe. The northern locations that have rich soil which favours most crops, tend to cultivate maize more than they do other crops. The middle areas tend to pay more interest to bean cultivation, while the south tend to devote more interest to sugar-cane cultivation.

The fact that most of the produce is not sold through large markets is an indication people practise agriculture mainly for subsistence purposes. With the exception of poultry, livestock plays a minor role in satisfying the food needs of the people. While agriculture is the mainstay of the economy of Umzumbe, there are problems that hinder it and which impact negatively on livelihoods of the people of Umzumbe.

CHAPTER 5

EVALUATION, SUMMARY AND CONCLUSION

5.1 INTRODUCTION

This study was undertaken with an aim of examining the nature of problems affecting food production and the lives of the people of Umzumbe. The dissertation was based on the following hypotheses:-

(a) Peasant farmers lack knowledge of modern methods of production

(b) Peasant farmers lack capital to improve their production

(c) the system of land ownership leaves farmers with small arable land

(d) shortage of manpower and machinery results in poor production

5.2 EVALUATION

This section seeks to evaluate the main findings of the dissertation in order to determine the validity of the above hypotheses.

5.2.1 Hypothesis (a) : peasant farmers lack knowledge of modern methods of

production

While farming activities in the Umzumbe region reflect a state of transition from pure subsistence to commercialised farming the methods used by the peasant farmers are far from adequate. Methods used are a combination of traditional and modern methods. A peasant farmer produces food mainly to supply his family and will sell his products only if there is a surplus. The nature of farming methods used determine, to a certain extent, the quantity and quality of crops produced.

It was stated in Chapter 4 that sugar-cane is grown under the technical and financial support of the Sezela sugar mill, the methods used in cultivation are correct and similar for every grower. Moreover in most instances all the work is done by Inkanyezi which is a developer that is well-versed in sugar-cane production. As a result farming methods do not have a negative impact on sugar-cane production. Sugar-cane production occurs mainly in the southern and south-eastern parts of Umzumbe which are frost-free in winter. It is the only crop that is grown for commercial purposes. The hypothesis that peasant farmers lack modern means of farming is not valid for this class of farmers. It is, however, only a handful of peasant farmers that are involved in cane growing.

It was was found in this dissertation that Maize is the more widely grown crop among the peasants of Umzumbe. It was further shown that most of maize growers do not apply appropriate methods of maize cultivation. Consequently maize production is not at an optimum level, and is restricted to subsistence levels. It was demonstrated that many of the peasants planted their maize crop late, resulting in crop failure. Late planting of maize was

also found by Auerbach and Lea (1994) to be contributing to crop failure among the peasants.

Since maize is traditionally a staple food of Umzumbe peasant communities, it is planted in varying degrees by almost every family. The sizes of fields cultivated with maize vary from small gardens in the Mathulini and Qoloqolo areas to large fields of up to three hectares in the northern areas like Nhlangwini, Mhlabashana and Ophepheni. For a field crop such as maize, the size of landholdings on which the peasants grow maize contributes to their low productivity, and food insecurity.

It was shown in Chapter 4 that the peasants of the South and East, where only small gardens of maize are cultivated, planting methods are purely traditional. Holes are usually dug in the soil by means of a hoe and two to three seeds are planted. Kraal manure or fertilizer may be used to enrich the soil. In some places, for instance Wilder Valley in Qoloqolo section, fertilizer is not used at all. People depend on natural humus to grow their crops. Production in these areas is only sufficient for consumption in one season. Maize is eaten as green (dough) maize and only a few cobs are saved for planting in the next season.

In the northern parts of the region, it was found that the aim of production also includes selling the surplus, and the methods of cultivation are more elaborate. Some maize growers start by preparing the soil. In September and October weeds and crop remains of the previous year are ploughed into the soil, thus increasing soil fertility. Planting of the seeds, however, occurs late in October and November if good rains come early, which is bad timing. According to Auerbach and Lea (1994) it is essential that the maize be planted by

the end of November. From December onwards people in the Mathulini and Qoloqolo areas and some parts in the South start enjoying their dough maize, which is not mature maize suitable for commercial purposes.

It was shown that in the northern areas of Umzumbe the peasants plant their maize late. The problem with late planting is that the maize does not only lose out on the rains essential for flowering and grain-filling stage, but also does not get sufficient time to mature before autumn. Consequently the grower does not get a good harvest.

Another important factor that is never taken into consideration in maize cultivation by the people of Umzumbe is "choosing the correct plant population density ..... Plant population density refers to the number of plants per unit area. It is usually expressed as the number of plants per hectare" (Lea, 1991: 29). Spacing should be done to obtain population densities that are relevant to the moisture content. On the contrary, it was stated demonstrated in Chapter 4 of this dissertation that the peasants of Umzumbe plant 2 to 3 seeds every two steps. High rainfall areas can accommodate higher plant population densities than areas with low rainfall. It is thus true that the farmers lack scientific knowledge of maize cultivation.

Several other crops are grown by the peasants of Umzumbe, but most of the production is for consumption purposes. Crops like beans, groundnuts, amadumbe, potatoes, sweet potatoes and pumpkins are cultivated, but none are grown for commercial purposes due to lack of surplus production.

In his description of the characteristics of entrepreneurs Habakkuk points out that "...most

of them have a very strong urge to accumulate" (Livingstone, 1981 p. 15). The people of Umzumbe have a long history of depending on agricultural production for subsistence which only needs traditional methods of farming. Even though there are people that belong to the class Auerbach and Lea (1994) call "semi-commercial farmers", they are so few that they are insignificant in the entire spectrum of food production. The hypothesis that peasant farmers lack modern methods of farming is thus valid.

5.2.2 Hypothesis (b) : peasant farmers lack capital to improve their production

Capital is one of the most important variables for the success of the business undertaking. For successful food production programmes to take place substantial capital is essential. It can be argued that "any household without much land, without a wage or remitted income and without social welfare is probably in major problems most of the time" (Bernstein, 1994: 87)

It was mentioned in chapter 3 that about 87,3 percent of the people of Umzumbe do not earn an income, while only 12,7 percent are earning an income. Of the 12,7 percent income earning population 12,02 earn less than R15 000 p.a. (about R1 250 per month). This means that the population of Umzumbe is generally poor and consequently cannot have sufficient capital to improve their food production. With an average per capita income of R551 high food production levels cannot be expected.

The lack of capital means that there are many activities that the people of Umzumbe cannot afford. The whole area of Umzumbe, with an exception of a few household in the Mathulini

section, does not have piped water. People cannot even build boreholes or dams. This results in women and children having to walk long distances, even up to 1,5 Km, to fetch water for their families. Water related diseases like cholera and typhoid are very common in the region.

Many people cultivate their fields with hoes because they cannot afford to pay for tractors. Using hoes is disadvantageous because vegetation cannot be ploughed under. Consequently the humus content of the soil is depleted which in turn leads to poor production. Owing to the lack of capital farmers cannot buy hybrid seeds for their fields instead they keep part of the harvest for use as seed during the next planting season. They cannot even buy fertilizer. It was mentioned in chapter 4 that the suitable fertilizer for maize is 3:2:1. The shortage of capital results in farmers buying a cheaper 2:3:2 type. All this has negative effects of the overall food production.

People of Umzumbe definitely need financial support if their food security is to be improved, otherwise production will remain at a subsistence level and the standard of living will always be low.

The low rate of income of the peasants of Umzumbe has resulted in high dependency ratios in many wards of the area. Fig 3.4 shows the dependency ratio of different parts of Umzumbe. The map indicates that the dependency ratio ranges from 3.286 in places like KwaMadlala, KwaHlongwa, KwaCele in the south and Mathulini in the south-east to 89,174 in areas like KwaQwabe, Mabheleni and Phungashe.

It is very common to find that bread winners are widows and pensioners, while dependents are varied. Dependents range from unemployed husbands and sons, to unemployed school leavers and grand-children. The ever increasing chain of dependency proves to be a crippling factor in capital acquisition and food security. All the money that is earned by a breadwinner is used to buy clothes, food and to provide shelter for the numerous dependents. This usually leaves the people with little or no money to prepare the fields for planting and even to buy seeds. The failure to adequate food and to pay for education leads to low standard of living and low literacy rate. Figs 5.1 and 5.2 show the percentage literacy to be low among the peasants in Umzumbe. This in turn leads to difficulties in food security.

The shortage of capital is a serious handicap among the peasants of Umzumbe, and is evidenced by their low literacy rate, high unemployment rate, low *per capita* income, high dependency rate, and lack of facilities for food production such as water pipes for irrigating their fields. The hypothesis that the peasant farmers lack capital to improve their production is thus valid.

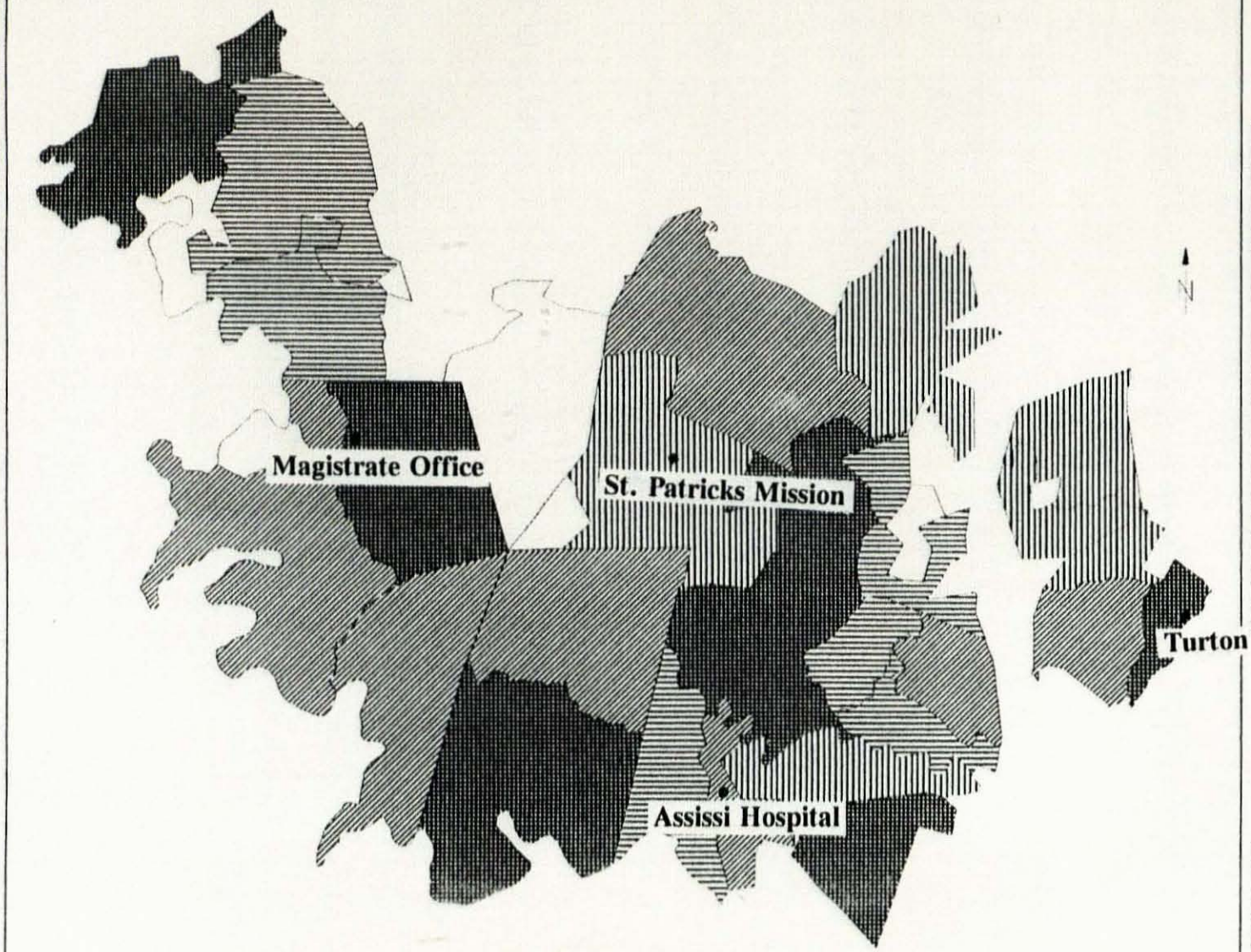
5.2.3 Hypothesis (c) : the system of land ownership leaves farmers with small arable land

It was mentioned in chapter 4 that land distribution and land use rights fall within the powers of amakhosi. Since land is distributed to individuals, who cannot buy it because it is under the trusteeship of Inkosi, individuals have no choice of the size of land they require. As a result the land used by individual farmers is usually very small for substantial food production. Table 4.4 indicates that the average size of sugar-cane fields is 2.1 hectares.

FIG. 5.1

EMZUMBE

PERCENTAGE FEMALE LITERACY



Legend

- 0.1 to 0.3
- 0.3 to 0.6
- 0.6 to 0.9
- 0.9 to 1.6
- 1.6 to 3.2

KM

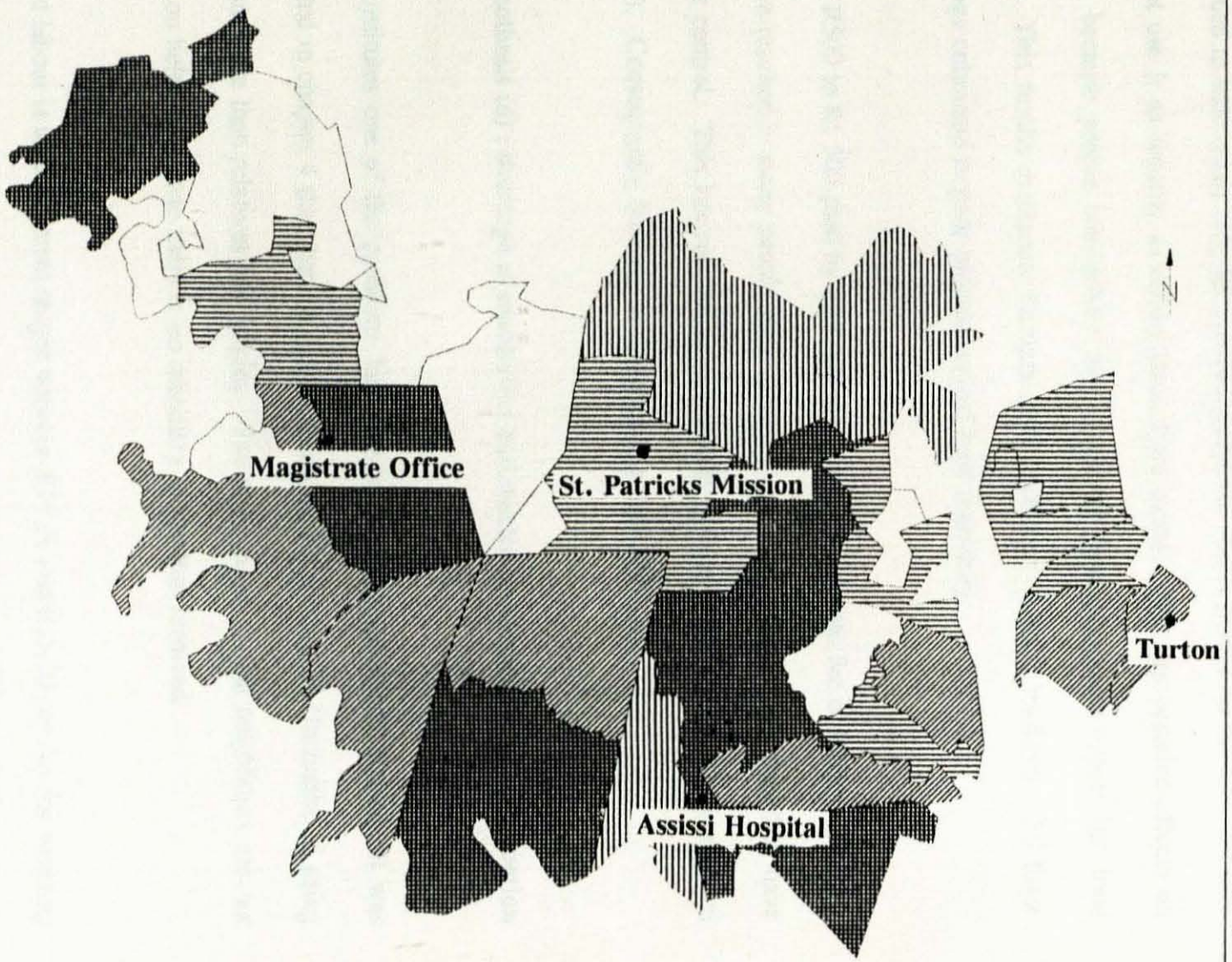
0 5 10

Data Source: 1991 Population Census

FIG. 5. 2

EMZUMBE

PERCENTAGE MALE LITERACY



Legend

- 0.05 to 0.2
- 0.2 to 0.4
- 0.4 to 0.6
- 0.6 to 1.03
- 1.03 to 1.9

Km

0 5 10

Data Source: 1991 Population Census

This land size is too small for commercial production. If farmers are to have substantial income from farming activity, they need to have large tracks of land for the production of the type of field crops that they are engaged in.

Land is issued to individuals only for usufruct purposes. Since people do not own the land they cannot use it as security to obtain loans from banks. This has negative effects on production because people consistently lack capital to buy appropriate inputs for food production. This results in peasant farmers using inefficient farming methods. All these shortcomings culminate in poor production and food insecurity.

The fee of R500 to R1 500 paid by land seekers and the occupation fee of R250 paid to the Induna have resulted in many people tending to sell every available piece of land they have under their control. This has resulted in overcrowding of people in areas like Nyangwini (Mathulini). Consequently farming land has been greatly reduced.

5.2.4 Hypothesis (d) : shortage of manpower and machinery results in poor production

Labour constitutes one of the problems facing farmers in the Umzumbe region. It was demonstrated in chapter 4 that there is tendency among the peasants in Umzumbe of using hired labour more than relatives and friends. The main reason is that neighbours are not very keen on helping because there is no monetary motivation involved.

When hired labour is used payment ranges between R10,00 and R15,00 per day for weeding or cutting cane. This kind of remuneration is not attractive. As a result many people, even

those that are very needy, shun working for other Black people.

The shortage of labour results in many maize and sugar-cane fields being frequently stunted in weeds. This situation is aggravated by the fact that people lack capital to buy machines. Since sugar-cane farming is expensive many people who have land subject it to be cultivated by the developer (Inkanyezi), who uses machinery. Labour shortage is a problem and it does contribute to poor production, and the last hypothesis that the shortage of manpower and machinery results in poor production is valid.

5.3 SUMMARY AND CONCLUSION

While agriculture is the main activity that is practised by all people of Umzumbe food production remains at a subsistence level. This is caused by a number of factors. Inappropriate farming methods result in production in which a surplus cannot be accumulated. The lack of capital results in farmers failing to get essential farming implements, quality seeds and fertilizers so that their yield is always low and only sufficient for home consumption. The system of landownership does not only reduce farming land, but also results in overcrowding in certain areas. Since land is communally owned in winter and there is open grazing , it becomes difficult for enthusiastic farmers to raise winter crops. The fact that farmers do not have "title deeds"' for the land they use makes it impossible for them to use land as security to obtain bank loans.

The lack of capital makes it difficult for the farmers and "would-be' entrepreneurs to secure reliable labour. A greater part of the able bodied population of Umzumbe are not earning

income. The average per capita income is only about R551,00 which is very low compared to the present day's economic demands. All these factors result in relatively low standard of living for the Umzumbe population - while a few individuals, especially the highly educated residents, live comfortably, the bulk of the population lead a "from-hand-to-mouth" kind of life.

In conclusion it would be recommended that:-

(a) all people in rural Umzumbe be taught basic farming skills so that they can utilize them in maximizing food production

(b) the most enthusiastic farmers, those with skills, be given viable tracks of land where they can apply their skills profitably

(c) all land holders be registered so that they can be issued with title deeds

(d) people should be encouraged to cultivate food crops like amadumbe, sweet potatoes and beans which have a short growing period and a high demand, especially in urban areas. These also utilize inexpensive labour.

It is hoped that in this way food production and consequently the standard of living of rural people of Umzumbe can be improved.

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APPENDIX

UNIVERSITY OF ZULULAND

DEPARTMENT OF GEOGRAPHY: UMLAZI CAMPUS

QUESTIONNAIRE SURVEY

TITLE: FOOD PRODUCTION AND THE SUSTENANCE OF RURAL LIVELIHOOD AT UMZUMBE

DATE :

year	year	month	month	day	day

Questionnaire no.

QUESTION	REMARKS	ANSWER
1. Where do you live?	Name of ward	
2. How long have you been living here?	actual figure (years)	
3. Where did you live before you came here?	0.Not applicable 1. Town 2. Rural area	
4. Why did you choose to live here?	1. Near a road 2. near a school, hospital etc. 3. more fertile 4. have relatives here 5. land scarcity 6. no reason 7. placed here by authorities 8. other reason	
5. How old are you?	actual age in years	
6. What is your marital status?	0. not applicable 1. married 2. single 3. divorced 4. widowed	

7. What is your status in the household?	1. head 2. father 3. mother 4. son 5. daughter	

8. What is your status in the ward?	1. Inkosi 2. headman 3. councillor 4. Induna 5. citizen 6. visitor	
9. How many people live with you?	actual number 0 - 18 years 19 - 35 years 36 - 55 years 56 - above Total	
10. How many children do you have?	actual number 0 - 18 years 19 - 35 years 36 - 55 years 56 - above Total	male female
11. How many children are attending school?	actual number	
12. How many children are at school going age but are not attending school?	actual number below 12 years above 12 years Total	
13. How many persons in the household are employed elsewhere?	actual number	male female
14. How many persons in the household are employed locally?	actual number	male female

15. What type of work is each person doing?	1. skilled 2. unskilled 3. semi-skilled 4. clerical 5. technical 6. administrative	male female
16. How many persons are employed?	actual number 0. not applicable 21 - 40 years 41 - 59 years 60 - above Total	

17. Why are these people unemployed?	1. don't seek work 2. retrenched 3. can't find employment 4. ill 5. pensioners 6. other	

18. What is the level of education of your family members?	actual number 0. not applicable 1. never went to school 2. up to std 5 3. up to std 8 4. up to std 10 5. post matric qualification.	
19. How many members of your family live away from home?	actual no 0. not applicable 1. under 18 years 2. above 18 years	
20. Who allocated you land?	1. Inkosi 2. headman 3. father 4. inherited it	

21. What criteria are used for allocating land	0.not applicable 1. married male 2. local resident 3. other	
22. How big is your land area?	1.less than 1 acres 2. between 1 & 5 acres 3. 5 to 10 acres 4. 10 to above	
23. How many parcels of land do you use for crop raising?	actual number	
24. How many acres of your land are outside your inkosi's area?	actual number 0. not applicable	
25. Have all your parcels of land remained the same since you came here?	0. not applicable 1. yes 2. no	
26. Why have they become smaller?	0. not applicable 1. gave part to son 2. gave part to relative 3. erosion 4. chief took some 5. bush encroachment	
27. Why have they become bigger?	0. no 1. yes 2. reallocation 3. other	

28. Is your land properly fenced?	0. no 1. yes 2. partly fenced 3. barbed wire 4. netted wire 5. welded mash 6. other	
29. Why is it not fenced?	0. not applicable 1. don't have money 2. don't want to 3. procedure of the area.	
30. Did you plough all your field last year	0. no 1. yes	
31. Why did you have some uncultivated?	0. not applicable 1. lie fallow 2. not enough 3. drought 4. crop rotation	
32. What do you use to plough your fields?	0. not applicable 1. hoe 2. own oxen 3. hired oxen 4. own tractor 5. hired tractor	
33. How many people helped in planting your fields?	actual no 1. relatives 2. neighbour 3. hired labour 4. other	
34. How many people harvested your fields?	actual no 1. relatives 2. neighbours 3. hired labour 4. other	

35. What is the main source of your fertilizer?	1. none 2. dung 3. neighbour's kraal 4. merchant	
36. What is the main source of your seed?	1. self 2. neighbour 3. merchant 4. other	
37. What is the cause of crop failure in your land?	1. pests 2. lack of rain 3. too much rain 4. frost 5. hail storm 6. poor soil 7. other	

38. Do you ever lose soil by erosion in your field?	1. Never 2. occasionally 3. continually 4. don't know	
39. Are there any people in your area who have had to abandon their fields because of soil erosion?	1. none 2. few 3. many 4. don't know	
40. How effective do you think the following measures are for controlling erosion?	1. dams 2. grass strips 3. terraces 4. diversion furrows 5. grassed water ways 6. trees 7. grazing control	Not effective successful very effective don't know
41. How many livestock do you own at present?	actual number 1. cattle 2. sheep 3. goats 4. horses 5. donkeys 6. pigs	

42. How many fowls do you own at present?	actual number	

43. Which crops do you normally grow?	1. maize 2. sorghum 3. beans 4. peas 5. amadumbe 6. potatoes 7. sweet potatoes 8. vegetables	

44. How much was your last harvest?	actual number (tins/bags) 1. maize 2. sorghum 3. beans 4. peas 5. amadumbe 6. potatoes 7. sweet potatoes	

45. Would you regard your last harvest as normal, high, low?	1. maize 2. sorghum 3. beans 4. peas 5. amadumbe 6. potatoes 7. sweet potatoes	
46. What do you normally do with your produce?	1. consumed entirely by family members 2. sell some to private individuals 3. sell some to merchants 4. sell some to marketing co-operatives	maize sorghum beans peas amadumbe potatoes sweet potatoes

47. Why do you choose to dispose of your produce in this manner?	1. more profit 2. small yield 3. no market 4. no transport 5. tradition 6. it is law	maize sorghum beans amadumbe potatoes sweet potatoes
48. What type of irrigation do you use	0. not applicable 1. yes	sprinkler flooding furrow other
49. What is your income per month?	1. less than R500 2. R500 - R1 000 3. R1 000 - R5 000 4. R5 000 - R20 000 5. R20 001 - above	
50.Does this household have these items?	0. no 1. yes	electricity Television Fridge washing machine motor vehicle

51. What is your primary source of water?	0. not applicable 1. yes	stream well spring private tap community tap other sources

52. What is the distance from a water source?	1.less than 100 m 2.100 m - 1 km 3.1 km - 3 km 4.more than 3 km	
53. What are the primary sources of power for cooking, lighting and heating for this household?	0. not applicable 1. yes	electricity gas paraffin wood coal

54. How much do you spend on food per month?	1. less than R200 2. R200-R300 3. R301-R400 4. R401-R500 5. more than R500	
55. What is your total expenditure for school going children per annum?	0. not applicable 1. less than R500 2. R501 - R800 3. R8-1 - above	