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MARKETING STRUCTURE FOR AGRICULTURAL PRODUCTS IN ZAMBIA

MARKTSTRUCTUUR VOOR LANDBOUWPRODUKTEN IN ZAMBIA

A thesis submitted in partial fulfilment
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Werk van einde studiën voorgedragen tot
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RICHARD MASHEKE MUYUNDA

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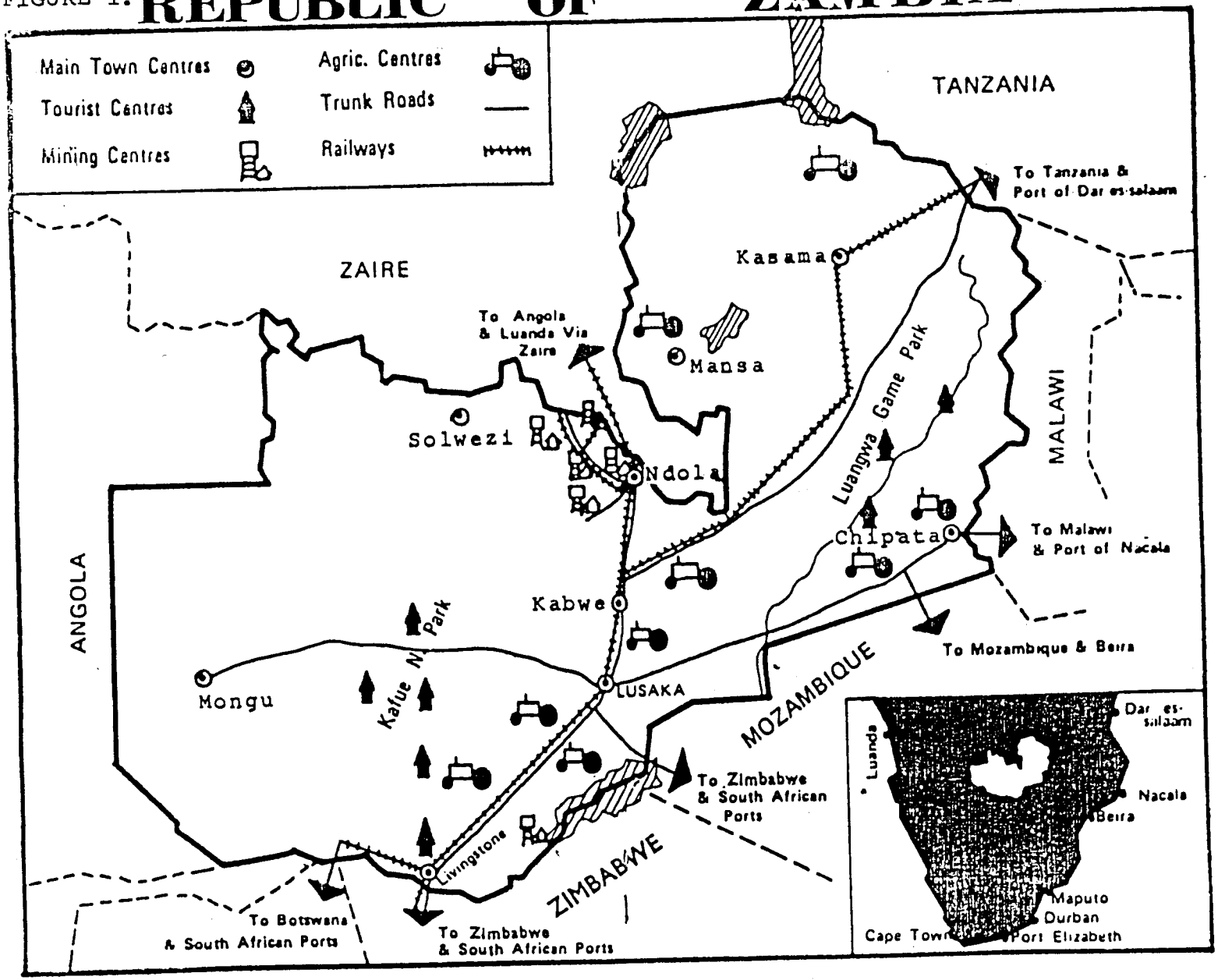
FIGURE 1: REPUBLIC OF ZAMBIA



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EXPLANATORY NOTES ON CURRENCY, WEIGHTS; MEASURES AND SYMBOLS.

CURRENCY:

KWACHA(K) = One Zambian Kwacha = IOO Zambian Ngwee
KWACHA (K)= 0.524 Pounds Sterling

WEIGHTS and MEASURES:

IKILOMETER (Km) = 6.62 Miles
I Kilogram (Kg)= 2.204 Pounds (Lbs)
I Metric Ton (MT) = 2.204 lbs (0.98 Long ton)

SYMBOLS :

GRZ = Government of the Republic of Zambia
ZFC = Zambia Federation of Cooperatives
MCM = Ministry of Cooperatives and Marketing
MAWD = Ministry of Agriculture and Water Development
TBZ = Tobacco Board of Zambia
CSB = Cold Storage Board of Zambia
DPB = Dairy Produce Board
LINTCO = Lint Company of Zambia Limited
CSO = Central Statistics Office
GP = Government Printers
BOZ = Bank of Zambia
n.a = Not available
mt. = metric ton
ha. = hectare
Lt. = Litre
No. = Number
g. = Gram
mls. = Milli litres
mm. = Milli metres

YEAR REFERENCE :

Year	= Calendar Year
Fiscal Year	= From April to March Next Year
Agricultural Year	= From October to September the next Year
Harvest Year	= Year in which bulk of the harvest takes place. For example crops grown in agricu--ltural year I980/8I are shown against harvest year I98I

For totals some figures have been rounded off individually and thus the sum of constituent items may not exactly tally with the totals shown.

THE PROBLEM:

The Zambian Government is currently faced with the problem of establishing a viable and an efficient marketing structure for Agriculture and Food products that will not only provide the products to the consumer at reasonable economic cost but also in good and desirable qualities and quantities and minimum cost on the part of the Central Government. In the past most if not all the products had been heavily subsidised but with austerity measures imposed by International Monetary Fund (IMF) these subsidies had to be done away with.

The other problem is that of provision of food to all parts of the country as not all provinces are self sufficient in food requirements this therefore brings in the issue of distribution from surplus to deficit provinces. Coupled with the above is the problem of productivity to meet not only the national demand but to have surplus for export in order to enable the country earn foreign exchange.

The country inherited a marketing structure from its colonial mas that favoured the line of rail provinces where infrastructure and market were highly developed to suit the expatriate colonial farmers a majority of whom have since left the country after independence in 1964. Now the producers are the indigenous rural populations scattered all over the country far away from the markets. Inevitably this has greatly increase the marketing costs.

The Government now has decentralized the only national marketing Board which was carrying out the buying and selling of all agricultural products except for live-stocks. However there still remains a lot of questions to be solved regarding this reorganisation.

CHAPTER 1

1. INTRODUCTION:

1.1 GENERAL BACKGROUND INFORMATION

The Republic of Zambia is a large country in South Central Africa, shares its borders with eight other countries. It is bounded on the south by Mozambique, Zimbabwe, Botswana and Namibia; on the west by Angola, on the north by Zaire, and in the east by Tanzania and Malawi. Zambia has an area of 752,620 square kilometres with a population of about six (6) million people (1980) and more than seventy (70) different tribal groups. The main languages spoken are English (the official and commercial language), Lozi, Tonga, Nyanja and Bemba with a host of local dialects. Having been a British colony it attained its independence on the 24-10-64. Dr. Kenneth Kaunda became Zambia's first President, a position he still holds today under the United National Independence Party (UNIP) which is currently the only official political party under the Republic's one party participatory democracy system.

The climate is a temperate savannah and woodland with 1400 metres above sea level. It has fertile soils, adequate rainfall (barring the occasional drought), and the mild climate makes it possible for all year round planting. However Zambia, despite this recognised vast potential for agriculture and self-sufficiency in food production being a primary goal in the Government's various development plans, progress in the realisation of this goal has been slow. Only 5-6 percent of the estimated 50-60 percent total land area considered to be immediately arable is cultivated (Bank of Zambia 1980). The principal population's cash and staple food is maize. Other food stuffs actively produced include beef, pork, poultry, wheat, sugar, sunflower, rice and groundnuts plus horticultural and vegetable products. Tobacco and cotton are also produced, and in fact tobacco is the second largest crop.

1.2 ZAMBIAN AGRICULTURE AND THE ECONOMY:

Developments in the Zambian economy in recent years have been disappointing. The annual real growth rate of the economy in the last five years period up to 1981 has an average of minus 2.1% with improvements of 1.8% and 3% being recorded only in 1978 and 1980 respectively due to the country's dependence on copper and the price of copper has not been good due to world recession in the industrialized countries who are the major buyers of copper (Bank of Zambia Economic Memorandum 1980). As indicated in Table 1, the Agriculture sector which also includes Forestry and Fisheries contributed an estimated 12% to the total real Gross Domestic Product (GDP) in 1980. Table 2 shows GDP at market prices in million kwacha 1977-1981 and Table 3 shows GDP by Economic Activity at market prices and values 1976-1981. One clearly notices the increasing unevenness in the performance of the domestic economy over the last decade. The poor performance of the mining sector which declined from 33% of real GDP in 1971 to 29% in 1980 which is substantial considered in the light of the relatively stagnant growth in real terms in total GDP over the ten-year period has emphasized the need for the country to lessen its reliance on copper and diversify into other sectors especially into agriculture to enable the country earn the much needed foreign exchange and self sufficiency in food requirements. For external trade please refer to Table 29, being values of imports (K'000), values of exports (K'000), exports and imports by region (K'000) and values of agricultural and food imports and exports and net trade deficit by year from 1974-1980, 1981 and 1982 figures are not available. These tables clearly illustrate how dependent our economy is on copper and other minerals and inevitably these are finishing assets and therefore cannot be relied upon forever plus the very fluctuating nature of their prices. Thus agriculture's role in the Zambian economy cannot be ignored.

TABLE 1

G.D.P. by Economic Ativity at Constant 1970 Prices and Values

		1975 Kmn	%	1976 Kmn	%	1977 Kmn	%	1978 Kmn	%	1979 Kmn	%	1980 Kmn	%
I	**Primary sector**	**584.9**	**40.3**	**670.1**	**44.3**	**637.9**	**44.4**	**673.8**	**45.9**	**554.7**	**41.0**	**562.6**	**41.6**
	of which: Agriculture, livestock fishing and forestry	157.0	10.8	166.9	11.3	168.2	11.7	169.0	11.5	153.4	11.3	166.5	12.3
	Mining	427.9	29.5	503.2	33.3	469.7	32.7	504.8	34.4	401.3	29.7	396.1	29.3
II	**Secondary sector**	**345.0**	**23.8**	**304.0**	**20.1**	**289.6**	**20.2**	**292.3**	**19.9**	**292.1**	**21.6**	**294.0**	**21.7**
	of which: Manufacturing	157.6	10.9	151.9	10.0	141.4	32.7	152.0	10.4	151.9	11.2	158.9	11.7
	Construction	138.5	9.5	99.5	6.6	90.4	6.3	82.0	5.9	77.6	5.7	68.6	5.1
	Electricity and water	48.9	3.4	52.6	3.4	57.8	4.0	58.3	4.0	62.6	4.6	66.5	4.9
III	**Tertiary sector**	**494.9**	**34.1**	**519.0**	**34.3**	**491.9**	**34.3**	**489.9**	**33.4**	**473.9**	**35.0**	**493.0**	**36.1**
	of which: Trade, hotels and restaurants	123.8	8.5	127.2	8.4	114.5	8.0	114.9	7.8	93.0	6.9	112.9	8.3
	Transport and Communications	57.6	4.0	67.0	4.4	61.5	4.3	62.1	4.2	64.3	4.6	67.1	4.9
	Financial institutions, Real Estate and business services	132.9	9.2	136.4	9.0	125.9	8.8	121.9	8.3	128.0	9.5	123.7	9.1
	Community, social and personal services	180.6	12.4	188.4	12.5	190.0	13.2	191.0	13.0	188.6	13.9	189.3	13.9
VI	**Customs duties on final Demand**	**26.9**	**1.9**	**20.1**	**1.3**	**16.0**	**1.1**	**12.0**	**0.8**	**11.5**	**0.9**	**13.0**	**0.9**
	Sub total	**1451.7**	**100.0**	**1513.2**	**100.0**	**1435.4**	**100.0**	**1468.0**	**100.0**	**1352.2**	**100.0**	**1362.6**	**100.0**
	Correction for imputed bank charges	13.6		13.1		11.0		9.2		10.1		8.1	
	TOTAL:	**1438.1**		**1500.1**		**1424.4**		**1458.8**		**1342.1**		**1353.7**	

Source: Central Statistical Office and Bank of Zambia.

TABLE 2

GROSS DOMESTIC PRODUCT AT MARKET PRICES 1977 - 1981.

(K' million)

	1977	1978	1979	1980	1981
GDP at current values	1951.5	2202.6	2597.6	2986.3	2989.9
Percentage change over previous year	4.2	12.9	17.9	15.0	0.1
GDP at constant 1970 values (Unadjusted for terms of trade)	1428.2	1454.8	1329.2	1369.7	1344.9
Percentage change over previous year	-4.8	1.9	-8.6	3.1	-1.8
GDP at constant 1970 values (adjusted for terms of trade)	965.5	1006.6	874.8	937.7	825.1
Percentage change over previous year	-7.9	4.3	-13.1	7.2	-12.0
Per capita GDP at current value	368.0	403.0	460.0	526.0	496.0
Per capita GDP at 1970 values (unadjusted)	269.0	266.0	235.0	241.0	223.0
Per capita GDP at 1970 values (adjusted)	182.0	184.0	155.0	165.0	137.0

SOURCE: CENTRAL STATISTICAL OFFICE. LUSAKA.

TABLE 4.

TABLE

AREA UNDER CULTIVATION FOR SELECTED CROPS (HECTARES):

Crop \ Year	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
MAIZE	268078	485000	395000	335800	540000	552588	454500
GROUNUTS	7599	102000	137000	43200	25552	32533	22440
SUNFLOWER	19282	24000	23900	24800	30791	47385	41440
COTTON	6012	10509	21440	24000	30300	36980	23870
SOYA BEANS	825	1200	2200	2200	3700	6229	5290
WHEAT	1144	1700	1585	1600	2400	3027	3700
VIRGINIA TOBACCO	8608	-	3700	4700	-	4795	2160
RICE	2236	-	-	3100	5100	5876	5920
SUGAR	8709	9600	10300	10000	10000	9894	n.a;

SOURCE: Planning Unit, Ministry of Agriculture and Water Development. LUSAKA.

TABLE 3

G.D.P. by Economic Activity at Market Prices and Values

	1975 Kmn	%	1976 Kmn	%	1977 Kmn	%	1978 Kmn	%	1979 Kmn	%	1980 Kmn	%
I **Primary Sector**	421.6	26.3	615.1	32.5	555.2	28.1	644.6	29.0	858.7	32.4	968.4	31.6
of which: Agriculture, Livestock, fishing and Forestry	206.4	12.9	273.3	14.4	321.5	16.3	357.8	16.1	375.0	14.1	433.8	14.1
Mining	215.2	13.4	341.8	18.0	233.7	11.8	286.8	12.9	483.7	18.2	534.6	17.4
I **Secondary Sector**	444.5	27.7	440.0	23.2	473.0	24.0	537.8	24.2	591.3	22.3	701.7	22.9
of which: Manufacturing	250.3	15.6	275.6	14.5	314.0	15.9	383.9	17.3	433.3	31.4	537.9	17.5
Construction	151.2	9.4	116.6	6.2	108.5	5.5	105.4	4.7	106.2	4.0	110.0	3.6
Electricity and water	43.0	2.7	47.8	2.5	50.5	2.6	48.5	2.2	51.8	2.0	53.8	1.8
III **Tertiary Sector**	674.3	42.1	793.7	41.9	896.8	45.4	991.7	44.6	1141.7	43.1	1318.6	43.0
of which: Trade, hotels and restaurants	157.5	9.8	184.4	9.7	214.9	10.9	247.8	11.1	297.3	11.2	345.0	11.2
Transport & Communications	88.5	5.5	118.5	6.3	134.4	6.8	142.1	6.4	168.8	6.4	200.1	6.5
Financial Institutions, Real Estate and business Services	159.8	10.0	181.5	9.5	202.0	10.2	219.8	9.9	255.4	9.6	281.2	9.2
Community, social and personal services	268.5	16.8	309.3	16.3	345.5	17.5	382.0	17.2	420.2	15.8	492.3	16.0
IV **Customs duties on final demand**	62.0	3.9	45.4	2.4	49.0	2.4	50.0	2.3	60.0	2.3	80.0	2.6
Sub total	1602.4	100.0	1894.7	100.0	1974.0	100.0	2224.1	100.0	2651.7	100.0	3068.0	100.0
Correction for imputed bank charges	19.0		22.5		22.5		23.5		28.8		30.8	
TOTAL:	1583.4		1872.2		1951.5		2200.6		2622.9		3038.2	

Source: Central Statistical Office and Bank of Zambia

1.3 GOVERNMENT AGRICULTURAL AND FOOD POLICY:

Usually there are some economic conflicts involved in the food marketing mix. Consumers are interested in securing the highest food value at the lowest possible price while farmers want the highest possible returns from the sale of their products and the food marketing middleman seeks to earn the greatest profit possible. One primary task of the food marketing system is to reconcile these sometimes conflicting demands.

Behind the above conflicts lay the foundation of the Zambian Government's Agricultural Policy, that of satisfying both the consumers and producers and aiming at guaranteeing supply of food to the nation. The longterm policy objectives as contained in the Ministry of Agriculture and Water Development paper prepared by the Sectoral and Policy Analysis Section, Lusaka of May 1982 are: "Long term objectives for agricultural and food production are, of necessity, intimately linked with, and in large part derive from, Zambia's general economic development thrusts. Of particular relevance for agriculture are the thrusts towards:

i) Improved balance of external payments.

ii) Economic diversification (away from dependance on mining).

iii) Rural development (increased rural employment and productivity leading to a greater contribution of the rural sector to gross national product, and to reduced rural-urban income disparities).

iv) Regional development (with decentralisation).

The objectives of agricultural and food policy in Zambia can be summarized as follows:

1) Increased agricultural production, leading to national and regional self-sufficiency in basic foods, and eventually, a positive external trade balance for agricultural and food sector which currently is in deficit (refer Table 29).

1/ i) Third National Development Plan (1979) pages 22,26, and 144
ii) The President's Address to Parliament (11 Jan.1980) pages 5-7.

iii) The Minister of Finance's Budget Address (Jan.1980) pages 7,13,15,16.
iv) State House Announcement of Operation Food Production (23/5/80) pages 5,6,8,11,12,19 and 20.
v) The President's Addresses: Jan.1981 pp.6-8, Jan?1982 pp.12-13, and
vi) The Minister of Finance's Budget Address (J an.1982) pp.5,11,12 and 14.

2) Agricultural diversification, to reduce the dependance of farmers' and sector income on maize and just a few other major crops.
3) Increased processing of Zambian-produced raw farm products.
4) Increased marketable surplus production from small-scale producers that is increased participation of traditional producers in the money economy.
5) Reduced subsidies in the agri-food sector.
6) Improved nutritional intake and balance, in particular of the lower income groups.
7) Increased rural employment in agricultural production, processing and marketing activities.

Basically the role of agriculture or rather the basic functions are the usual ones those of: (i) Provision of food for the population (ii) provision of raw material for other sectors (iii) provision of capital fund through savings and taxes to other sectors (iv) provision of employment opportunities and act as a source of employment for other sectors and being or provision of a market for non-agricultural products. This paper will mostly be concerned with the marketing aspect as there is no point in having a bumper harvest if all of it may end up going to waste because of poor storage facilities or if the population being the consumers are going to be exploited due to the poor or inefficient marketing structure. Having discussed briefly the general background information about the Zambian agriculture, economy and policy it is now appropriate to just stress the importance of a good marketing structure if the well-intended objectives and policies will be achieved for the betterment of the society as a whole.

1.4 THE IMPORTANCE OF AGRICULTURAL MARKETING IN ZAMBIA:

An efficient marketing system is very important for any country if there has to be a fair distribution not only of income but an equitable distribution of the food products themselves. In Zambia

not all the nine provinces are self-sufficient in food production and the distances from the main producing to the deficit areas are so long and transportation system extremely poor such that one area could be having so much food while the others nothing, and could also happen that storage facilities in the surplus area are poor resulting in produce going to waste. It is not uncommon to read in the papers that in such an area such and such a product is going to waste yet somewhere else people are in so much need for food. This situation is not only occuring in Zambia at times but in some other so-called "under-developed" countries in the Third World countries. Who should be blamed for this? I leave the answer to this question to you the reader.

F.A.O.(1961) describes marketing in its widest sense as: "comprising all the operations involved in the movement of food and raw materials from the farm to the final consumer". It stops short only at processing which changes the nature and use of the product, or is so technical in character as to become a specialisation in itself. Marketing therefore includes the handling of the product at the farm, initial processing, grading and packaging in order to maintain and enhance quality and thus avoiding wastage. Thus measures to transport produce from farm to local and central assembly points, and for subsequent distribution to consumers are important features of marketing. Selling and pricing procedures, intermediary charges, institution fees, tolls and taxes help to determine the difference between the price paid by the consumer and that received by the producer. Throughout the stages of marketing easy access to credit is very necessary if goods are to move freely and bargains be concluded without duress.

An efficient marketing system is thus of critical importance to any country, Zambia included, under all conditions and at each stage in its development. In areas such as Zambia where dense populations live at subsistance levels the seasonal failure of a basic food crop can bring widespread famine and suffering. Meanwhile other parts of the same country may be holding supplies more than adequate for their local requirements. Really such problems are increased by transport and storage deficiencies, lack of communication between one part of the country and another and lack of information on current stocks and future needs and the unreliability of the existing

food handling machinery in recognizing and responding to the needs of the community. All these conditions reflect defects in the marketing system.

Zambia's subsistance population is not stagnant, incomes are rising thus need for new ways of living; so is their eating habits. Diets are changing and more fresh and processed foods are demanded; thus a need for better marketing structure that will facilitate the conveyance of perishable products from farm to consumer in good condition at a reasonable cost. For a good percentage of the ever urban expansion in Zambia means or rather calls for provision of basic foodstuffs for fundamental nutritional necessity and their costs and quality is a major factor in consumer welfare and thus savings in marketing costs would increase consumer demand through lower retail prices without any comparable reduction in the prices to the farmer and reduction of costs and margins in marketing is the best way to improve farm incomes, as it allows the rest of the population to benefit from a relative lowering of agricultural prices.

As mentioned earlier Zambia is a big wide country with varied features all of which offer a wide range of infrastructural problems and transportation problems and this makes more necessary good planning and investment through a well organised and technically well qualified personnel running the marketing machinery, be it cooperatives, marketing boards or private enterprise. This is so due to the special characteristics of agricultural products. Farm products tend to be bulky and their weight and volume is great for their value in comparison with many manufactured goods. The demand for storage and transport facilities is heavy and often specialised thus usually requiring heavy investment. The type of institutions or structures will differ from area to area and from product to product. This will be dealt with later in the text specifically for the Zambian situation.

1.5 THE OBJECTIVE OF STUDY

The purpose of this study is to examine the marketing structure for agricultural products for Zambia using institutional, functional and behavioral approaches and regression analysis and try to establish the following:

(i) Structural changes to the present system if necessary.

(ii) The actual supply and demand of food products in Zambia.

(iii) Use the minimum guaranteed producer prices and find out how effective they are on total production (supply). This will involve use of Regression Analysis.

1.6 THE ORGANIZATION OF THESIS

Use of secondary /data obtained from existing literature and statistical data from various sources mainly books, reports and personal interview has been made. The study is organized in five (5) chapters each focusing on different aspects. Chapter one (1) discusses the general background information about Zambia, the Zambian agriculture and economy, the government agricultural and food policy, the importance of agricultural marketing in Zambia and the problem. It should be emphasized that treatment of the various crops will be limited to maize, sunflower, groundnuts, paddy rice, wheat , soya beans, sorghum, seed cotton, tobacco, whole milk, cassava and beef.

Chapter two (2) deals with some theoretical concepts relevant to agricultural marketing which will be used in the analysis. An overview of the Zambian agricultural structure with particular reference to the farming ladder (system), the present marketing structure, agricultural credit and payment for crops, commodity development projects and the supply and demand of food models for Zambia is covered in chapter three (3).

Chapter four (4) deals with, analysis, evaluation and discussion and finally, chapter five (5) deals with the conclusion and suggestions.

1.7 THE LIMITATIONS OF THE STUDY

Usually associated with studies based on secondary data there is always the problem of data reliability and availability. For one to fully analyse a marketing system a detailed study of the functions of marketing is needed, unfortunately function by function analysis was not possible due to data unavailability. However, it is hoped that at least the above stated objectives have been met. It should also be mentioned here that most of the sources of data are from Lusaka and some reports may be not published but nonetheless are valid from Zambian point of view as these are official sources of data from recognized establishments.

2. THEORETICAL CONCEPTS

Theoretical concepts are worthy reviewing as they in the final analysis help in evaluating the studied situations. This section is intended not to give extra definitions on agricultural marketing as this has already been very professionally done by the learned experts. The purpose is to look at such literature that can provide tools for economic analysis of the undertaken work.

2.1 MEANING OF MARKETING:

To many people marketing means different things. To the consumer marketing may refer to weekly food shopping trips to the supermarket 'the most visible tip of the food marketing iceberg' (Kohls & Uhl 1972). While the farmer dealing with the local buyers may associate marketing with loading his farm produce on a truck to the market. The retailers, wholesalers and processors may view marketing as gaining a competetive advantage over rivals.

It may also be interesting too to look at FOX and WHEATLY(1978) two views of marketing the macro or economic system which says "the marketing system directs an economy's flow of goods and services to consumers and accomplishes society's objectives". This gives a panoramic view of the marketing system as it operates in the economy and Jerome McCarthy (1976), pp.18-19, refers to this as a managerial approach. It is on this level that most social critics have questioned the marketing process: How well do we use our resources? Has income been equitably distributed? Are marketing's objectives the same as the public's objectives? Clearly marketers must be prepared to discuss and evaluate the marketing system on this level of analysis. The second view is the 'micro' or the perspective of the marketing manager. This approach focuses on the activities of marketing. William and J. Santon (1975) defined marketing as "a total system of business activities designed to plan, price, promote and distribute want satisfying products and services to present and potential customers". Simply then marketing is finding out what people need, helping to develop need satisfiers, informing and persuading, moving properly priced products and services to consumers and keeping consumers satisfied. We may refer to this as functional approach of marketing.

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Food marketing is neither a mechanical nor an automatic operation. The essence of marketing is management decision-making. The

quality of food marketing decisions influences to a great extent the cost and efficiency of marketing systems. There are some economic conflicts involved in the food marketing system, those of having to satisfy apparently opposing forces, the producers, the middlemen, and the consumers all of whom want to maximise their satisfactions. Therefore one of the fundmental jobs of the marketing system is to reconcile the desires which are often conflicting in their demands.

The Food and Agricultural Organisation (F.A.O.)-(1961), describes agricultural marketing in its widest sense as comprising all the operations involved in the movement of food and raw materials from the farm to the final consumer. It includes the handling of the product at the farm, initial processing, grading and packing in order to maintain and enhance quality and avoid wastage. Transportation of produce from the farm to local and central assembly points and for subsequent distribution to consumers are important features of marketing.

AGRICULTURAL MARKETING:

The marketing of agricultural products begins at the farm when the farmer plans his production to meet specific demands and market prospects.

The product when it is harvested cannot usually go direct to the consumer. Firstly it is likely to be located some distance from the place of consumption. Thus transport is needed to bring the product to the right place. Secondly agricultural production is generally seasonal while consumption is regular and continuous throughout the year. Thus storage is required to adjust supply to demand. Thirdly a product when it has just grown is rarely in a form acceptable to consumers. It must be sorted, cleaned and processed in various ways and must be presented to the consumer in a convenient quantity for sale. Finally the farmer expects payment when his produce leaves his possession. Some financial arrangement must be made to cover all the various stages until the retailer sells the product to the consumer. It is marketing which provides these services between production and consumption.

As economic development of a country proceeds the gap between farm and consumer widens and the tasks of marketing become more complex. Modern methods of storage and processing including refrigeration and forms of retail distribution are required. These may even become separate specialisations, although they still remain elements of marketing. Storage and processing facilities must be part of the marketing process if the system is to be used to full advantage. Retail enterprises have a direct link with the consumer and tend to reflect the needs of the consumer. The structure and sale methods of retailers can have an important influence on the marketing procedure, linking the retailer to the farmer. Agricultural marketing also includes the selling to farmers of supplies needed for production. These include fertilizer, pesticides, other agricultural chemicals, livestock feed, farm machinery, tools and equipment.

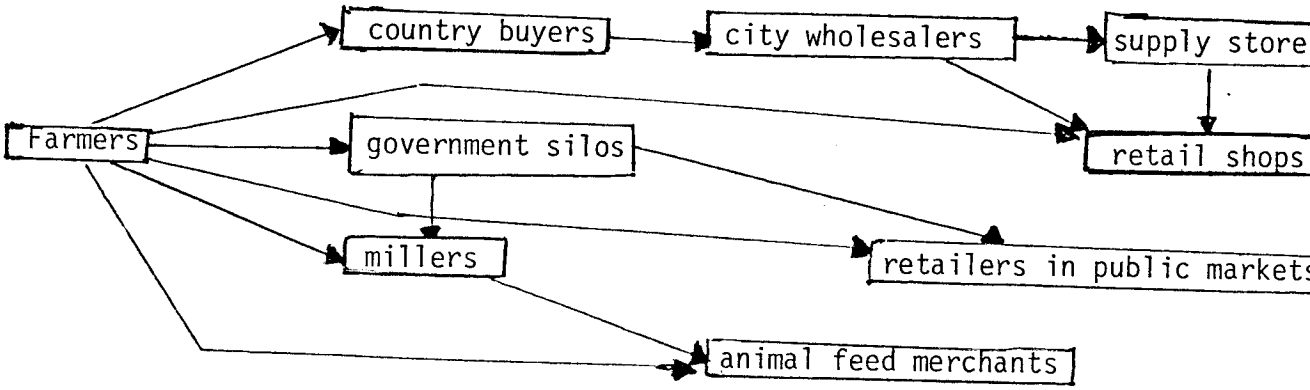
Thus the conception of what is marketing has broadened considerably in recent years (decades). Marketing now includes all those business activities involved in the flow of goods and services from production to consumption. In its broadest sense marketing performs three main functions namely assembly, preparation for consumption and distribution, and in carrying out these processes a number of subsidiary services are needed to enable the concentration at convenient points of products coming from scattered farms, their conversion into a convenient form and their distribution to consumers and these fall into two main classes - physical services used in changing the form of a product and moving it from one place to another, and those concerned with the transfer of ownership. These will be discussed later in detail under the theory of functional approach.

2.2 MARKETS AND MARKETING CHANNELS:

A market may be defined as an area in which exchange can take place. The limits of a market are determined not so much by distance as by the mobility of the product and the availability of means of payment and of information on possible wants and supplies. Kohls & Uhl(1972) define a market as an arena for organizing and facilitating business activities and for answering the basic economic questions: what to produce, how much to produce, how to produce, and how to distribute production. A market may be defined by a) location b) a product c) a time or by d) a level of market. Thus the choice of

a market definition is a function of the problem to be analysed.

The sequence of intermediaries and markets through which goods pass enroute from producer to consumer is known as a market channel. Below is a sample diagram of a possible parket channel for maize:



2.3 MARKETING MARGINS:

The services of various agencies constituting a marketing channel are remunerated out of the marketing 'margin'. This term is used to denote the difference between the price paid to the first seller and that paid by the final buyer. It is made up of the individual margins obtained by the intermediaries who actually assume ownership of a product and then resell it together with specific charges for marketing services rendered.

Kohl & Uhl (1972) refers to marketing margins as essentially the price of all utility-adding activities and functions performed by food marketing firms. The price includes the expenses of performing marketing functions and also the food marketing firm's profits. A detailed analysis of this concept will be done when analyzing the actual marketing margins for some products in Zambia later.

2.4 MARKETING EFFICIENCY:

Another very important concept is the marketing efficiency as this is one of the tools which can be used to measure how efficient our marketing system is. There are two aspects of marketing efficiency which may be distinguished: the physical handling of the product and the economic terms on which the handling takes place. Efficiency in market handling is a matter of procedure, technique and scale of operation. New methods of storing, packing, transportation, loading

and unloading for example may reduce wastage and prevent deterioration in quality. Labour economies at various stages may be achieved by the adoption of new handling methods or the use of machinery. Technological advances in refriggeration, fumigation, maintenance of flavour and consistency may be adopted to improve the quality of the product offered to the consumer and limit handlers losses. Once again a detailed application will be made in the evaluation chapter to follow.

2.5 APPROACHES TO THE STUDY OF FOOD MARKETING:

There are several ways to approach the study of agricultural and food marketing and each orientation provides a unique perspective on the nature and workings of the marketing process. Some approaches are descriptive and others attempt to evaluate the marketing system and provide recommendations for improving it. For the purpose of this study use of the three approaches wherever applicable will be made.

2.5.1 THE FUNCTIONAL APPROACH:

This is classifying the activities that occur in the marketing processes by breaking it down into functions. A marketing function may be defined as a major specialized activity performed in accomplishing the marketing process. Kohland Uhl (1972) make the following general classification:

A. Exchange functions.
1. Buying (assembling)
2. Selling

B. Physical functions.
3. Storage
4. Transportation
5. Processing

C. Facilitating functions.
6. Standardization
7. Financing

8. Risk bearing
9. Market intelligence.

The functional approach considers the jobs that must be done, it is not concerned with the agency that performs them. Functional analysis is helpfull in evaluating marketing costs. The functional approach is also helpfull in understanding the difference in marketing costs of various commodities for example perishables and non perishables. Further by breaking down a complex marketing task into its components greatly helps in efforts to improve the performance of the marketing system.

2.5.2 THE INSTITUTIONAL APPROACH:

Whilst the functional approach attempts to answer the 'what' in the question of who does what the institutional approach focuses attention on the 'who'. Marketing institutions are the variety of business organisations that have developed to operate the marketing machinery Kohl and Uhl (1972). In this approach the human element receives primary emphasis. The middlemen of marketing are the specialized performers of marketing functions from production to consumption. Those of particular concern to good marketing can be classified as given by Kohl and Uhl (1972) as follows:

A. Merchant Middlemen.
1. Retailers
2. Wholesalers
B. Agent Middlemen.
1. Brokers
2. Commission men
C. Speculative Middlemen.
D. Processors and Manufacturers.
E. Facilitative Organizations.

Why this approach in analysis of marketing problems? Very often the 'why' of certain marketing practices must be answered in terms

of the characteristics of who performed them, such an analysis has the advantage of preventing the personal aspects of marketing from being ignored.

2.5.3 THE BEHAVIORAL SYSTEM APPROACH:

Both the functional and institutional approaches are usefull in analysing the existing marketing activities. However the marketing process is continuously changing in its organization and functional combinations. How to understand and predict change is a major problem. Here we observe four types of problems with their associated behavioral system and these are:

a) input output system
b) the power system
c) communication system and
d) the behavioral system for adopting to internal and external change is a major component of the firm or organisation. Input, output, communications and adaptive behavior are all components of the marketing system at any one time. The analytical view of multiple behavior systems adds the important dimension of decision makers and their differing goals to the rather impersonal functional and institutional analyses. It points up sharply that market analysis is not the province of economics alone each of the social sciences as well as physical sciences can contribute to the understanding of marketing problems.

2.6 FORMS OF AGRICULTURAL ENTERPRISES

Marketing enterprises fall into three broad categories. Common in most countries is the independent private enterprise. This may range in size and complexity from a one-man firm to a multi-national corporation. The second category is the cooperative, founded on the principal of equal participation by its members in both its capitalisation and its policy. The third is the marketing board or State enterprise established and founded by public law or decree, with direct government participation in its management.

2.6.1. PRIVATE ENTERPRISES

The private trader tends to be viewed unsympathetically by the general public in many countries. Surplus produce to the farmers' needs has no value unless it is brought to consumers at a convenient place and time. J. C. ABBOTT and J. P. MAKEHAM (1979) state that "Nevertheless the popular idea persists that the sowing and weeding of a crop is intrinsically productive, but its subsequent storage and distribution to consumers is not." This feeling is reinforced in situations wehre competition is imperfect and prices are unstable, so that traders appear to manipulate prices and reap profits. Professor P. T. BANER points out that if a particular trader in a marketing chain were really unnecessary, he would be unlikely to survive, since other traders would by pass him and secure for themselves the "profits" he enjoys.

Normally it is in the interest of the traders themselves to minimize the number of intermediaries who share the margin between producer and consumer prices. When there is large number of intermediaries, there is reason to expect that each fulfils a need under the existing conditions.

An objective analysis of the business methods and decision making of the small scale trader and of the factors determining his growth as a marketing enterprise should be made to guide such programmes.

2.6.2. MARKETING BOARDS

Marketing boards are public bodies set up by government action. They have legal powers of compulsion over the producers and handlers of agricultural products. Marketing boards differ from cooperatives or trade associations in that they are generally empowered by government Statute to represent and exercise administrative authority over all market producers of specific commodities. The farmer in a marketing board has "controlled" status whereas his status in a cooperative is that of a member. There are six common types of marketing boards with varied responsibilities, administrative requirements, marketing skills and application of capital. These are (a) Advisory and Promotion, (b) Regulatory, (c) Price stabilisation without trading (d) Price Stabilisation by trading alongside other enterprises (e) Monopoly export marketing and (f) Monopoly of trading and processing in specified areas or market channels within a country. The following observations may be made regarding marketing boards:-

(1) Modern management, financial and personnel procedures can be followed more easily by marketing boards than by government departments;

(2) Marketing channels must be few and concentrated if quality or sales are to be controlled. Export commodities are most amenable to marketing board management;

(3) Price stabilization through buying part of the market supply is more difficult for perishable fruits and vegetables than for grain because of storage difficulties;

(4) Price stabilization in the short term, depends greatly on the skill of the directors in forecasting future market situations and handling their reserve stocks and stabilization funds;

(5) Producers'incomes can be affected adversely by price stabilization if their output varies considerably and free market prices change inversely to output;

(6) Selling prices should be higher through marketing boards than those obtainable through competing traders. This is because bargaining power is concentrated under one management;

(7) Bargaining power of the farmer at the primary selling level has generally been raised by the establishment of marketing boards. Usually a guaranteed price is fixed;

(8) A common criticism of public marketing bodies is that overstaffing compared to private enterprises doing similar work;

(9) Another cirticism is that of misuse of marketing board powers and money for group political or individual profit is exposed from time to time.

Thus marketing boards and similar state enterprises offer many potential advantages. They can raise farmers' returns and reduce their risks; they can also protect consumers. To government, they constitute a valuable instrument for policy implementation. the benefits that accrue in practice will depend on the policies a board pursues and the efficiency with which it operates.

2.6.3. MARKETING COOPERATIVES

Cooperation by producers or consumers to provide needed marketing services in an approach to marketing improvement that has aroused wide interest. Generally, it is stimulated by the feeling that established intermediaries are either providing an inadequate service or they are charging too much to it. In joining together to undertake marketing functions such as semmbling, packing, storing and selling, producers and consumers are setting up an alternative marketing agency to those already available and thus raising the level of competition.

Thus circumstances under which the formation of a cooperative could improve marketing significantly would be those where it could either expect to operate more efficiently than existing enterprises, possibly by obtaining special advantages through the cooperation of producers and consumers or where it could expect to operate equally, efficiently and there was a tendency towards monopoly, market sharing or other limitations or competition in the trade channels otherwise available.

Conditions favouring successful cooperative marketing can be summarised as:-

(1) Specialized producing areas distant from their major markets;

(2) Concentration and specialization of production;

(3) Similarity of product and production methods;

(4) Population characteristics, economic, cultural or racial also affect the success of cooperatives;

(5) Areas in which there are independent, unrelated changes in annual output and demand stand to benefit from the stabilizing procedures accessible through lare-scale cooperation but not feasible for individuals acting independently;

(6) Groups which are dependent on one or a few crops for their total income are generally weel advised to enter a cooperative.

3.0 ZAMBIAN AGRICULTURE AND MARKETING STRUCTURE

3.1 FARMING LADDER

The Zambian agricultural system is that of mixed farming and varied levels of management better known as the farming ladder. This classfication is done either by farm size or level of the farmer's volume of marketed out or better what precentage the farmer markets out of his total production. In short apart from differences in size, farms of the different categories mainly differ in:

a) degree of commercialization (not quantified);

b) size of household;

c) Source of motive power (indicative)

The categories of farms used for the analysis are four:

Category 1: Large scale commercial farms (40 ha and over).

Category 2: Medium scale commercial farms (10-40 ha)

Category 3: Small scale commercial farms (1-10 ha).

Category 4: Traditional farms (1-5 ha, usually 1.2 ha).

The commercial farmers market nearly all of their output peasant farmers market less than 50% of their output and emergent farmers have risen from peasantry rank and market more than 50% of their output. The lowest category produce only enough for their family consumption. The majority of the farmers in category one (1) are expatriate farmers.

3.2 THE PERFORMANCE OF THE SECTOR

The discussion will not address itself to agronomic aspects of agricultural production instead it will broadly be broken into marketed out (production) statistics and the Marketing and marketing structure which will involve an examination of the channels, markets and institutions. A commodity by commodity

with the latest data and of immediate interest for analysis. The reader is however referred to table 5 for a detailed evolution of marketed production for all recorded commodities. Table 4 shows areas under cultivation for selected crops while table 9 shows mean areas by category by province.

3.1.1 MAIZE

The 1980/81 season can be described as a bumper year for domestic production of maize. The intake of maize by the National Agricultural Marketing Board (NAMBOARD) and the Marketing Co-operative Unions from the 1981 crop totalled 7.7 million bags representing an increase of about 81 percent over last season's marketed production of 4.2 million bags. As stated at the outset, this sharp increase in production can partly be attributed to the favourable rain and rainfall disbribution experienced during the 1980/81 crop season.

It should be noted, however, that the estimated cropped area under maize increased by 40 percent from 367,000 hectares in 1979/80 to 514,000 hectares in 1981 reflecting the probable effect of more favourable prices offered to farmers. The producer price of maize went up by about 15 percent from K11.70n in 1980 to K13.50n in 1981. Other additional incentives offered to farmers during the season under review were the reduction in the price of hybrid seed, lowering of the fertiliser prices and a foreign exchange allowance to Commerical farmers of K0.50 per bag for each bag marketed in excess of 5,000 bags.

Maize is grown by both large-scale commercial farmers and traditional farmers. In the 1980 of the total NAMBoard/Unions procurement of 4.2 million bags of maize, 61 percent was purchased from small scale farmers and the contribution by small scale farmers to marketed production in 1981 was even higher.

The total value to producers of officially marketed maize in 1981 was K104 million. This represents almost 80 percent of the total value of all officially marketed crops.

3.1.2 RICE

The producer price for paddy rice was increased from K18.00 to K18.60 kg a bag in the 1980/81 season as an incentive to boost production.

The total cropped area under rice increased by 16 percent from 5,100 hectares in the previous year to 5,900 hectares. Marketed production of rice in 1981 was 34,800 bags representing an increase of about 26 percent over 1980's production of 27,700 bags. The current production of rice meets only about 30 percent of the total domestic demand.

Production of rice is mainly by small scale farmers in Northern, Eastern and Western Provinces.

3.1.3 WHEAT

The 1981 producer price for wheat was K26.00 per bag (K288.90 per tonne) an increase of 8.3 percent over the 1980 price of K24.00.

The total planted area under wheat during the 1980/1981 season was 3,200 hectares representing an increase of about 33 percent over the previous year's hectareage. Marketed production (Namboard, Cooperatives Unions and National Milling Company) in 1981 was 130,100 bags, an increase of about 22 percent over the preceding season's level of 106,500 bags. Despite this increase, the present level of production meets only about 10 percent of the country's annual consumption of approximately 120,000 metric tonnes.

Currently, production of wheat is mainly by a few large scale farmers in Lusaka, Central and Southern Provinces under irrigation. Actually, it is estimated that 79 percent of locally produced wheat comes from commercial farmers (about 30 in number), 20 percent from

Government projects and one percent from small scale farmers (about 200 in number). Production of irrigated wheat is an expensive venture which cannot easily be undertaken by traditional farmers.

3.1.4 GROUNDNUTS

The production of groundnuts is dominated by the small scale farmers. The Eastern Province is the major producer. The officially marketed production of groundnuts has been declining in recent years. The producer price for shelled groundnuts was increased from K35.00 in 1980 to K42.70 for grade 'A' in 1981, representing a 22 percent increase. However, despite the price increase and the fact that the hectareage under cultivation increased, officially marketed production declined sharply in 1981. The marketed crop is estimated at 15,500 bags which indicates a decline of 35 percent as compared with 1980's officially marketed production of 25,400 bags. However, the estimated area under crop increased from 24,200 hectares in the 1979/80 crop season to 30,700 hectares in 1980/81.

The most important factor contributing to the decline in the officially marketed output of grounduts is the existence of other more lucrative marketing channels. Large quantities of groundnuts are disposed of on the unofficial market at prices that are much higher than (at times treble) those offered by official marketing organisations. Consequently the marketing figures bear no relation to actual production. It is estimated that official marketings account for only 8 percent of total groundnut production in 1981.

3.1.5 SOYABEANS

Soyabeans is a crop produced predominately by a few large scale commercial producers due to the sophisiticated management techniques required in the growing of the crop. The producer price of soyabeans was increased by about 13 percent from K32.00 on 1980

to K36.30 in 1981 in order to offset the increase in production costs and encourage production. The farmers responded well to the price incentives and the estimated area under cultivation increased 22 percent from 1,400 hectares in 1979/80 to 5,300 hectares in the 1980/81 season. Marketed production was at 40,815 bags in 1981 (Namboard, cooperative unions, and Hybrid Poultry Limited), an increase of about 6 percent over the previous season's marketing of 39,200 bags.

3.1.6 SUNFLOWER

Sunflower production is continuing to expand at a healthy rate. Although the producer price was increased by only 7 percent, i.e. from K16.40 in 1980 to K17.60 in 1981, it was sufficiently attractive to induce producers to significantly increase the cropped area. The area under sunflower increased more than 50 percent to 47,385 hectares, from 30,791 hectares in 1979/80. The increase in hectareage came mainly from the Eastern, Southern and Central Provinces.

The 1981 marketed production of the crop was 384,800 bags. Sunflower production is dominated by the small scale farmers. It is estimated that they are contributing 75 percent to total marketed production. Eastern, Southern and Central Provinces together produce about 95 percent of the total national crop.

3.1.7 COTTON

Cotton production is predominantly in the hands of small scale growers relying mainly in family labour. Although the producer price was not increased last season, most of the producers considered the price of 0.46/kg for "grade A hand picked" attractive enough to grow the crop. The total number of cotton gorwers in the country increased from 19,805 in 1979/80 to 20,666 1980/81.

The estimated cultivated area under cotton declined by 14 percent, from 30,300 hectares in 1979/80 to 26,200 hectares in 1980/81. Also yields were lower in 1981 due to excessive rainfall during January and February. Hence marketed output was 17.4m. kilograms, a decline of about 27 percent from the previous year's 23.8m kilograms.

Currently, limited cotton processing capacity in Zambia is forcing same export (2 million kg in 1981) of cotton at lower World prices, resulting in a loss being incurred on such exports by Lintco. Clearly it would be unwise for Zambia to stimulate production of raw cotton much beyond current levels until domestic processing capacity has been expanded.

3.1.8 VIRGINIA TOBACCO

The support price to growers in 1981 at K1.65 per kg was 5 percent higher than the 1980 support price of K1.57 per Kg.

Marketed production of virginia tobacco has been in continuous decline since 1974. Purchases by the Tobacco Board of Zambia (T.B.Z) from the 1980/81 crop totalled 2.3m kgs, a decrease of 44 percent from the 1979/80 figure of 4.1m. kgs.

The total value of virginia tobacco sold by T.B.Z. from the 1980/81 crop was K3.8m., representing an increase from the previous years sales figure of K3.2m. Average T.B.Z. sales prices

per Kg were K0.78 in 1980 and K1.65 in 1981.

The Government commissioned a study to look into the operations and organisation of the Tobacco Board during 1980. Upon the recommendations of this study, the reorganisation of TBZ was started in September, 1980 and was completed in July, 1981. TBZ has handed over the running of tobacco production schemes to the Department of Agrculture leaving the Board with the function of marketing the crop only.

3.1.9 BURLEY TOBACCO

The production of Burley tobacco is entirely dominated by the small scale farmers in the Eastern Province which produces about 95 percent of the nation's total crop. Marketings in 1981 totalled 668,700 kgs, representing a 21 percent increase over the previous season's crop of 554,400 kgs. The price paid to producers averaged K1.53n per kilogram. The total value of the marketed crop was K1.02n an increase of 60 percent over the 1980 total of K0.64n. The quality of burley produced was very high and this is reflected in the higher price offered for the 1981 crop.

3.1.10 SUGAR

The total area under cane declined slightly from 10,530 hectares in 1980 to 10,450 hectares in 1981. The area harvested, however, increased by 7 percent from 8,800 hectares last year to 9,400 in 1981. Despite the increase in area harvested, total cane harvested declined from 920,000 metric tonnes in 1980 to 893,200 metric tonnes in 1981. The decrease in cane harvested is atrributed to lower yields due to very heavy rains (highest ever recorded) and lack of adequate sunshine in January, February and March, 1981. The Estate yields dropped from 96.17 tonnes cane per hectare in 1980 to 87.83 cane per hectare in 1981.

A total of 893,200 tonnes of cane was milled by the factory, with 825,300 metric tonnes being cropped on the estate and the balance of 67,300 tonnes being contributed by the out-growers. This produced a total of 102,318 metric tonnes of raw sugar. This is 7.5 percent lower than the previous year's figure of 110,601 metric tonnes. The country is self-sufficient in sugar production and since 1979 there have been no sugar imports. The Zambia Sugar Company exported 1,498 tonnes of Sugar in the 1981 financial year to Zaire and Burundi.

3.1.11 BEEF

The favourable distribution of rain during the 1980/81 season was beneficial to cattle farmers. Grazing extended well into the dry season. The increased area of maize meant that there was a larger supply of maize stover into the dry season. Thus, in general it was a good year for cattle. The only significant disease outbreak was of Foot and Mouth in Southern Province during November, 1981.

Precise figures for beef production are at present difficult to obtain. There was an estimated total recorded slaughter of 100,000 head in 1981, - by the Cold Storage Board, and by commercial butchers. Another one half of the slaughterings came from the commercial farmers' herd of 330,000 cattle and one half from the traditional sector herd of 1.8 million cattle.

The average commercial price of beef (live weight basis) rose from approximately K1.10 per Kg in 1980 to K1.40 per Kg in 1981.

3.1.12 MILK/DAIRY PRODUCTS

1981 was characterised by stepped increases of considerable magnitude in the producer price of fresh milk. Increases were from 25 ngwee per litre to 32 ngwee per litre in February 1981 and then to 38 ngwee per litre in July, 1981. The increases were intended to compensate producers for increases in their costs of production and

also to act as an incentive to boost production. A further price increase to 43 ngwee effective 1st January, 1982 was announced in the first half of 1981 and can therefore also be expected to have influenced 1981 production to some extent.

The positive response by farmers to the price incentive is reflected in the increase in milk intake by the Dairy Produce Board (DPB). The fresh milk intake by DPB for 1981 was at 10.7 million litres as against 9.2 million litres for 1980, an increase of about 16 percent. Sales from the commercial farmers were 7.6 million litres as against 6 million litres in 1980, an increase of 26.7 percent, while sales from the state farms of 3.1 million litres is one the same level as the previous year's sales.

The production of recombined milk on the other hand continued to decline due to discontinuities of imported materials. The production of recombined milk was 7 million litres as against 11 million litres in 1980, a decrease of 37 percent. The overall production of liquid milk therefore declined in 1981.

Of total dairy product consumption in Zambia in recent years, it is estimated that the traditional herd has contributed about one third (largely soured milk), commercial herds about one quarter, and imported products the rest of a total in the range of 70-80 million litres of milk equivalent.

3.1.13 PIGS

Pig production declined during 1981 to its lowest level since 1972. The most important contributory factor to this decline has been the inadequate feed supply, in terms of quality and quantity.

3.1.14 POULTRY

The feed shortage has resulted in a contraction of the poultry industry in the rural areas, and an increased domination of the industry by a few large-scale producers. Stagnating production in the face of growing demand resulted in average broiler price rises in the order of 40-50 percent between 1980 and 1981.

3.1.15 EGGS

Similarly, inadequate supplies have put pressure on prices, with rises in the order of 33 percent between 1980 and 1981.

3.3 MARKETING STRUCTURE AND INSTITUTIONS

Markets can be split into domestic and export markets and further reclassified as crop and livestock markets with market centres split into urban and rural. Zambia as will be seen later has a differentiated market system with specific institutions for specific products. Further there exists private marketing agencies which offer considerable competition to the officially established institutions especially in the meat and vegetable markets. Marketeers (vendors) are another very considerable force in Zambia. Table 33 summarises the current roles of different institutions in farm input supply and marketing in Zambia.

3.3.1 PRICING POLICY

The government pricing policy as spelt out by the Director of Cooperatives and Marketing aims to:

(i) Meet farmers production costs using no shadow (market) prices and import export parity formulae

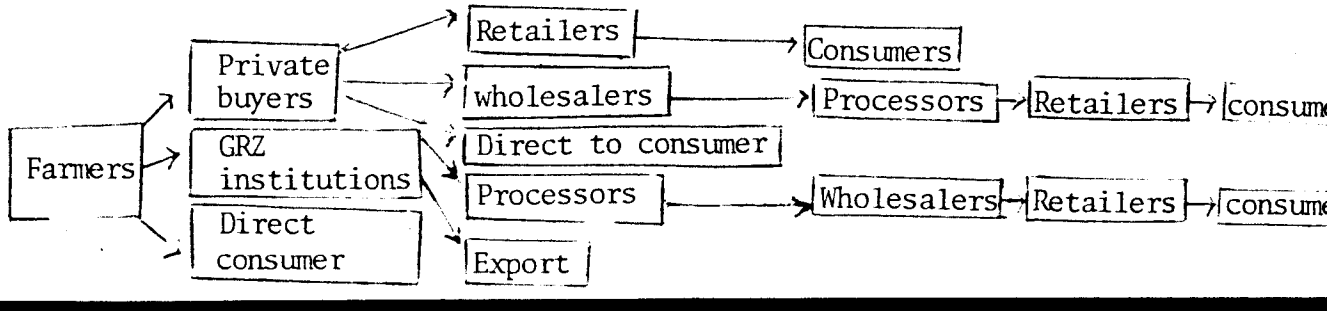
(ii) Meet national demand by using uniform prices for all crops throughout the country irrespective of the distance from markets and production centre. This aims at not disadvantaging the remote producers.

(iii) Minimum guaranteed producer prices are normally announced before the next growing season, in addition there is a production incentive in foreign exchange allowances for selected crops in particular (a) maize, a farmer received K0.50 for each extra bag above 5,000 bags delivered to an official marketing institution. (b) Wheat, K0.50 for each extra bag above 2000 bags (c) Soyabean, K0.50 for each extra bag above 1000 bags and Tobacco 5% of gross receipts for delivery of more than 5000 kg and Income tax for farmers is fixed at 15% on the Net Income, while the rest of the population pay a progressive tax system, that of pay as you earn (PAYE).

(iv) Subsidy has been very much reduced, infact now there is no price controls, products are supposed to find their own equilibrium price. However, this is a recent development as mentioned earlier in the text, necessitated by I.M.F. loans.

3.3.2 CHANNELS

The products from the farm to consumers find their way through various channels. In general the product passes through either the establsihed institutions, private buyers, or direct farmer to consumer at farm-gate stalls, a practice very common for poultry and vegetables. The established institutions have depots at local level, district level, provincial level and finally the national level where the main granneries are from where the produce goes to processors, wholesalers and finally retailers then to consumers. The exporting is only undertaken by the state institution no private body is allowed to carry on this function. Diagramatically we have :



3.3.3 THE MARKETING INSTITUTIONS

As mentioned earlier Zambia has established marketing boards to market specific products. The only exception was the case of the National Agricultural Marketing Board which had the monopoly of produce buying and selling but also the responsibility to supply all agricultural inputs. However this organisation has been reorganised and now only carries out these functions where cooperative unions do not exist as the policy now is to have the products marketed by cooperative organisations, thus reduce the marketing costs.

Tobacco is marketed by the Tobacco Board of Zambia. In the past this company was also responsible for production through family farming schemes and assisted tenant schemes, but this function has been referred to extension department of Agriculture Ministry. The Cold Storage Board of Zambia (CSB) is responsible for beef and beef products. It buys domestically as well as importing where shortfalls arise. For marketed figures please refer to table 5. These figures do not include those of country buyers. While the Zambia Pork Products (ZAPP) is on the other hand responsible for the piggery industry like the CSB it is the sole buyer and importer/exporter beef. For marketed figures refer to table 5. The milk and milk products are undertaken by the Dairy Produce Board (DPB). The other special crop is cotton which is under the Lint Company (LINTCO). In addition to marketing it also undertakes production and provides its own extension credit to its growers. This is one of the most well organised and efficient establishment.

3.3.4 ESTABLISHMENTS

Having presented the structure of the institutions it will now suffice to hereby briefly comment on each of the main marketing establishments as they are the ones that carry out the marketing of various commodities. The ones that will be touched are those which in one way or other handle the commodities analysed in this work. Special attention will be given to the Tobacco Board and the Lint Company for their special commodities which are not food stuffs as the title includes not only food crops but also agricultural crops thus the reason for starting with them.

3.4.1 TOBACCO BOARD OF ZAMBIA (TBZ)

Up and until 1981, the board was not only responsible for tobacco marketing but also production through assisted tenant schemes and family farming schemes and the board provided not only credit in form of guaranteed block loans to their tenants but provided extension services too. For the sake of this brief, no efforts will be made to discuss production apart from mentioning that production statistics is provided in this thesis. Fig. 3 shows the evolution of virginia tobacco production which was compiled from table 5 being quantitites of marketed agricultural production from 1970-1981. It should be noted here that these production statistics are only for officially recorded and marketed through the tobacco board as often farmers tend to by pass the official channels for more vendor lucrative prices and this practice is prevalent though illegal. We now turn to the present situation.

1. The Functions of the Board

The following are the fuctions and duties of the Board:-

(a) Promotion, protection and maintenance of tabacco sales, and preparation for subsequent use and export of tobacco grown in the country;

(b) Control and regulate the marketing and export of tobacco;

(c) Obtain and collect statistics relating to production, marketing, manufacture and consumption of tobacco both inside and outside the country;

(d) Provide and operate such services and other facilities necessary or convenient for the tobacco industry in the country;

(e) Advise the government on all matters incindental to tobacco.

2. The Marketing Policy of the Board

The present marketing policy is to sale tobacco on contract through private treaty marketing arrangements. Under this system tobacco is sold at a price under classification rather than by auction, and normally only one buyer enters into a contract for a specific period to buy one or more varieties of tobacco produced in the country.

The present marketing set up therefore involves two merchant companies - GEBRUDER KULENKAMPFF a Federal Republic of Germany Company and the INTABEX, a Geneva merchant company, buying virginia and burley tobacco as sole buyers on contract. The contract usually lasts for a period of three (3) to five (5) crop buying years.

3. Operational Constraints

Due to gradual but effective withdrawal of government subsidy to Tobacco Board of Zambia, insufficient funds for operational and other overhead expenditure poses as one of the biggest problems in an endeavour by Tobacco Board of Zambia to try and achieve its objectives.

Hitherto, substantial government subsidy has greatly assisted Tobacco Board of Zambia in rendering all the necessary services appertaining to tobacco in the Board's context as a non-profit making organisation. This subsidy has been essential in view of the relatively small income - realised from the Board's services in the form of commission and handling charges - which in itself can hardly meet the operational expenses incurred by the Board.

4. SERIVCE CHARGES

The Tobacco Board of Zambia service charge to the growers are as follows:-

(a) Handling charge - 20 ngwee per bale
(b) Commission - 3% of value of tobacco sold
(c) Government Levy - 0.0073 ngwee per kilogramm of tobacco sold
(d) Rehandling charges (for tobacco rehandled at Tobacco Board of Zambia floors)
    (i) Mouldy tobacco - 6 ngwee per kilogram
    (ii) Mixed tobacco - 4 ngwee per kilogram
    (iii) Funked tobacco - 4 ngwee per kilogram
    (iv) Wet tobacco - 4 ngwee per kilogram

(v) Unclean tobacco - 4 ngwee per kilogram
(vi) Resewing - 50 ngwee per bale
(vii) Rebaling - K1.40 per bale
(viii) Cost of hessian - K2.00 per bale
(ix) Cost of paper/plastic - 80 ngwee per bale.

The withdrawal of government subsidy, therefore, coupled with the spiralling operational expenses, means that Tobacco Board of Zambia has got to find other sources of income to continue rendering the services. Perhaps the answer could be to increase the rates of commission and other relevant charges incidental to tobacco marketing services rendered by the Board, but this could not be executed without difficulties.

The low volume of production renders itself as another problem in the smooth operation of the Board. As a result of insufficient stock of tobacco on the Floors during the marketing season, sales programmes have at times been haphazard, not to mention the resultant inconveniences caused in the tobacco packing plant with regard to tobacco processing and blending.
Since the Floor and Packing Plant capacity was designed to handle a volume of over 10 million kilograms of tabacco the present low output means that the Board is suffering from under utilisation of these facilities (see Fig. 3).

5. TOBACCO EXPORT PRICE & PRICE DETERMINATION POLICY

It is the policy of the Board to secure the best possible export price for tobacco, and this is achieved by expert negotiation between the buyer and Tobacco Board of Zambia Management on the basis of the cost of production per kilogram of tobacco, taking into consideration the various lateral influences on the export price during the effective period. In the present tobacco marketing context, the export price is represented by the price per kilogram of tobacco agreed between the buyer and Tobacco Board of Zambia plus any other service charges per kilogram of tobacco such as the packing charges levied for the use of packing plant facilities. For minimum producer prices please refer to Table 6.

6. The regulation with regard to quality is that tobacco offered for sale at the Tobacco Board of Zambia Floors is of internationaly acceptable quality; in good condition; and should not be:-

(a) Mouldy; (b) Funked; (c) Mixed; (d) Wet; (e) Hot; (f) Damaged or (g) Uncleaned.

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a) Mouldy
b) Funked
c) Mixed
d) Wet
e) Hot
f) Damaged or
g) unclean

In addition, bales of tobacco offered for sale should be of a specific and acceptable size of approximately 86x66x70 centimetres in length, height and width respectively; and weighing not less than 23 kilograms net not more than 109 kilograms net.

Storage of tobacco at Tobacco Board of Zambia Premises before and after sales could only be done for a specific period awaiting shipment to overseas buyers. Storage charges are levied at the rate of 25 ngwee per square metre per week. During storage period it is a necessity to ensure that tobacco is kept in desirable condition, and free from insects and any other source of damage.

Transportation costs of tobacco from the area of production to the Floors is borne by the farmers, while those of sold tobacco from tobacco Board of Zambia Floors to the Buyers Overseas are borne by the Buyers themselves.

Due to the problems relating to production and marketing of tobacco - with inefficiency in production, leading to lower than optimal yields, figuring prominently - the Government decided to bring in consultants to review the operations of the tobacco industry with a view to bringing it to its economic viability.

7. The net result of the Tobacco sector study and the recommendations that followed was the earlier mentioned reorganisation of the board to the effect that tobacco production functions were transfered to the Department of Agriculture and Water Development. This left the Board's

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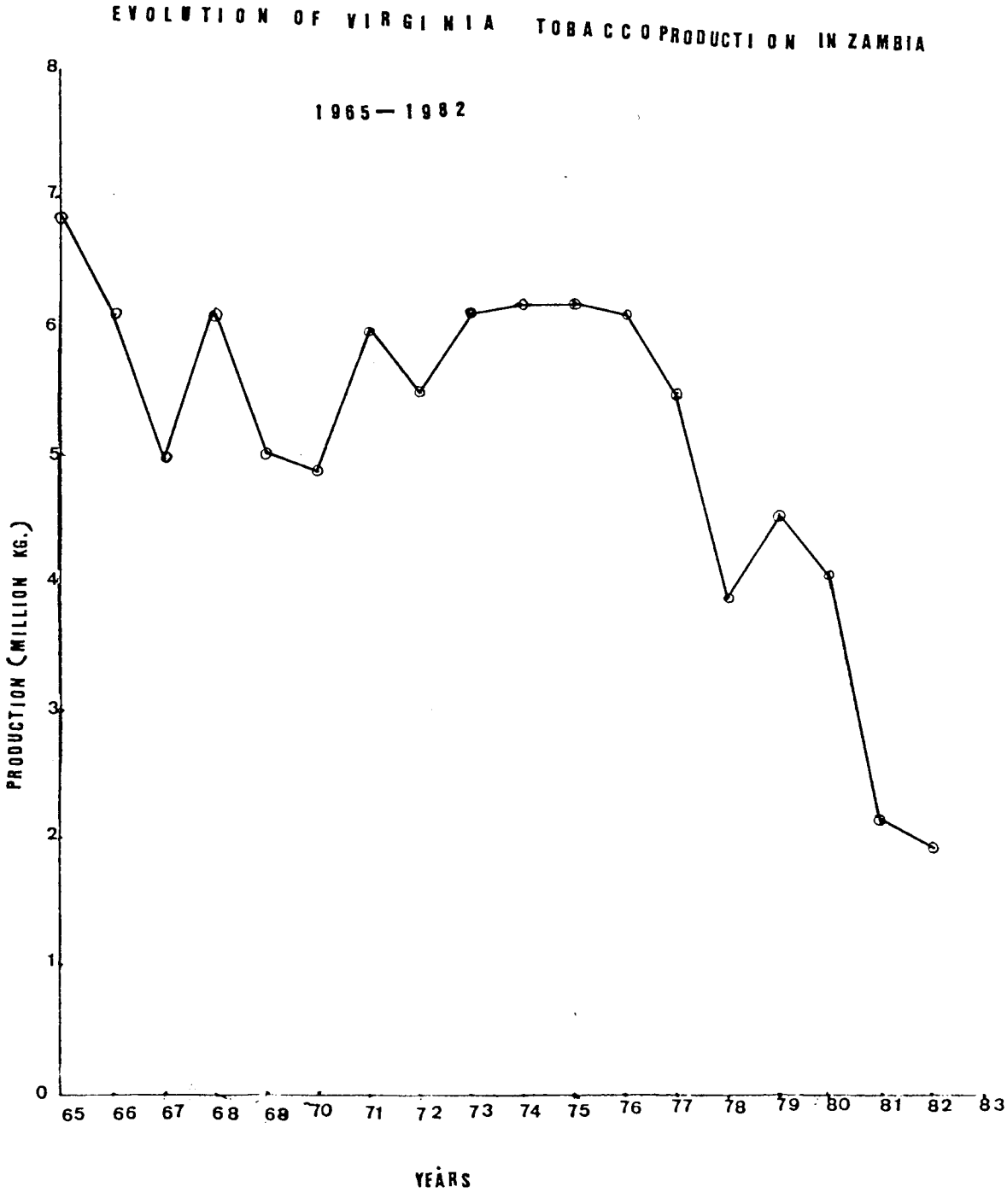
FIGURE 3.



SOURCE: TOBACCO BOARD OF ZAMBIA LUSAKA.

TABLE 5.

QUANTITIES OF MARKETED AGRICULTURAL PRODUCTION 1970-1981.

Commodity	UNIT	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Maize	Tonnes	135200	399950	616554	460480	495000	558376	746426	693000	657000	331255	382988	7704770
Tobacco: Virginia	"	4792	5908	5532	6230	6201	6950	6262	5588	3700	4590	4127	2350
Burley	"	255	388	385	471	430	530	212	312	264	381	554	665
Sugarcane	"	322000	331000	397400	488000	570243	85058	84028	8428	71203	73450	102148	102318
Groundnuts	"	5270	5970	6480	2960	3435	6418	8371	7229	6777	2693	2253	3537
Sunflower	"	-	16	163	1050	3519	9750	13079	13320	11355	12869	28279	42390
Soya Beans	"	-	-	-	173	400	683	944	1274	2844	1294	1989	5527
Cotton seed	"	-	-	-	3143	1300	3100	3891	n.a.	n.a.	n.a.	n.a.	n.a.
Seed cotton	"	5606	11919	8453	5225	2564	2500	4500	8929	10200	14916	15000	22913
Sorghum	"	545	90	212	34	350	57	23	n;a	n.a.	n.a;	n.a.	n.a.
Wheat	"	-	-	-	-	-	934	3459	4741	6400	4322	6670	8536
Paddyrice	"	-	-	293	506	726	990	2224	2090	2970	1686	2511	3553
Tea(g.leaf)	"	-	-	-	-	-	-	-	64	85	-	314	321
Coffee	"	22500	22300	16300	24600	21100	23750	33100	24000	55000	-	28000	37000
Fruit	"	4800	5600	5900	5000	5700	6500	6850	n.a	n.a	n.a.	n.a	n.a.
Vegetables	"	21000	42100	27700	20000	25000	27400	28000	n.a.	n. a.	n.a.	n.a.	n.a.
Milk	1000litre	14903	15185	15865	15734	13227	11911	10530	10353	9538	9326	10207	10700
Cattle	Head	68000	68000	72443	90000	80654	84000	77000	79700	80000	84000	92379	97054
Pigs	Head	35000	34000	32000	35700	44280	55465	50246	35816	42388	48416	47894	37151
Eggs	million	9.9	10.8	11.5	12.3	14.0	15.0	17.8	17.3	86.5	15.5	13.7	112.7
Turks§chick.	"	405	445	554	613	9673	960	116	130	125	122	138	980
D.O.C. (export)		6650000	9100000	1100000	1250000	112000	1330000	1400000	1430000	1300000.	0.4	0.7	0.2

sourece: CENTRAL STATITICS OFFICE AND MINISTRY OF AGRICULTURE AND WATER DEVELOPMENT : LUSAKA . ZAMBIA.

Notes: n.a.= not available
- = figures not significant for recording.

Please note that the figures for fruits and vegetable are given as atotal for a mixture of fruits or vegetables un classfied.
D.O.C. = Day old chickens for export.

TABLE 6.

TABLE

GUARANTEED CROP PRODUCER PRICES 1970 - 1982 (KWACHA)

	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	'81	'82	'83
Maize / 90Kg	3.50	4.00	4.30	4.30	4.30	5.00	6.30	6.30	6.80	9.00	11.7	13.5	16.0	--
S.g/nuts/80 Kg	10.2	10.2	10.2	12.6	17.0	17.0	25.0	25.0	28.6	32.0	35.0	42.7	48.0	--
Sunflower /50Kg	2.45	8.4	6.0	6.64	8.95	9.40	10.0	10.0	12.50	13.7	16.4	17.6	20.75	--
Soya Beans /90Kg	3.20	8.4	8.4	8.4	13.2	13.2	17.0	17.0	21.5	25.0	32.0	36.3	42.21	--
Paddy Rice/80Kg	-	-	-	-	12.0	12.0	14.4	14.4	14.4	16.0	18.0	18.6	28.0	--
Wheat /90Kg	-	-	-	-	-	16.0	16.0	16.0	20.0	20.0	20.0	26.0	32.0	--
Sorghum /90Kg	4.7	4.7	4.7	4.7	5.0	6.0	6.0	6.0	6.0	6.0	6.0	9.0	9.0	--
Canadian W.Bean/90Kg	6.7	9.5	9.5	9.5	9.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	--
Mixed Beans /90Kg	3.2	4.4	4.4	4.4	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	--
Sugar Beans /90Kg	12.7	14.0	14.0	14.0	14.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	--
Haricot Beans /90Kg	7.5	10.5	10.5	10.5	10.5	17.0	10.5	17.0	10.5	10.5	10.5	10.5	10.5	--
Velvet Beans/90Kg	2.45	2.45	2.45	2.45	-	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	--
Millet /90Kg	-	-	-	-	-	-	-	-	-	6.0	6.0	6.0	6.0	--
Sunhemp /90Kg	5.2	5.2	5.2	5.2	-	n.a	n.a	5.72	5.72	5.72	5.72	6.0	6.0	---
Seed Cotton/Kg	0.08	0.18	0.18	0.18	0.25	0.30	0.40	0.40	0.46	0.46	0.46	0.46	0.47	---
Virginia Tobacco/Kg	n.a	n.a	n.a	n.a	n.a	I.04	1.04	1.45	1.45	1.51	1.57	1.65	2.40	--

Source: Central statistics office: Annual Agricultural Statistics Bulletin 1981 Table 41.

3.4.2 LINT COMPANY OF ZAMBIA LIMITED (LINTCO):

FUNCTIONS OF LINTCO

LINTCO was formed as a public company on 1/04/78, with the following objectives :-

(a) Improve cotton husbandry practices so as to improve production efficiency.

(b) To open up new areas for cotton growing in Zambia.

(c) To gin and process all the cotton produced in Zambia.

(d) Establish and run rural depots to which farmers can buy inputs and sell their cotton.

(e) Provide cotton farmers with loan facilities for sprayers and fertilizers.

(f) Export surplus cotton LINT so as to earn foreign exchange.

2. MARKETING POLICY

Lint Company of Zambia Limited has an open marketing policy, which operates as follows :-

(a) The monopoly of buying seed cotton from farmers through a net work of rural marketing depots.

(b) Sales of lint and related products to local textile mills as far as local demand is concerned.

(c) Export of surplus lint to overseas markets.

3. OPERATIONAL PROBLEMS

LINTCO like any other parastatal has its own problems which are experienced in its operations.

(a) Lintco runs two ginneries which were installed sometime ago. These ginneries need replacement spare parts which make the two old ginneries to run from time to time.

(b) Seed cotton under normal circumstances is handled in jute products thus grain bags, hessian cloth, hessian wool pack, jute woolpack etc. These items have to be ordered from India and Bangladesh.

(c) Balaties too have to be imported.

Generally this company experiences like others, problems in obtaining import licence and foreign exchange to make it fully operational without much difficulties.

4. SEED COTTON AND ITS BYPRODUCTS PRODUCTION

Since its inception in 1978 the company's production figures for seed cotton and its byproducts have increased, though climatical conditions have not been favourable. Due to very low rainfall, production figures have been as follows :

YEAR	SEED COTTON PRODUCTION	LINT PROD.	COTTONSEED PROD.
1978	8063989 KGS.	2919332	5072550
1979	15097980	5565561	9617200
1980	23824874	8482785	14583100
1981	17177178	6254071	10296100
1982	13171562	4725000	8505000

Source: LINTCO HEAD OFFICE, LUSAKA, ZAMBIA.

During the same period the following figures of Lint were sold both locally and externally:

YEAR	LINT PRODUCED	SALES TO LOCAL TEXTILE MILLS	EXPORTS
	(kg.)	(kg.)	(kg.)
1978	2919332	2500000	-
1979	5565561	2796360	3500000
1980	8482785	3400000	3750000
1981	6254071	3454282	3112000
1982	4725000	2500000	1000000

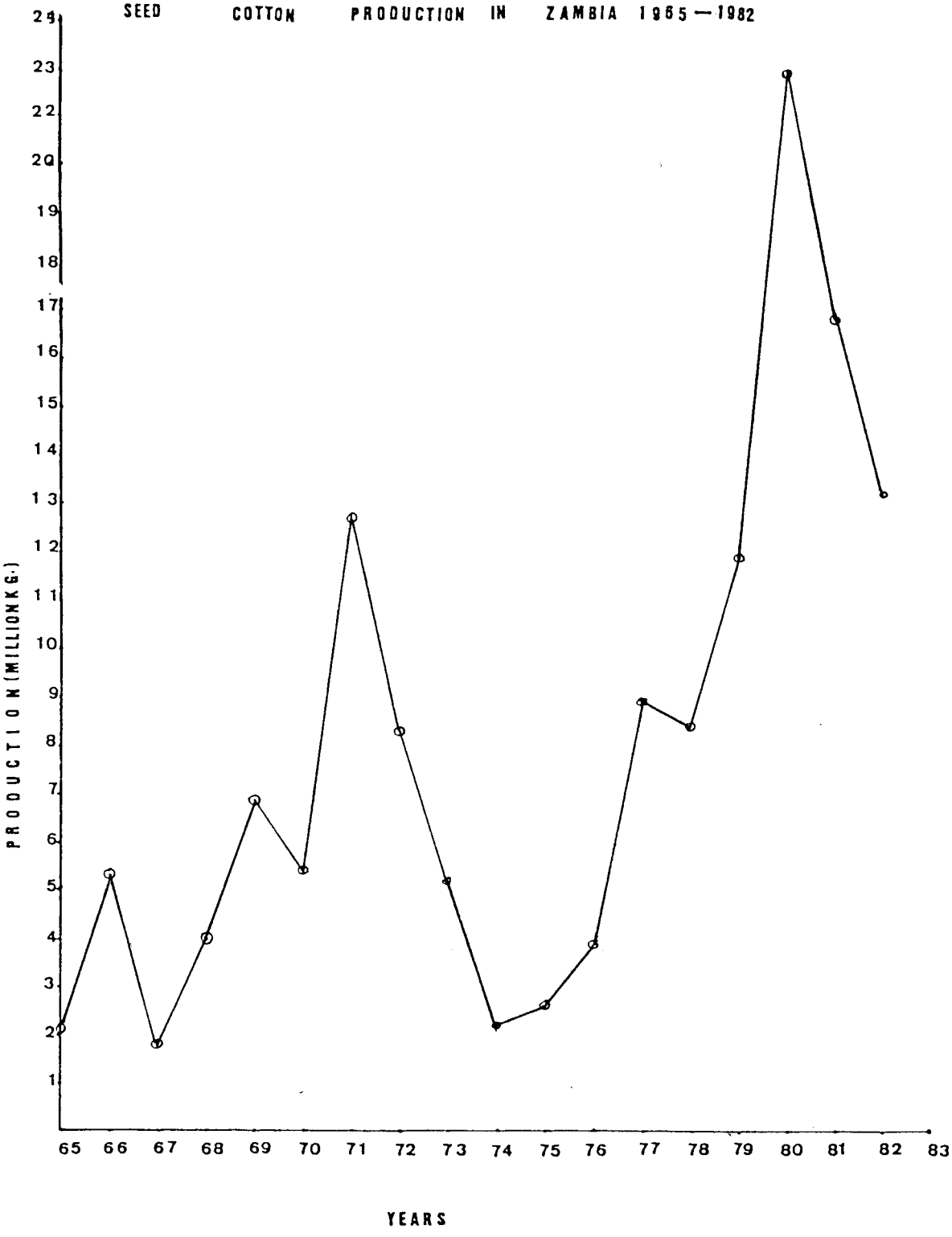
Source: LINTCO HEAD OFFICE, LUSAKA, ZAMBIA.

It should be noted here that this young company despite the apparent drop in production in 1982 has been doing pretty well since its inception. As mentioned in (b) of its functions, it has a very well organised extension service unit and covers all its farmers without the help of the Department of Agriculture.

An evolution of cotton production in Zambia from 1965 is given in figure 2.

Before Lintco came in the limelight cotton production was in the hands of the Government but production was very poor as can be observed from the figures. Since 1978 production has been fluctuating but in an upward trend.

FIGURE 2.



SOURCE: FIGURES OBTAINED FROM LINTCO & CENTRAL S. OFFICE. LUSAKA. ZAMBIA

3.4.3 NATIONAL AGRICULTURAL MARKETING BOARD (NAMBOARD)

As indicated in section 3.3.3., the original functions of this board were re-organised in 1980 and left the organisation with the functions of importation, Distribution and Retailing of:

Seed

Agricultural chemicals

Stock feeds

Machinery and Implements

Tools and Equipment

Packing bags

In addition to the above duties, the board is responsible for inter provincial transfers of food products from surplus ~~surplus~~ provinces to deficit provinces.

3.4.4. THE COLD STORAGE BOARD

The board is empowered to buy all calltle from the Commercial Sector and the traditional sector and then redistribute to wholesalers who in turn distribute to retailers and retailers to consumers.

The board faces a lot of competition from private butchers, private council butchers and individual buyers, who not only pay quickly but offer better prices than the government prices.

The other problem the meat industry faces is that of the indigeneous traditional cattle owners reluctance to sell their cattle. Please refer to comment on the regression analysis on beef.

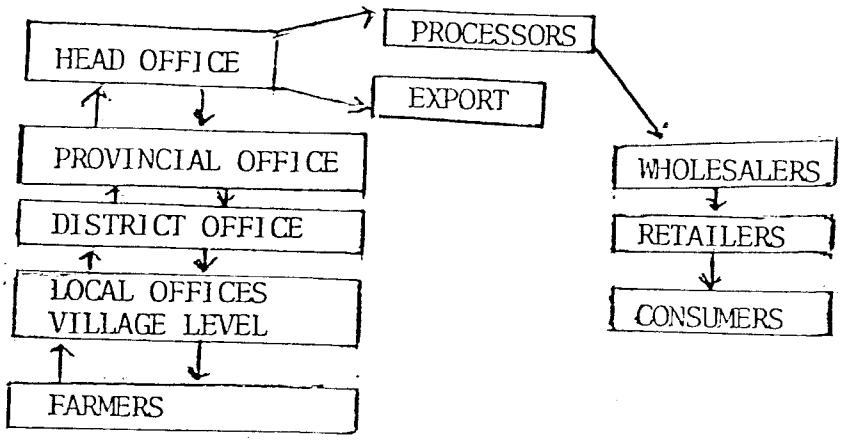
3.4.5 THE DAIRY PRODUCE BOARD (DPB)

Is responsible for milk and milk products. Please refer to the summary on the sectors' performance.

3.4.6 ZAMBIA COOPERATIVE FEDERATION LIMITED (ZCF)

Please refer to appendix for detailed description and functions of the ZCF.

All the above mentioned institutions have the following structures.



3.4 AGRICULTURAL CREDIT AND PAYMENT FOR CROPS

The availability of inputs where needed and at the right time is a necessary but not a sufficient condition to ensure their use: in addition, farmers must have the means available to purchase these inputs. The demand, for seasonal credit in particular, is largely dependent on the promptness with which farmers are paid for their previous seasons' crop deliveries.

For some crops farmers already receive prompt payment after delivery (e.g. cotton). On the other hand, for deliveries to Namboard payment delays of up to three months and more are normal.

A pilot scheme operated under the Integrated Rural Development Programme (IRDP) in North-Western Province in 1980-81 provided evidence that small scale farmers respond very favourably and positively to payment on delivery for crops.

Table 31 presents a summary of the amounts of different types of farm credit recently being made available by different institutions in Zambia.

Total farm lending in Zambia is in the order of K100 millions with roughly half of this being seasonal credit and the other half being medium and long-term loans. The majority of seasonal credit is provided by the commercial banks, while the majority of development type credit is provided by state - controlled institutions, of which the most important are the Agricultural Finance Corporation (A.F.C.) and the Development Bank of Zambia (DBZ).

An important role of Namboard and the Cooperative Unions in Cooperating with A.F.C. in the provision of seasonal credit is not brought out in Table 31. A.F.C. frequently issues an approved seasonal loan in the farm of a "Local purchase order" (L.P.O.). When presented with such a piece of paper by a farmer, Namboard or the Cooperative Union is obliged to provide specified farm inputs in exchange for it. Since the L.P.O. is not immediately redeemable for cash (Namboard or the Union typically will wait months or even years for reimbursement), it is in fact the input-supplying agency and not AFC which is acting as the supplier of credit in such cases. (Ironically, the interest still accrues to AFC).

Some rationalisation of the existing public-sector component of the Zambian Farm Credit system has been recognised as necessary. A new institution, the Agricultural Development Bank (A.D.B.) is in the process of creation. Once operational and with its precise role decided, the functions of some of the other existing institutions may change, if indeed they are not totally absorved into the new A.D.B.

The existing farm credit system is heavily oriented towards the needs of commercial farmers. It has been estimated that, in the 1975-79 period, only 3.5 percent of all farm families in Zambia received any type of farm loan. Recovery rates, on the part of the public sector institutions are poor.

In 1982 the Government authorized a K6.6 million investment in augmenting/replenishing the funds available to the AFC, the Cattle Finance Company (C.F.C.) and A.D.B., and in addition voted K0.8 million expenditure to cover A.F.C. administration expenses.

3.5 AGRICULTURE - RELATED TRADE AND SELF-SUFFICIENCY

Currently the agriculture and food related sectors (farms, farm input suppliers, farm product marketing and processing firms and organisations) account for a sizeable net deficit on the external current account (see Table 29). It is widely believed that Zambia has the potential to gradually convert this deficit into a sizeable net surplus over the longer term. To do so is certainly a major objective of the Party and its Government.

In attempting to meet this objective it must be remembered that a Kwacha of foreign exchange saved through import-substitution (increased production of, e.g., wheat, rice, tea, milk) may be more valuable than a Kwacha gained through increased exports (of, e.g., tobacco, cotton, groundnuts, sugar), depending on the imported content of the package of inputs used in the production of each commodity. Consequently the reduction of imports of stockfeeds, fertilizers, vegetable oils, etc., must be seen as part of this objective.

This objective of a growing agricultural trade surplus in the longer-term is closely related to the objective of achieving national self-sufficiency in basic foods. Since Zambia has shown to have a comparative advantage in the production of most or all basic Foods which she consumes, these two objectives are, for all practical purposes, consistent. It should be recognised, however, that the whole-hearted pursuit of one of these objectives could lead to the evolution of a very different patern of agricultural production than would be seen under the whole-hearted pursuit of the other. It is therefore desirable that a balanced strategy of economic diversification is developed.

Similarly, before performance can be objectively measured, some clarification of the objective of regional self-sufficiency in basic foods is in order. The Government does not see this objective as implying that all trade between Zambian provinces in basic food products is undersirable. Rather, the objective is taken as meaning Zambia should be moving towards a point where, if a given province needs to import some maize or sorghum or millet or cassava or wheat or rice or beans (or the meal or flour of any of these) then it also exports at least equivalent amounts of one or more of the others of these staple foods. The climate and soils of some provinces are better adapted to the production of, for examples, cassava, sorghum and millet, while other provinces are more suited to maize production. All provinces can benefit if the different staples are grown in the localities best suited to them and inter provincial trade in (swapping of) staple foods take place to the extent that consumers wish to mix their diets. What is sought is a situation where the net trade balance for the total of all staple foods is positive for each and all provinces. It will then also be positive for Zambia as a whole.

There are two major reasons for year to year fluctuations in the size of the agricultural/food trade deficit. In poor crop years, like 1979, imports of cereals and cereal preparations rise dramatically while at the same time exports in the same category fall. Secondly, in years when foreign exchange is scarce due to reduced export earnings from, in particular, minerals, then imports of certain agricultural inputs like fertilizer, stockfeed and machinery tend to be reduced, in turn reducing the magnitude of the deficit.

Thus in 1981, with a good crop obviating the need for cereal imports and a tight foreign exchange situation resulting in reduced allocations for stockfeed and machinery imports, the size of the net agricultural/food trade deficit is expected to be shown to have been reduced. In 1982, on the other hand, at least two million bags of maize were imported from Zimbabwe due to reduced grain marketings, and the level of the deficit went up again.

ESTIMATED CREDIT SUPPLY TO ZAMBIAN FARMERS, 1981.

Credit Institution	Seasonal Loans (K millions)	Outstanding Medium and Long-Term Loans (K Million)	Total (K millions)
Commercial Banks	42.0[d]	10.0[a]	52.0
Development Bank of Zambia	-	14.2[b]	14.2
Agricultural Finance Corporation	8.0	14.9[c]	22.9
Cattle Finance Company	-	2.5	2.5
Zambia State Insurance Corp.[n]	0.5	5.8	6.3
Others (including Co-operatives)	1.5	-	1.5
Total	52.0	47.4	99.4

Source: Adopted from "Food Strategy Study: Annex - Agricultural Credit, Input Supply and Management", draft report 1982, M.A.W.D. Planning Division, PP. 61-62.

Notes:
a. approximate.
b. includes amounts committed but not disbursed.
c. includes K3.8 m in institutional loans.
d. excluding loans by commercial banks to A.F.C. and other parastatals and organisations in the agricultural sector estimated at K70 millions or more.

SUMMARY OF THE ROLES OF VARIOUS INSTITUTIONS IN THE IMPORTATION, DISTRIBUTION AND RETAILING OF FARM INPUTS IN ZAMBIA.

Code: I= Importation
D= Distribution
R= Retailing

	Fertilizers (simple & compound)	Seed	Agricultural Chemicals	Stockfeed	Machinery & Implements	Tools & Equipment	Bags
PARASTATALS:							
Namboard	I D R	D R			D R	D R	I D R
Zamseed		I D R					
Agricultural Farming Equipment					I D R		
National Milling/Indeco Milling				I D R			
Nitrogen Chemicals of Zambia	I D						
Lintco		D R	D R				D R
CO-OPERATIVES:							
Farmers Co-op. Societies	R	R	R	R	R	R	
Co-op. Mills (e.g. Choma)				DR			
Provincial Co-op. Unions	DR	D R	D R	DR	DR	DR	D R
Zambia Co-op. Federation					ID	ID	ID
COMMERCIAL SECTOR:							
Machinery Companies					IDR	IDR	
Agric. Chemical Companies			I D R				
Hardware Stores						IDR	
General Retailers	R	R				R	
Chemists			R				
Private Mills		...		DR			
Virg. Tobacco Assn. of Zambia		DR					

APPROXIMATE VALUE OF AGRICULTURAL CROP AND LIVESTOCK PRODUCTION BY CLASS OF FARMER, 1981 (Units: million Kwacha)

Commodity	Value of Recorded Marketings				Est. value of unrecorded sales and retentions		GRAND TOTAL	class of farmers total	
	Parastatal and State Farms	Commercial Farmers	Small-Scale Farmers	Sub-total	Commercial Farmers	Small-Scale Farmers		Commercial Farmers	Small-scale Farmers
Beef cattle	.2	24.0	13.9	41.1	-	12.1	53.2	24.0	26.0
Pigs	1.4	4.1	-	4.5	0.9	2.9	8.3	5.0	2.9
Sheep & Goats	-	-		-	1.1	1.3	2.4	1.1	1.3
Poultry	.8	2.2	-	4.0	44.3	50.0	98.3	46.5	50.0
Eggs	-	-	-	-	16.8	4.8	21.6	16.8	4.8
Milk	.1	4.1	-	5.2	2.5	8.7	16.4	6.6	8.7
Livestock sub-total	.5	34.4	13.9	54.8	65.6	79.8	200.2	100.0	93.7
(percent sub-total)	12	63	25	100	-	-	-	-	-
(percent grand-total)	3	17	7	27	33	40	100	50	47
Maize	1.3	35.9	66.7	103.9	-	54.0	157.9	35.9	120.7
Rice	-	-	0.6	0.6	-	0.5	1.1	-	1.1
Wheat	0.5	2.9	-	3.4	-	-	3.4	2.9	-
Soyabeans	0.7	0.8	-	1.5	-	-	1.5	0.8	-
Sunflower	0.1	2.0	4.7	6.8	-	-	6.8	2.0	4.7
Cotton	-	0.7	6.8	7.5	-	-	7.5	0.7	6.8
Groundnuts	-	0.1	0.6	0.7	-	16.0	16.7	0.1	16.6
Virg. tobacco	-	3.8	-	3.8	-	1.5	5.3	3.8	1.5
Burl. tobacco	-	-	1.0	1.0	-	-	1.0	-	1.0
Sugar	11.2	-	0.9	12.1	-	1.0	13.1	-	1.9
Coffee	0.1	-	-	0.1	-	-	0.1	-	-
Tea	1.4	-	-	1.4	-	-	1.4	-	-
Beans	-	-	0.1	0.1	-	6.0	6.1	-	6.1
Sorghum	-	-	-	-	-	3.0	3.0	-	3.0
Millet	-	-	-	-	-	10.0	10.0	-	10.0
Cassava	-	-	-	-	-	36.0	36.0	-	36.0
Crops sub-total	15.3	46.2	81.4	142.9	-	128.0	270.9	46.2	209.4
(percent sub-total	11	32	57	100	-	-	-	-	-
(percent grand-total	6	17	30	53	-	47	100	17	77
All products	21.8	80.6	95.3	197.7	65.6	209.3	471.1	146.2	304.6
percent sub-total	11	41	48	100	-	-	-	-	-
(percent grand-total	5	17	20	42	14	44	100	31	64

Notes to accompany Table 25

The distinction between "commercial" and "small-scale" farmers is not made specific in this table nor in most of the information available. While this may be acceptable for purposes of broad analysis, the reader is urged not to make too much of such production or supply sub-divisions at the individual commodity level, at least on the basis of the data presented in this Table.

a. Beef

Numbers slaughtered: State farms 6,700; Commercial farms 50,000; Small farms (recorded) 43,300; Small farms (unrecorded) 37,700; Small farms (total) 81,000; Recorded (total) 100,000; Unrecorded (total) 37,700; Total slaughter 137,700.

Average Carcase Weight at Slaughter: State and Commercial Farms 200 kg; Small farms 160 kg. (C.D.W.)

Average price per kg. CDW: State and Commercial farms K2.40; Small farms K2.00.

Average value per head at slaughter: State and Commercial farms K480; Small farms K320.

b. Pigs

Numbers slaughtered: State farms 3,000; Commercial farms (recorded) 33,000; Commercial farms (unrecorded) 7,000; Small farms (all unrecorded) 80,000; Recorded (total) 36,000; Unrecorded (total) 87,000 Total Slaughter 123,000.

Average Live Weight at Slaughter: State and Commercial farms 75 kg; Small farms 30 kg.

Average price per kg. Live Weight at Slaughter: State and Commercial Farms K1.65; Small farms K1.20.

Average Value per head at Slaughter: State and Commercial farms K124; Small farms K36.

c. Sheep and Goats

Numbers slaughtered: Commercial farms (sheep only) 12,500; Small farms (90% Goats) 50,000.

Average Carcase Weight(CDW): Commercial farms 30 kg.

Average price per kg. CDW: Commercial farms K3.00

Average Value per head at slaughter: Commercial farms K90; Small farms K25.

d. Poultry

Numbers Slaughtered: Commercial farms (chickens) 12,000,000; Commercial farms (other) 40,000; Small farms 20,000,000; State farms (chickens) 450,000; Commercial farms sales to PDC (recorded) 550,000; Commercial farms sales (unrecorded) 11,450,000; Total recorded sales (PDC) 1,000,000.

Average Value per head at Slaughter: State and Commercial farms (chickens) K4; Small farms K2.50; Commercial farms (other poulty) K8.

e. Eggs (all unrecorded)

Numbers produced: Commercial farms 140,000,000; Small farms 40,000,000

Average Price per egg to farmer: All farms K0.12

f. Milk

Production (million litres): State farms 3.2; Commercial farms (recorded) 11.6 (of which 7.6 to DPB and 4.0 to other outlets); Commercial farms (unrecorded) 7.0; Small farms 29.0.

Average price per litre to farmer: State and Commercial farms K.0.35; Small farms K.0.30.

g. Maize

Recorded marketings (Million bags): State farms 0.093; Commercial farms and small farms (total) 7.6; Commercial farms (35%) 2.7; Small farms (65ù 4.9.

Unrecorded production: Small farms 4.0; Commercial farms negligable.

Average price per bag to farmer: K13.5

Recorded marketings (bags): State farms 450 (negligable); Commercial farmers negligable; Small farms 34,800.

h. Rice

Unrecorded production (bags): Small farms 20,000.

Average price ber bag to farmer: Recorded marketings K18.6; Unrecorded K25.0.

i. Wheat

Recorded Marketings (bags): State farms 20,000; Commercial farms 110,100; Small farms negligable; Total 130,100.

Unrecorded production: Negligable.

Average price per bag to farmer: K26.0.

j. Soyabeans

Recorded Marketing (bags): State farms 18,600; Commercial farms 23,000; Small farms negligable; Total 41,600.

Unrecorded Production: Negligable.

Average Price per bag to farmer: K36.3.

k. Sunflower

Recorded Marketings (bags): State farms 2,900; Commercial plus Small farms 379,000; Commercial farms (30%) 114,000; Small farms (70%) 265,000; Total 382,000.

Unrecorded Production: Negligable.

Average Price per bag to farmers: K17.6

l. Cotton

Recorded Marketing (Million kg): Total 17.4; State farms 0.03 (negligable); Commercial farmers (10%) 1.7; Small farmers (90%) 15.7.

Unrecorded Production: Negligable.

Average Price per kg to farmer: K0.45.

Recorded Marketings (bags): Total 16,5000; Commercial farmers (10%) 1,650; Small farmers (90%) 14,850.

m. Groundnuts

Unrecorded Production: Total = Small farms 160,000; Commercial farmers negligable.

Average Price per bag to farmer: Recorded K42.7; Unrecorded K100.00.

n. Virginia Tobacco

Recorded Marketings (Million kg.) : Total = Commercial farmers 2.3; Small farmers negligable.

Unrecorded Production: Total = Small farmers 1.0; Commercial farmers negligable.

Average Price per kg to farmer: Recorded K1.65; Unrecorded K1.5.

o. Burley Tobacco

Recorded Marketings (kg.): Total = Small farmer 668,700; Commercial farmers negligable.

Unrecorded Production: Negligable.

Average Price per kg to farmer: K.1.53

p. Sugar (raw cane)

Recorded Marketings (tonnes): State farms (Nakambala Estate) 826,000; Small farms (outgrowers) 67,000

Unrecorded Production: Total = Small farms 74,000.

Average Price per tonne to farmer: K13.5

q. Coffee (parchment)

Recorded marketing (kg): Total = State farms (Rucom Estate) 59,054; Small farms (outgrowers) negligable.

Unrecorded Production: Negligable.

Average Price per kg to farmer: K1.50.

r. Tea

Recorded Marketings (kg): Total = State farms (Kawambwa Estate) 402,000; Small farms (outgrowers) negligable.

Unrecorded Production: Negligable.

Average Price per kg. to farmer: K.3.50

s. Beans (other than Soya beans)

Recorded Marketings (bags): Total = Small farms 2,000; Commercial farms and State farms negligable.

Recorded Marketings (bags): Total = Small farms 2,000; Commercial farms negligable.

Unrecorded Production: Total = Small farms 120,000.

Average Price per bag to farmer: K50.

t. Sorhum

Recorded Marketings (bags): Negligable.

Unrecorded Production: Total = Small farms 150,000.

Average Price per bag to farmer: K20.

u. Millet

Recorded Marketings (bags): Negligable.

Unrecorded Production: Total = Small farms 500,000.

Average Price per bag to farmer: K20.

v. Cassava (washed and dried chips)

Recorded Marketing (bags): Negligable.

Unrecorded Production: Total = Small farms 1,500,000.

Average Price per bag to farmer: K24.

APPROVED CAPITAL EXPENDITURE ESTIMATES AND ACTUAL CAPITAL EXPENDITURES, MINISTRY OF AGRICULTURE AND WATER DEVELOPMENT[d], 1979, 1980, 1981 AND 1982. (Source: G.R.Z. "Financial Report" 1979 and 1980; "Estimates of Revenue and Expenditure 1981 and 1982; Unpublished estimates from Accounts Section, Ministry of Agriculture and Water Development

Units: K000	Approved Estimates[a]				Actual Expenditure				Actual as % Approved			
	1979	1980	1981	1982	1979	1980	1981	1982	1979	1980	1982	1982
Headquarters	7,446	9,031	16,572	23,327	7,227	9,246	8,788		97	102	53	
Dept. of Agriculture	2,090	3,048	3,340	3,446	1,685	1,642	1,822		81	87	51	
Dept. of Vet. & Tsetse Control Services	960	1,945	1,460	1,184	992	1,786	1,142		103	92	78	
Training instns.	1,072	2,734	2,475	1,673	551	1,321	1,236		51	48	50	
Agric. Research	648	1,890	2,010	1,970	1,009	1,405	830		156	74	41	
Dept. of Water Affairs	5,060	5,067	4,395	6,287	2,343	2,991	1,217		46	59	28	
Dept. of Co-operatives and Marketing	885	1,315	3,094	1,188	1,477	1,322	601		167	96	19	
National Farming Info. Services	37	60	-	-	32	54	-		86	90	-	
MAWD TOTAL	18,198	25,150	33,547	39,329	15,318	20,767	15,636		84	83	48	
G.R.Z. TOTAL	122,666	191,308	225,800	331,634	165,370	184,601[c]			135	96		
MAWD AS % G.R.Z. TOTAL	14.8	13.1	14.9	11.8	9.3	11.2						

Notes:

a. Includes initially approved expenditures only. Total authorised expenditures for the year include supplementary provisions and are higher.

b. Provisional

c. Adjusted to exclude K391.om. book entries due to Government assumption of long-term Loans from Parastatals.

d. Excludes Department of Fisheries.

APPROVED RECURRENT EXPENDITURE ESTIMATES AND ACTUAL RECURRENT EXPENDITURES, MINISTRY OF AGRICULTURE AND WATER DEVELOPMENT, 1979, 1980, 1981 AND 1982 (Source: as for Table)

Units: K 000	Approved Estimates				Actual Expenditures				Actual as % of Approved			
	1979	1980	1981	1982	1979	1980	1981	1982	1979	1980	1981	198
Headquarters[a]	30,702	91,164	124,348	89,446	102,853	206,049			335	226		
Dept. of Agriculture	6,328	6,940	8,928	12,721	5,768	7,022			91	101		
Dept. of Vet. & Tsetse Control Services	3,659	3,961	4,623	6,132	3,696	3,954			101	100		
Training Instns.	1,659	1,804	2,029	2,765	1,507	1,577			91	87		
Agric. Research	1,629	2,010	2,313	2,465	1,528	1,896			94	94		
Dept. of Water Affairs	2,778	2,762	3,098	4,697	2,382	2,837			86	103		
Dept. of Co-operatives and Marketing	1,238	1,438	1,644	2,258	1,224	1,380			99	96		
National Farming Info. Service	260	295	329	449	253	295			97	100		
MAWD TOTAL	48,252	110,374	147,314	120,983	119,211	225,011			247	204		
G.R.Z. TOTAL	725,509	838,263	957,155	1,169,403	791,041	1,081,966			109	129		
MAWD AS % G.R.Z. TOTAL	6.6	13.2	15.4	10.3	15.1	20.8						

Notes: a. Includes subsidy expenditures (see Table 2.5 for breakdown)

MINISTRY OF AGRICULTURE AND WATER DEVELOPMENT; 1979, 1980, 1981 AND 1982.
(SOURCE: AS FOR TABLE 3)

Units K000	Approved Estimates				Actual Expenditure				Actual as % of Approve			
	1979	1980	1981	1982	1979	1980	1981[b]	1982	1979	1980	1981[b]	198
RDC: AFC Admin.Exp.	800	800	400	800	800	770	400					
RDC: Kawambwa Tea	300	200			300	200						
LINTCO: Price Diff.			3,000	4,200		3,500	3,000					
TBZ: Price Diff.			3,800	1,500			200					
TBZ: Admin.	450	1,000	2,000	800	450	1,000	2,000					
TBZ: Production	3,000	3,050	3,000	3,001	3,000	12,550	2,300					
TBZ: Staff Terminal Benefits						2,067						
TBZ: Losses			3,000	1,500			2,191					
CSB: Losses	1,400	1,000	3,000		1,600	1,950	3,000					
NCU	490	1,500	2,038	2,500	490	1,500	2,038					
ECU	1,400	2,800	7,450	6,000	1,400	2,800	3,212					
SCU	3,150	7,028	15,000	15,000	3,150	6,953	5,200					
LCU	70	170	268	268	70	230	268					
New C-op. Unions			1,000	6,000			800					
ZAMHORT: Losses			1,100				735					
NAMB: Fert.Handling	6,370	15,821	10,400	18,691	6,341	13,821	4,500					
NAMB; Fert.Price Diff.	-	27,599	27,500	9,434	-	36,221	5,000					
NAMB: Maize Handling	12,040	28,937	24,914	17,764	12,040	30,937	19,500					
NAMB: Maize Price Diff.	-	-	15,000	-	-	66,278	5,358					
NAMB: Accum.Deprec."	-	-	-	-	9,592	-						
NAMB: Accum.Deficits	-	-			62,247	23,803						
Other	15	60	200	150	-	63	97					
TOTAL:	29,485	89,965	123,070	87,608	101,480	204,643	59,799		344	227	49	

TOTAL G[illegible] EXPENDITURE [illegible] AGRICULTURE AND WATER DEVELOPMENT, [illegible] NATURAL RESOURCES, FOOD PROCESSING AND MARKETING, AND FOOD SUBSIDIES, 1979 AND 1980.

	K millions	
	1979	1980
1. Development and Service Projects and Activities - MAWD, MLNR, and Parastatal Activities through PMO (Capital & current)	55	66
2. Agricultural Credit Parastatals - ADC, CBC.	13	8
3. Agricultural Production, Processing & Marketing Parastatals - excluding Namboard - price differential and handling costs and capital improvements	29	54
4. NAMBOARD Fertiliser Subsidy	6	50
5. Namboard and Co-operative Unions Crops Subsidies - price differential, transport & handling costs - investments and losses - dominantly for maize - essentially a consumer subsidy	89	134
TOTAL	192	322

Source: Compiled from figures published in GRZ Financial Reports for 1979 and 1980 (Government Printer, Lusaka).

SUPPORT PRICES TO FARMERS FOR MAJOR CROPS AND MILK, 1979, 1980, 1981, 1982 AND 1983[b].

Product	Unit	Price in Kwacha per unit					Percentage increases			
		1979	1980	1981	1982	1983	1979-80	1980-81	1981-82	1982-83
Maize	90Kg bag	9.00	11.70	13.50	16.00		30.0	15.4	18.5	
Rice	80Kg bag	16.00	18.00	18.60	28.00		12.5	3.3	50.5	
Wheat	90Kg bag	20.00	24.00	126.00	32.00		20.0	8.3	23.1	
Sunflower	50Kg bag	13.70	16.40	17.60	20.75		19.7	7.3	17.9	
Soyabeans	90Kg bag	25.00	32.30	36.30	42.31		29.2	12.4	16.6	
Groundnuts	80 Kg bag	32.00	39.00	42.70	48.00		9.4	22.0	12.4	
Cotton	Kg	0.46	0.46	0.46	0.47		-	-	2.2	
Virginia tobacco	Kg	1.32	1.57	1.65	2.40		18.9	5.1	45.5	
Milk [a.]	Litre	0.21	0.25	0.25	0.43		19.0	-	72.0	

Notes:

a. Price as of Jan1

b. Strictly, crop prices apply to "Marketing Years" which extend upto March 31. The bulk of the harvest is, however, delivered by farmers well before the onset of the rains, and thus within the calendar year. Hence the use of the latter, for simplicity, in this table.

TABLE 29 Value of Agricultural and Food Imports and Exports and Net Trade

Deficit: By Year from 1974-1980: Units (K'000) :

	'74	'75	'76	'77	'78	'79	'80	'81
Imports:								
Live animals	694	472	495	631	559	1193	1173	
Meat&meat pre.	5854	2729	1134	81	438	203	15	
Dairy &eggs	10750	4781	5349	4619	3698	4442	6296	
Fish & preps.	2838	1887	922	1161	1008	943	1327	
Cereals	10931	18388	12139	13263	14671	23053	22057	
Fruits&veges.	2938	2036	1939	1428	774	854	860	
Sugar&honey	1352	590	308	689	142	616	257	
Cffee,cocoa, Tea &spices	1945	1423	1212	1332	1083	2060	1530	
Animal feeds	3506	1334	1710	3091	7495	2318	2951	
Other foods	2991	2107	1500	2278	1758	1558	2326	
BEVERAGES & TOBACCO	999	938	811	817	657	274	745	
Crude animals &vegetable mats.	1591	1661	551	844	1861	1344	1760	
Animal &vegetable Oils &fats	930	1217	1198	9107	7170	9993	1196	
Fertlizers	7532	22846	23209	7238	11860-	13131	12386	
Other agric. chemicals	1297	2160	1238	1626	10784	13590	18531	
Agric. Machinery	4946	9396	4599	5864	11226	13854	15849	
Other	1877	1558	1259	1114	2135	1063	1968	
Total Imports	89771	75923	58601	55213	77299	90494	91227	
EXPORTS:								
Lve animals	224	199	156	143	62	184	365	
Cereals	7635	1435	522	3588	7931	3	1	
sugar & honey	2	8	8	67	225	684	2661	
Other food items	-	-	-	82	46	229	-	
Tobacco &manufact.	5798	4969	5095	5783	3481	2577	2714	
Oilseeds oilnuts &oil kernels	698	566	1071	1118	645	386	662	
Textile fibres	1	-	1	-	-	449	6591	
Other crude animal and vegetable material	148	284	262	204	86	68	324	
Animal & vegetable oils and fats	8	25	-	100	28	-	70	
Fertilizers	147	132	347	67	108	126	187	
Other	24	39	8	19	26	17	21	
Total Exports	14685	7757	7470	11111	12638	4723	13597	
Net Agric.- Food Trade Deficit	75086	68166	51131	44102	64611	85771	77630	

Source: Central Statistics Office: Annual Agricultural statistics Bulletin 1981 Tables 39and 40.

4. ANALYSIS EVALUATION AND DISCUSSION

4.1 GENERAL:

An evaluation of a marketing system required a a lot careful research and this exercise is indeed not complete as more calculations were needed to determine the efficiency of the system. This was not done due to lack of data. It should be mentioned here that marketing studies in Zambia are still in their infancy and as such data is not readily available. However the objectives as stated, an attempt has been made to meet them. The structural proposals are given in section 4.2, the supply and demand of food situation is given in section 4.3 and the effects of the producer prices and regression analysis results in section 4.4.

Most of the evaluation of the system has been given in respective sections and I hereby wish to emphasise that no one marketing system is suited for all but for Zambia given its production pattern, infrastructure, socio economic background a carefully planned and implemented cooperative marketing system, can be very ideal for the country, in line with the nations' philosophy of Humanism. Cooperatives can play a big role in rural development.

4.2 PROPOSED MARKETING STRUCTURE

The proposed channels for agricultural products as decipted above is aimed at: reducing the many channels which are not good for both the farmer and the consumer.

Farmers should sell directly to their primary societies and get immediate payment and then the the Primary Societies

sell to the Provincial Marketing Unions who will in turn export or import which ever the case may be, to External Markets or internal markets in this case, inter provincial. The National import and Export Council should be the supreme body which negotiates with international export/import sources and accordingly advise the Provincial Marketing Unions where markets are and where supplies are. The Council should always be in a postion to know exactly what requirements are needed by type of commodity, imput etc and where and advise the provincial unions accordingly so that they can carry out their interprovincial/international exchanges.

Inevitably such an arrangement requires a) sound capital. b) qualified personnel. c) good infrastructure d) proper storage facilities. e) proper grading and standardization. f) proper market intelligent services. g) guaranteed availability of working capital in form of seasonal cridit. h) clear policy priority in allocation of foreign exchange and i) good transport and communications.

With regard to the New Ministry of Cooperatives and Marketing below is the proposed structure for the Department of Agricultural Marketing Head Office. This should be headed by a Director who should be a professional Agricultural Economist so is his Deputy. Below them we have four (4) distinct divisions, 1) the surveys and investigations including specifications of grade standards. 2) Development and quality control 3) Implementation and administration of specific development projects and control orders, 4) Administration. Below these Divisional Heads are experts and Senior Marketing Officers.

We then have the structure for the Chief Marketing

Department which should carry out four distinct services: Marketing Development, Market News, Grades and Standards, Marketing facilities. Their respective duties are as indicated in figure 5. This information from the Chief Marketing department is of valuable use not only to the National Export/Import Council but to the provincial Marketing Unions.

PROPOSED STRUCTURE FOR THE DEPARTMENT OF AGRICULTURAL MARKETING HEAD OFFICE

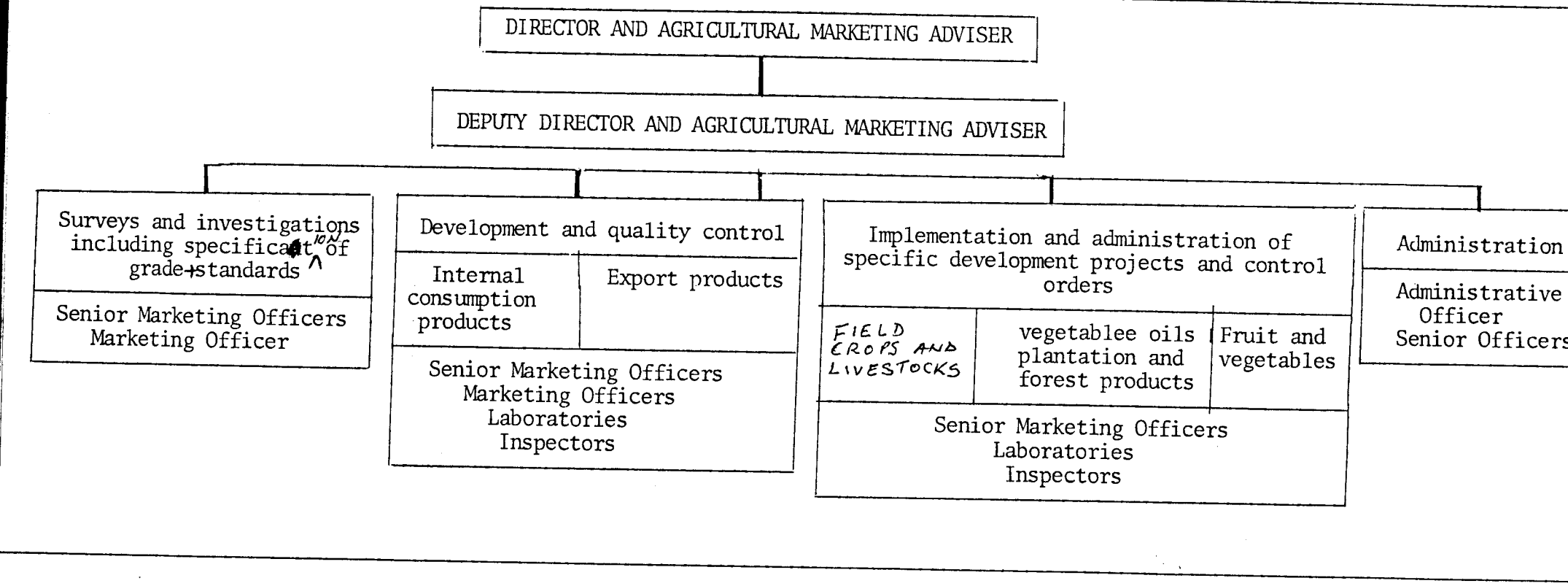
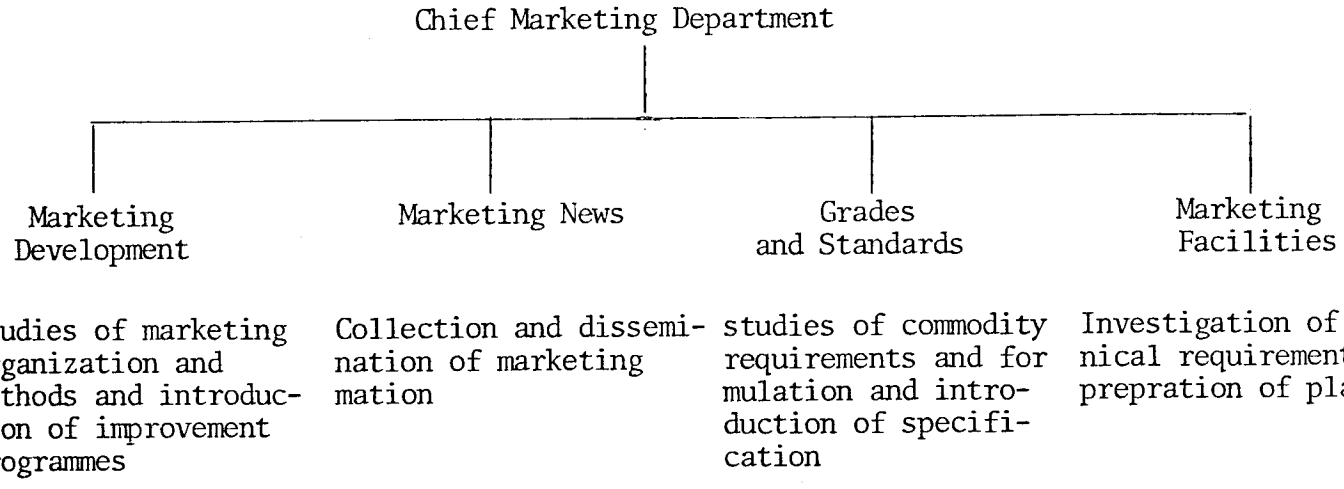


Fig 5

PROPOSED STRUCTURD FOR CHIEF COOPERATIVES, MARKETING DEPARTMENT



PROPOSED MARKETING STRUCTURE AND CHANNELS FOR AGRICULTURAL PRODUCTS IN ZAMBIA

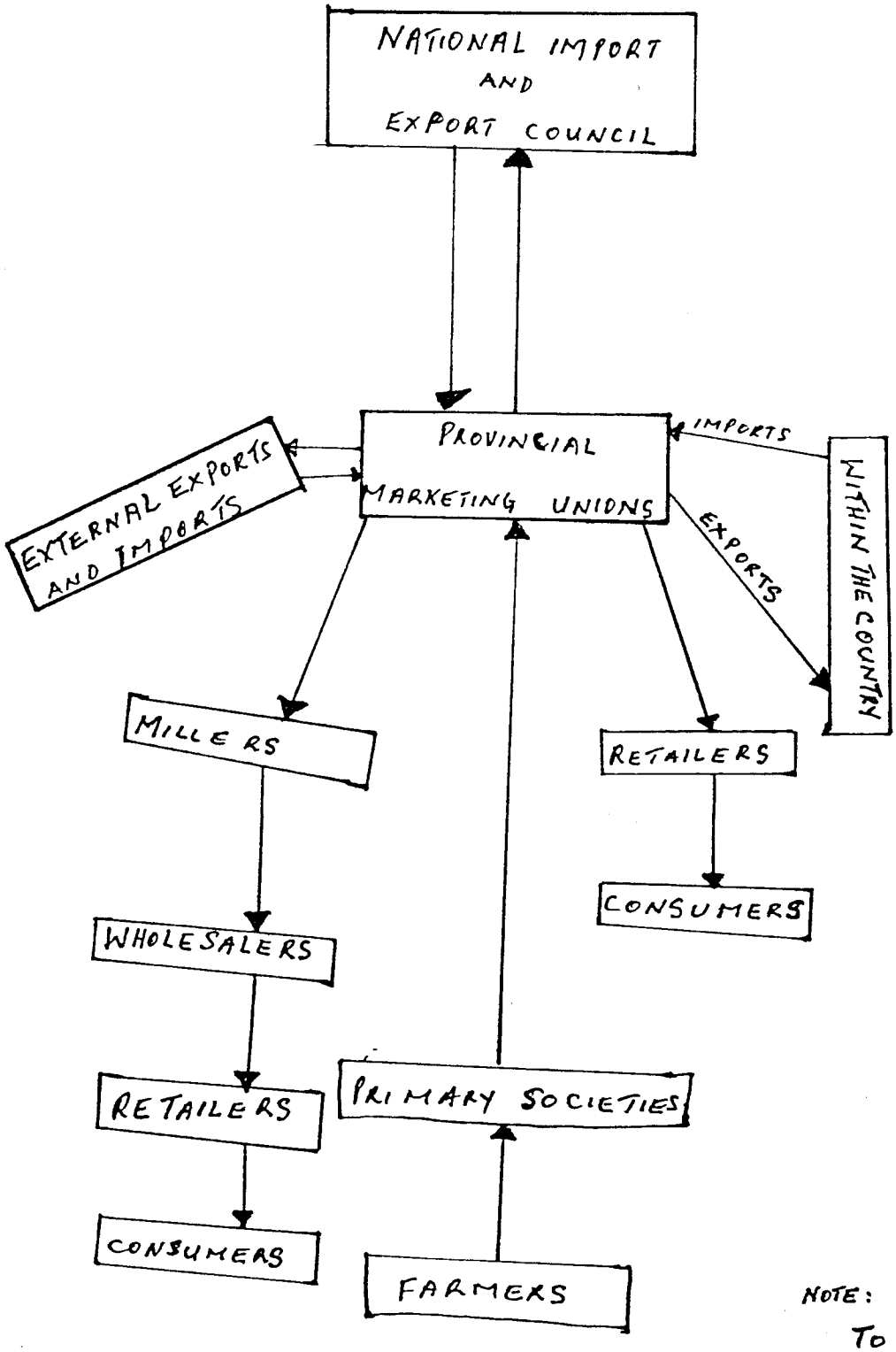


FIGURE 6.

4.3 DEMAND AND SUPPLY OF FOOD IN ZAMBIA

Food supply in Zambia comes from two basic sources.

(1) From Domestic production

(2) From Imports.

In order for one to arrive at a nations's food supply, one has to know how much is locally produced, how much is demanded in the nation and how much if any has to be imported. In addition one needs to know the population size, the consumption per capita and the actual consumable quantities after considering:

a) Past harvest losses

b) Utilization for seed

c) Utilization as Stock feed

d) Utilization for beer (depending on how utilization by consumers is defined)

e) Processing (resulting in by-products).

Schultz J. (1969/80) using the above worked out together with Harteveld K. (1982) the following:

- Mean cultivated areas (ha) small-scale commercial (Category 3) and tradtional (Category 4) from combined, by provice in 1969. (Table 9),
- Farm population by province and by category in 1969 and 1980 (Table 10)
- Retained maize, conversion of harvested weights to consumable product by category of farms (%) (Table 10)

- Marketed maize, conversion of harvested weights to consumable product (%) (Table 11)
- Sorghum and Millets, conversion of harvested weights to consumable product (%) (Table 12)
- Rice, conversion of harvested weights to consumable product (%) (table 13)

Table 14 gives the summary of the factors. Using the above information per capita consumption of food stuffs for rural and urban population for 1969 and 1980 were presented in tables 15 and 16. Crop production by category of farms in all provinces are shown in tables 17 to 24. Finally the development of the requirements in the whole country for the two model years 1969 and 1980 are presented in table 30. The reader is reminded that due to non availability of accurate production figures for livestock and vegetables these were not included. However, given these models it is easy to calculate the requirements when all factors are obtainable. Below is an exact supply and demand position for 1981. These being the latest available production figures.

1981 SUPPLY AND DEMAND OF FOOD IN ZAMBIA

(NATIONAL POPULATION = 5680000)

CROP	UNITS	PER CAPITA CONSUMPTION	REQUIREMENTS	ACTUAL PRODUCTION	SURPLUS/DEFICIT
MAIZE	1,000 x 90 kg.	1.90	12073276	7704799	(-4368477)
MILLETS	1,000 x 90 kg.	0.24	1363200	2440	(-133760)
SORGHUM	1,000 x 90 kg.	0.13	738400	128	(-738272)
BEANS	1,000 x 90 kg,	0.03	170400	589	(-737811)
GROUNDNUTS	1,000 x 90 kg.	0.04	227200	16500	(-210700)
RICE	1,000 x 90 kg.	0.04	227200	33418	(-193782)
WHEAT	1,000 x 90 kg.	0.25	1420000	127536	(-1292464)

From the above calculations we clearly observe that in 1981, the national productions for the major basic food stuffs were all below the national demand at the given per capita consumption factors. This means that the shortfalls had to be imported. For 1982 the situation for maize was really bad as only 5.5 million bags were produced due to bad weather. Figures for 1982 were not complete for all crops thus no efforts were made to potray the demand and supply situation.

TABLE 9.

Mean cultivated areas small-scale commercial (category 3) and traditional (category 4) farms combined, by province in 1969 (ha)

	Maize	Millets	Sorghum	Beans	Cassava	G/nuts	Total
Southern	2.30	0.15	0.29	-	0.01	0.24	2.99
Eastern	1.35	0.03	0.04	-	-	0.41	1.83
Northern	0.61	0.34	0.01	0.20	0.65	0.20	2.01
Luapula	0.43	0.19	-	0.08	0.76	0.22	1.68
Centr./Lus.	1.72	0.19	0.23	0.07	0.14	0.04	2.39
Copperbelt	0.61	0.08	0.61	-	0.20	0.08	1.58
Western	0.92	0.46	0.71	0.02	0.60	0.06	2.23
N.Western	0.49	0.08	0.14	-	1.18	0.02	1.91
Total	1.02	0.21	0.12	0.06	0.47	0.19	2.07

TABLE IO.

Farm population by province and by category of farms in 1969 and 1980.

(x 1,000)

Category / Province	Large-scale commercial		Medium-scale commercial		Small-scale commercial		Traditional		Total	
	1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Southern	22.5	16.0	47.9	76.0	236.6	374.1	125.0	33.9	432.0	500.0
Eastern	0.5	1.0	19.5	29.5	114.0	202.7	363.0	363.8	497.0	597.0
Northern	-	-	0.4	0.8	30.6	55.5	500.0	503.7	531.0	560.0
Luapula	-	-	0.3	0.5	7.7	15.3	320.0	331.2	328.0	347.0
Centr./Lus.	27.0	19.5	58.5	90.6	102.5	192.8	185.0	143.1	373.0	446.0
Copperbelt	-	-	3.0	4.7	6.0	14.9	63.0	80.4	72.0	100.0
Western	-	-	-	-	23.5	40.8	376.5	384.2	400.0	425.0
N.-Western	-	-	0.4	0.8	14.1	21.9	217.5	241.3	232.0	264.0
Total	50.0	36.5	130.0	202.9	535.0	918.0	2,150.0	2,081.6	2,865.0	3,239.0

TABLE 9.

Mean cultivated areas small-scale commercial (category 3) and traditional (category 4) farms combined, by province in 1969 (ha)

	Maize	Millets	Sorghum	Beans	Cassava	G/nuts	Total
Southern	2.30	0.15	0.29	-	0.01	0.24	2.99
Eastern	1.35	0.03	0.04	-	-	0.41	1.83
Northern	0.61	0.34	0.01	0.20	0.65	0.20	2.01
Luapula	0.43	0.19	-	0.08	0.76	0.22	1.68
Centr./Lus.	1.72	0.19	0.23	0.07	0.14	0.04	2.39
Copperbelt	0.61	0.08	0.61	-	0.20	0.08	1.58
Western	0.92	0.46	0.71	0.02	0.60	0.06	2.23
N.Western	0.49	0.08	0.14	-	1.18	0.02	1.91
Total	1.02	0.21	0.12	0.06	0.47	0.19	2.07

TABLE IO.

Farm population by province and by category of farms in 1969 and 1980.

(x 1,000)

Category / Province	Large-scale commercial		Medium-scale commercial		Small-scale commercial		Traditional		Total	
	1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Southern	22.5	16.0	47.9	76.0	236.6	374.1	125.0	33.9	432.0	500.0
Eastern	0.5	1.0	19.5	29.5	114.0	202.7	363.0	363.8	497.0	597.0
Northern	-	-	0.4	0.8	30.6	55.5	500.0	503.7	531.0	560.0
Luapula	-	-	0.3	0.5	7.7	15.3	320.0	331.2	328.0	347.0
Centr./Lus.	27.0	19.5	58.5	90.6	102.5	192.8	185.0	143.1	373.0	446.0
Copperbelt	-	-	3.0	4.7	6.0	14.9	63.0	80.4	72.0	100.0
Western	-	-	-	-	23.5	40.8	376.5	384.2	400.0	425.0
N.-Western	-	-	0.4	0.8	14.1	21.9	217.5	241.3	232.0	264.0
Total	50.0	36.5	130.0	202.9	535.0	918.0	2,150.0	2,081.6	2,865.0	3,239.0

TABLE I0.

Retained maize, conversion of harvested weights to consumable product by category of farms (%)

	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Harvested	100.0	100.0	100.0	100.0
Losses	5.0	5.0	5.0	5.0
Seed	1.0	1.0	1.0	1.0
Total available	94.0	94.0	94.0	94.0
Stockfeed	6.6	6.6	6.6	6.6
Available for meal (or beer)	87.4	87.4	87.4	87.4
By-products	8.7	17.5	24.5	30.6
Hammer mill meal[1)]	78.7[3)]	55.9[4)]	37.7[5)]	22.7[6)]
Home-pounded flour[2)]	-	14.0	25.2	34.1
Total meal	78.7	69.9	62.9	56.8

1) Extraction 90%
2) Extraction 55%
3) 100% of all meal
4) 80% of all meal
5) 60% of all meal
6) 40% of all meal

TABLE 11.

Table Marketed maize, conversion of harvested weights to consumable product (%)

	Marketed maize
Harvested	100.0
Losses	5.0
Seed	1.0
Total available	94.0
Stockfeed	6.6
Beer	9.4
Available for meal	78.0
By-products	15.6
Breakfast meal[1)]	15.6
Roller meal[2)]	46.8
Total meal	62.4

1) Assuming 25% of marketed meal is breakfast meal with an extraction rate of 60%

2) Assuming 75% of marketed meal is roller meal with an extraction rate of 90%.

TABLE Sorghum and millets, conversion of harvested weights to consumable product (%)

	Sorghum and millets
Harvested	100.0
Losses	10.0
Seed	3.0
Total available	87.0
Stockfeed	3.5
Available for flour (or beer)	83.5
By-products	16.7
Flour[1)]	66.8

1) Extraction 80%

TABLE 13

Rice, conversion of harvested weights to consumable product (%)

	Rice
Harvested	100.0
Losses	8.0
Seed	2.0
Available for milling	90.0
By-products	30.0
Polished rice[1]	60.0

1) Extraction 67%

Wheat, conversion of harvested (imported) weights to consumable product (%)

	Wheat
Harvested	100.0
Losses) Seed)	5.0[1]
Available for flour	95.0
By-products	19.0
Flour[2]	76.0

1) Average for domestically produced and imported wheat

2) Extraction 80%.

TABLE . .

Cereals used for beer by the rural population, by category of farms and by province in 1969 and in 1980 (kg/cap./yr.).

		Maize	Millets	Sorghum
Southern	Cat.1	25.0	-	-
	Cat.2	25.0	-	-
	Cat.3	7.7	5.8	11.5
	Cat.4	7.7	5.8	11.5
Eastern	Cat.1	25.0	-	-
	Cat.2	25.0	-	-
	Cat.3	15.3	4.2	5.6
	Cat.4	15.3	4.2	5.6
Northern	Cat.1	-	-	-
	Cat.2	2.6	21.7	0.7
	Cat.3	2.6	21.7	0.7
	Cat.4	2.6	21.7	0.7
Luapula	Cat.1	-	-	-
	Cat.2	3.4	21.6	-
	Cat.3	3.4	21.6	-
	Cat.4	3.4	21.6	-
Centr./Lus.	Cat.1	25.0	-	-
	Cat.2	25.0	-	-
	Cat.3	6.5	8.2	10.3
	Cat.4	6.5	8.2	10.3
Copperbelt	Cat.1	-	-	-
	Cat.2	1.3	2.8	20.8
	Cat.3	1.3	2.8	20.8
	Cat.4	1.3	2.8	20.8
Western	Cat.1	-	-	-
	Cat.2	-	-	-
	Cat.3	2.2	16.7	6.1
	Cat.4	2.2	16.7	6.1
N.-Western	Cat.1	-	-	-
	Cat.2	3.1	8.0	13.9
	Cat.3	3.1	8.0	13.9
	Cat.4	3.1	8.0	13.9

TABLE I4. Summary of factors for the conversion of harvested weights to consumable product (%)

Retained maize	
- Cat. 1	78.7
- Cat. 2	69.9
- Cat. 3	62.9
- Cat. 4	56.8
Marketed maize	62.4
Millets and sorghum	66.8
Beans	90.0[1)]
Cassava	30.0[2)]
Groundnuts	90.0[3)]
Rice	60.0
Wheat	76.0

1) Seed and losses 10%

2) Losses 10%, extraction 33%

3) Assuming harvest expressed in shelled weight.

TABLE I5. Per capita consumption of foodstuffs, rural and urban population in 1969 (kg)

Province	Maize flour	Millet flour	Sorghum flour	Beans	Cassava flour	Ground-nuts	Rice	Wheat flour
Southern								
- rural	155.0	5.1	9.9	1.0	0.3	11.0	-	3.5
- urban	126.1	0.1	0.1	1.8	0.2	0.65	1.3	24.8
Eastern								
- rural	143.0	3.0	4.0	2.0	0.6	8.0	0.9	1.0
- urban	105.9	-	0.1	1.8	0.5	0.65	1.7	12.1
Northern								
- rural	30.0	54.3	1.7	10.0	52.0	5.0	1.0	1.4
- urban	96.9	2.4	0.1	1.8	1.2	0.65	2.4	14.5
Luapula								
- rural	30.0	13.0	-	3.0	77.0	3.0	2.8	1.1
- urban	92.0	0.2	-	1.8	2.4	0.65	3.1	14.0
Central/Lus.								
- rural	171.1	9.0	11.3	2.5	4.9	1.5	0.5	14.8
- urban	104.2	0.1	0.2	1.8	1.0	0.65	2.5	36.7
Copperbelt								
- rural	108.0	6.5	48.5	1.0	3.0	1.0	0.1	15.5
- urban	102.0	-	0.4	1.8	0.9	0.65	1.9	32.0
Western								
- rural	89.0	13.9	5.1	1.0	29.0	1.0	0.3	1.8
- urban	98.1	0.1	0.1	1.8	9.0	0.65	0.4	21.0
N.-Western								
- rural	45.0	17.1	29.9	4.0	35.0	2.0	0.7	0.3
- urban	-	-	-	-	-	-	-	-

TABLE I6.

Per capita consumption of foodstuffs, rural and urban population in 1980 (kg)

Province	Maize flour	Millet flour	Sorghum flour	Beans	Cassava flour	Ground-nuts	Rice	Wheat flour
Southern								
- rural	155.1	4.8	9.2	1.0	0.3	11.0	0.1	4.3
- urban	121.7	-	-	1.8	0.2	0.65	1.6	29.1
Eastern								
- rural	143.2	2.9	3.6	2.0	0.6	8.0	1.1	1.1
- urban	102.6	-	-	1.8	0.3	0.65	2.2	15.2
Northern								
- rural	33.6	52.4	1.6	10.0	50.0	5.0	1.2	1.6
- urban	95.3	0.2	-	1.8	1.0	0.65	3.2	17.8
Luapula								
- rural	32.5	12.5	-	3.0	74.0	3.0	3.4	1.5
- urban	88.1	-	-	1.8	1.9	0.65	4.0	17.7
Central/Lus.								
- rural	171.4	8.4	10.8	2.5	4.0	1.5	0.6	16.4
- urban	98.2	-	0.1	1.8	0.6	0.65	3.3	42.5
Copperbelt								
- rural	108.4	6.2	46.8	1.0	3.0	1.0	0.2	17.0
- urban	97.2	-	-	1.8	0.5	0.65	2.5	37.0
Western								
- rural	90.3	13.0	5.0	1.0	28.2	1.0	0.4	2.2
- urban	95.4	-	-	1.8	8.0	0.65	0.6	24.7
N.-Western								
- rural	46.8	17.3	28.7	4.0	34.0	2.0	0.8	0.4
- urban	-	-	-	-	-	-	-	-

TABLE I7. Crop Production by Category of Farms in Southern Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg	794.7	610.8	408.2	834.0	906.2	1,681.7	391.2	106.2	2,500.3	3,232.7
Millets	1,000 x 90kg	-		-		44.5	66.2	20.2	5.3	64.7	71.5
Sorghum	1,000 x 90kg	-				86.9	128.4	39.7	10.4	126.6	138.8
Beans	1,000 x 90kg	-		1.6	3.2	11.8	19.7	1.5	0.4	14.9	23.3
Cassava	tonne	-				350	550	130	30	480	580
G/nuts	1,000 x 80kg	-		7.3	12.0	36.1	57.2	19.1	5.2	62.5	74.4
Rice	1,000 x 80kg	-									
Wheat	1,000 x 90kg	-	16.0								16.0
Cotton	tonne	320	320	810	1,920					1,130	2,240
Soya beans	1,000 x 90kg	-	14.0								14.0
Sunflower	1,000 x 50kg	-	25.7		31.7		15.4				72.8

TABLE I8. Crop Production by Category of Farms in Eastern Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg	12.0	27.0	108.7	514.7	347.1	736.5	1,086.0	1,089.9	1,553.8	2,368.1
Millets	1,000 x 90kg					13.1	22.5	38.4	37.8	51.5	60.3
Sorghum	1,000 x 90kg					17.4	29.1	51.2	48.9	68.6	78.0
Beans	1,000 x 90kg					3.6	7.0	9.0	9.0	12.6	16.0
Cassava	tonne							730	730	730	730
G/nuts	1,000 x 80kg			4.6	6.2	17.3	28.0	40.3	40.4	62.2	74.6
Rice	1,000 x 80kg				1.6		11.5				13.1
Wheat	1,000 x 90kg										
Cotton	tonne	30	100	1,300	2,990					1,330	3,090
Soya beans	1,000 x 90kg		1.0								1.0
Sunflower	1,000 x 50kg		1.6		10.8		19.2				31.6

TABLE I9. Crop Production by Category of Farms in Northern Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg			2.7	8.0	39.0	152.3	309.9	283.6	351.6	443.9
Millets	1,000 x 90kg					37.5	65.7	596.0	584.4	633.5	650.1
Sorghum	1,000 x 90kg					1.2	2.0	18.8	18.1	20.0	20.1
Beans	1,000 x 90kg			0.1	0.3	9.4	17.9	61.7	62.2	71.2	80.4
Cassava	tonne			70	140	7,180	11,600	86,670	83,950	93,920	95,690
G/nuts	1,000 x 80kg			0.1	0.2	2.1	4.9	34.7	35.0	36.9	40.1
Rice	1,000 x 80kg				0.3		23.8				24.1
Wheat	1,000 x 90kg				0.5		3.9				4.4
Cotton	tonne										
Soya beans	1,000 x 90kg										0.7
Sunflower	1,000 x 50kg				0.7						

TABLE 20. Crop Production by Category of Farms in Luapula Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg			1.8	5.0	14.7	37.3	154.5	165.7	171.0	208.0
Millets	1,000 x 90kg					4.1	7.8	161.2	164.1	165.3	171.9
Sorghum	1,000 x 90kg										
Beans	1,000 x 90kg			0.1	0.2	1.9	4.0	11.9	12.3	13.9	16.5
Cassava	tonne			80	120	2,040	3,860	82,130	81,700	84,250	85,680
G/nuts	1,000 x 80kg			0.1	0.2	1.8	3.7	13.3	13.8	15.2	17.7
Rice	1,000 x 80kg				0.3		9.0		17.3		26.6
Wheat	1,000 x 90kg										
Cotton	tonne										
Soya beans	1,000 x 90kg										
Sunflower	1,000 x 50kg				0.8						0.8

TABLE 2I.

Crop Production by Category of Farms in Central/Lusaka Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg	911.0	682.5	616.0	1,087.9	350.8	987.2	481.7	344.1	2,359.5	3,101.7
Millets	1,000 x 90kg					39.9	63.3	47.9	35.6	87.8	98.9
Sorghum	1,000 x 90kg					50.5	82.1	60.2	45.3	110.7	127.4
Beans	1,000 x 90kg			3.9	7.4	10.4	18.6	5.7	4.4	20.0	30.4
Cassava	tonne					2,380	4,490	3,020	1,910	5,400	6,400
G/nuts	1,000 x 80kg			4.0	6.8	3.0	6.4	3.9	3.0	10.9	16.2
Rice	1,000 x 80kg				2.5		3.7				6.2
Wheat	1,000 x 90kg		47.0								47.0
Cotton	tonne	350	310	1,850	4,120					2,200	4,430
Soya beans	1,000 x 90kg		4.7								4.7
Sunflower	1,000 x 50kg		45.6		46.9		13.2				105.7

Table 22 Crop Production by Category of Farms in Copperbelt Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg			23.6	42.6	16.7	46.2	85.2	109.1	125.5	197.9
Millets	1,000 x 90kg					1.2	2.8	9.1	11.3	10.3	14.1
Sorghum	1,000 x 90kg			3.6	5.0	11.1	15.7	68.2	84.9	82.9	105.6
Beans	1,000 x 90kg					0.6	2.3	0.8	1.0	1.4	3.3
Cassava	tonne			190	260	380	750	1,330	1,910	2,400	2,920
G/nuts	1,000 x 80kg			0.4	0.5	0.6	1.4	0.9	1.1	1.9	3.0
Rice	1,000 x 80kg				0.1		0.3				0.4
Wheat	1,000 x 90kg				10.8						10.8
Cotton	tonne										
Soya beans	1,000 x 90kg										
Sunflower	1,000 x 50kg				15.8						15.8

TABLE 23

Crop Production by Category of Farms in Western Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg					58.7	149.1	444.3	492.3	503.0	641.4
Millets	1,000 x 90kg					10.6	17.9	170.7	168.5	181.3	186.4
Sorghum	1,000 x 90kg					3.9	6.7	62.5	63.2	66.4	69.9
Beans	1,000 x 90kg					0.5	1.9	4.6	4.7	5.1	6.6
Cassava	tonne					2,570	5,520	36,400	36,110	38,970	41,630
G/nuts	1,000 x 80kg					1.0	2.0	5.2	5.3	6.2	7.3
Rice	1,000 x 80kg						15.0				15.0
Wheat	1,000 x 90kg										
Cotton	tonne										
Soya beans	1,000 x 90kg										
Sunflower	1,000 x 50kg						0.5				0.5

TABLE 24

Crop Production by Category of Farms in N.-Western Province.

Crop	Units	Category 1		Category 2		Category 3		Category 4		All categories	
		1969	1980	1969	1980	1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg			2.6	7.8	37.6	77.6	102.0	126.4	142.2	211.8
Millets	1,000 x 90kg			0.1	0.4	5.5	9.2	85.1	95.1	90.7	104.7
Sorghum	1,000 x 90kg			0.3	0.7	9.6	15.6	148.4	159.8	158.3	176.1
Beans	1,000 x 90kg					0.7	1.9	10.7	11.9	11.4	13.8
Cassava	tonne			40	90	2,500	3,620	25,380	27,350	27,920	31,060
G/nuts	1,000 x 80kg			0.1	0.2	1.2	1.9	6.0	6.7	7.3	8.8
Rice	1,000 x 80kg				0.1		4.6				4.7
Wheat	1,000 x 90kg										
Cotton	tonne										
Soya beans	1,000 x 90kg										
Sunflower	1,000 x 50kg				0.7						0.7

The development of the requirements in the whole country is presented in Table 30

Table 30 Requirements of agricultural food products; summary for 1969 and 1980, all provinces

Crop	Units	Rural population		Urban population		Total population	
		1969	1980	1969	1980	1969	1980
Maize	1,000 x 90kg	5,504.0	6,392.3	2,202.9	4,313.2	7,706.9	10,705.5
Millets	1,000 x 90kg	1,283.8	1,356.8	1.3	1.1	1,285.1	1,357.9
Sorghum	1,000 x 90kg	627.3	713.4	6.2	2.5	633.5	715.9
Beans	1,000 x 90kg	124.0	136.2	26.5	54.1	150.5	190.3
Cassava	tonne	250,230	257,440	3,840	7,250	254,070	264,690
G/nuts	1,000 x 80kg	192.3	220.0	10.8	22.1	203.1	242.1
Rice	1,000 x 80kg	49.3	67.1	50.7	142.1	100.0	209.2
Wheat	1,000 x 90kg	154.2	208.8	563.3	1,263.1	717.5	1,471.9

4. REGRESSIONS FOR ANALYSED COMMODITIES AND ECONOMIC INTERPRETATION

An attempt was made to determine the effectiveness of the producer prices on production (supply) by running simple regressions on the following crops. Data for analysis is provided in the appendix and source of data was the Central Statistics Office as provided in tables six (6) and five (5) of this work.

The models for all the crops was simply to make price(x) as the independent variable and production(y) as the dependent variable. Other possible variables such as weather, rainfall, substitutes, income, were ignored. The basis of analysis was thus the F test, the elasticities, the regressions coefficiencies. Thus the mathematical function is $Y = f(x)$ except for beef where a multiple regression was done introducing population, price, and trend. The function is $Y = f(x_1, x_2, x_3)$ where

Y = quantity of beef

x_1 = price of beef

x_2 = population

x_3 = trend

RESULTS:

(I) MAIZE:

The regression equation was $Y = 6949853 - 287601x$. The F value was 1.8407, elasticity was -0.3744 $r^2=0.1555$. The above results indicate that there is no significant relation between price and production. The F value of I.8407 (I and 10 degrees of freedom) is not significant at either 0.01 or 0.05 levels. Meaning that price alone has very little influence on maize production a concept most planners believe that by increasing the producer price without considering other factors they will increase production which in this case is not true. In fact in this case price alone explains only 15.5% which is not very realistic.

(2) SUNFLOWER:

Gave a very high correlation of 0.837 with $r^2 = 0.7011$

Elasticity = 1.9168 F= 21.109 N= II.

The regression equation was $Y = 163351 + 31519x$ F is significant at 0.01 level (I and 9 degrees of freedom). The economic interpretation is that for one percent price increase we can expect a quantity (production) increase of 1.92 percent and price alone in this case explains about seventy (70) percent of production.

(3) GROUNDNUTS:

Like maize the results show negative and not significant. The F value is 2.5372, $r^2 = 0.2024$, elasticity = 0.5113. The regression equation is $Y = 87339 - 1335.55x$. This means that price alone explains only 20% of production and a one(1) percent price increase will result in a minus 0.5173% decrease in production.

(4) PADDY RICE:

Gives an elasticity of supply of 1.9525, F=6.1407 which is significant at 0.05 level (1 and 6 degrees of freedom) r = 0.7112 and r^2= 0.5058. The economic meaningis that a one(1) percent price increase will result in a 1.95% increase in production. The regression equation is Y = -22299 + 3052.56x. The data was however very restrictive for analysis as n was only eight (8).

(5) WHEAT:

Shows a high supply elasticity of 2.564, F value = 13.1132 r^2=0.7240 with r =0.8509 n=7. F is significant at 0.05 level like in rice if n were greate may be it could have been significant at 1%. The regression equation is Y = -106839 + 9150.60x.

(6) SOYA BEAN:

Gave the highest result. There is high correlation between price and production. r = 0.9571, r^2 = 0.9161, elasticity = 2.2411, F value = 65.4761 and is significant at 0.01 level (1 and 6 degrees of freedom). This means that a one(1) percent price increase will result in a 2.2411 percent increas in production. The regression equation is Y = -20630 + 1700.99x.

(7) SORGHUM:

Shows no correlation between price and production at n=12 the F value = 0.5560 r = -0.2295 r^2 = 0.0527. The regression equation is Y =5905-478.85x.

(8) COTTON:

Gave a positive but not significant correlation with F value of 1.4363 n =13 r =0.3398 r^2 = 0.1155. Only 11.5% is explained by price with elasticity of 0.4994 a price rise of one percent will result only in a 0.5 percent increase in production. The equation is Y=4831214+14049200x.

(9) TOBACCO:

Gave a high negative correlation of -0.848 the F value = 28.1509 which is significant at 0.01 level. The equation is Y = 7859019 -2550150x.

(10)WHOLE MILK:

Gave a negative and not significant correlation between price and production The F value is 2.5543 with n=9 is not significant. The regression equation i Y =13010323 -74088.9x.

(11)SUGARCANE:

There is a positive and significant correlation between price and production r =0.8551 and r^2 =0.7312, F value =32.637 significant at 1%. With elasticity of 1.0784 we can expect a 1.0784% quantity increase in production with a one(1) percent price rise. The regression equation is Y= -46282.0 + 65998.6x

(12)BEEF:

For beef a multiple regression as explained earlier was run. F value =5.1433

$R = 0.8115$ and $r^2 = 0.6585$ this is significant at 5%. The equation is $Y = -218674 - 241.05x_1 + 0.07553x_2 - 8979.86x_3$. On close analysis and comparison with a single regression which gave F value of 1.0186 not significant we may explain that price alone cannot give a good explanation for beef production Indeed there are a lot of other factors to be considered.

Generally from the above results though not fully exhaustive as with more variables different results could have been obtained. We can conclude that in general farmers are orienting themselves relatively well for cash crops as indicated by the supply elasticities than on basic consumption.
In Zambia the traditional cattle owner will rather keep his herd for ceremonial functions such as funerals, marriage ceremonies, unforeseen expense (fines) and above all for prestige as cattle are considered as status wealth. The factor which is very important is that the weather, rainfall and at times political decisions have a lot to do with farmer response.

5. CONCLUSIONS AND SUGGESTIONS

5.1 CONCLUSTIONS:

1. Zambia's climate is quite suited for all year round crop production and potential for production of food to feed the nation is there but this has not been fully utilised so the country still has to import food stuffs (see table 29).

2. The basic structure of the economy remains heavily biased twoards the production and export of minerals as it was in the colonial period. However, efforts are being made by the government to diversify the economy into agriculture.

3. The majority of the farming population is the indegeneous small scale and subsistance farmers scattered all round the country-side.

4. Gross Domestic Product (GDP) and agricultural output have grown but agricultural exports have grown a little in monetary terms, but when inflation effects are put in into consideration the real value of agricultural exports is no higher than at independence, and agricultural exports are stilldwarfed by the exports of minerals.

5. In pursuing its objective of self sufficiency in agriculture one observes that there has been some improvement in some crops notably maize, though this usually fluctuates due to weather.

6. Proper and efficient marketing of agricultural products is still not satisfactory. This has led to the reorganisation of the national agricultural marketing board reducing its functions and transfering them to cooperative marketing unions.

Nonetheless, the unions are still faced with the problems left by Nambaord as will be seen later.

7. We can conclude also that the distribution of agricultural and food products within the country still deserves much attention.

8. The pricing procedure for commodities is not very good. In fact there is no coherent price procedure at all levels. (producer wholesale, and retail).

9. The agriculture market is not perfect, in most cases there is no competition.

10. The main underlying problems of the system are:

a) Organisational: The marketing institutions are so heavily capitally expended but the administration is very poor, characterised by lack of sense of of responsibility on the part of the management, corruption, financial mismanagement etc.

b) Financial: in all of the parastatals discussed the salient complaint is that of lack of funds to carry out the operations.

c) Transport: is one of the major problems facing marketing of agricultural products in Zambia. The production centres are so widely scattered in rural areas and these areas are sometimes not accessible during the rain season. It should be noted that marketing does not only involve buying and selling of produce but also the provision of the imputs such as fertiliser and this is usually done late during the months of November and December, which of course is not correct. Management should usually ensure

that these things are done well in advance, but this is not so in most cases and the usual excuse is lack of transport.

d) Storage facilities are really a major problem and this results in so many post harvest losses.

e) Uneven distribution of food throughout the year. This again is due to poor marketing management as the management lacks information regarding surpluses and where these are found and where they are needed.

f) Late payment to farmers for their produce is another weakness.

g) Lack of sufficient seasonal credit for marketing services.

5.2 SUGGESTIONS

1. Since the government has observed the need for improvement in the marketing system by re-organising the National Agricultural Marketing Board (NAMBOARD), and introducing the Cooperative Marketing Unions it is hereby strongly recommended to eradicate the bottlnecks that NAMBOARD faced.

2. The implementation of change over should be gradual otherwise the cooperative unions, unknowingly will find itself unable to meet their obligations.

3. The new Ministry of Cooperatives and Marketing must be made fully responsible for marketing decisions. This is necessary to avoid conflicts with the Ministry of Agriculture and Water Development who still control some Parastatals dealing with marketing to avoid division of loyalty.

4. The new Ministry should seriously make effective coordination efforts not only with other sister Ministries such as Community Development, Water Affairs but also with the Zambia Federation of Cooperatives.

5. The Zambia Federation of Cooperatives should seriously provide training to the cooperative unions and instill into the unions a sense of self-help than relying on the government. This heavy reliance on government led to the failure of the early 1960's copperatives and this should not be allowed to repeat itself.

6. Serious examination of the integrity of management of the cooperative unions is very important as inefficient personnel may be employed who were the same inefficient ones in NAMBOARD, if this happens then it is useless to have the change over.

7. Serious and urgent perfection of the following defects in our system is important:

- Poor transport and communication
- Lack of and poor storage facilities
- Lack of market information
- Lack of proper and coherent pricing policy
- Lack of seasonal credit for marketing services

8. Distribution of agricultural and food products within the country should have the following structure: since not all provinces are producing the same products, it is hereby suggested that each province specializes in its speciality and produce enough to satisfy local demand, thereafter exports the surplus to other provinces in exchange for what it lacks.

Processing of food and food products should be decentralised. for example construction of mills at all provincial centres to process their local products than taking everything to Lusaka and then back to areas of production, this increases marketing channels which eventually increase the marketing costs and in the end the consumer gets the hiding (Please see appendix for marketing margins). For example why take cassava from Kaoma to Lusaka for processing instead of processing it in Kaoma and export the finshed product to Lusaka. These mills will also provide rural people with employment.

9. Finally it should be noted that throughout the whole text approriate conclusions and recommendations have been made.

5. BESLUIT EN SUGGESTIES

5.1. Besluit

1. Het klimaat in Zambia is vrij geschikt voor jaar-rond teelten en het potentieel om gans het land te voeden is aanwezig maar wordt niet volledig aangewend zodat het land toch nog voedsel moet invoeren (zie tabel 29).
2. De basisstructuur van de economie blijft vooral gericht op de produktie en de export van mineralen zoals in de koloniale periode. Nochtans doet de regering inspanningen om de economie te diversifiëren naar de landbouw.
3. De meerderheid van de landbouwbevolking bestaat uit kleinschalige landbouwers die over het gehele platteland verspreid zijn.
4. Het Bruto Nationaal Produkt (B.N.P.) en de landbouwproduktie zijn gegroeid, maar het aandeel van de landbouw in het B.N.P. blijft ongeveer konstant. De uitvoer van landbouwprodukten uitgedrukt in geldwaarde is een beetje gestegen maar als men de inflatie in rekening brengt dan blijkt de reële waarde van de landbouw-uitvoer niet hoger te zijn dan bij de onafhankelijkheid en miniem ten opzichte van de uitvoer van mineralen.
5. In de realisatie van het objektief van de zelfvoorziening in de landbouw, bemerkt men een aantal verbeteringen voor bepaalde produkten zoals maïs hoewel dit gewoonlijk schommelt met de weersomstandigheden.
6. Het marketingapparaat voor landbouwprodukten schenkt nog geen volledige voldoening en werkt nog niet efficiënt. Dit heeft geleid tot de reorganisatie van de nationale marketing commissie voor landbouw wiens bevoegdheden werden gereduceerd en overgeheveld naar coöperatieve marketing-bonden. Niettemin worden deze bonden nog steeds geconfronteerd met de problemen nagelaten door het Nationaal ministerie zoals we later zullen zien.
7. We kunnen tevens besluiten dat de distributie van landbouw- en voedingsprodukten over het land nog veel aandacht vereist.
8. De prijsregeling voor de koopwaar is niet goed. Er is feitelijk geen samenhangend prijsbeleid voor alle niveau's (producent, groot- en kleinhandel).
9. De markt voor landbouwprodukten is niet perfekt, in de meeste gevallen is er zelfs geen competitie.
10. De belangrijkste basisproblemen van het systeem zijn:
    a) Organisatorisch: de marketing-instellingen zijn zeer kapitaalsintensief maar de administratie is zeer arm en wordt gekenmerkt door gebrek aan verantwoordelijkheidszin op het gebied van management, corruptie, financieel wanbeleid, ...
    b) Financieel: in alle besproken parastatalen is de grootste klacht het gebrek aan fondsen om de operaties uit te voeren.
    c) Transport: is een van de grootste problemen voor de vermarkting van agra-

rische produkten in Zambia. De produktiecentra liggen erg verspreid in de rurale gebieden en deze gebieden zijn niet altijd toegankelijk tijdens het regenseizoen. Het dient genoteerd dat marketing niet enkel slaat op kopen en verkopen van eindprodukten maar ook op de voorziening van produktiemiddelen zoals meststoffen en dit gebeurt gewoonlijk laat; tijdens de maanden november en december, wat natuurlijk niet juist is. Management zal er gewoonlijk voor zorgen dat deze zaken goed op voorhand uitgevoerd worden maar dit gebeurt in de meeste gevallen niet bij gebrek aan transport.

d) Bewaarfaciliteiten zijn werkelijk een groot probleem en dat heeft grote na-oogst verliezen tot gevolg.

e) Ongelijke verdeling van de voedingsprodukten tijdens het jaar. Dit is eveneens te wijten aan een gebrekkig marketing systeem bij gemis aan informatie omtrent gebieden met overschotten en gebieden waar deze overschotten nodig zijn.

f) Een andere zwakheid van het systeem zijn de late uitbetalingen van de landbouwers.

g) Gebrek aan voldoende seizoen-krediet voor marketing-diensten.

5.2. Suggesties

1. De regering heeft de noodzaak tot verbetering van het marketingsysteem ingezien en is begonnen met de reorganisatie van de Nationale landbouw Marketing Commissie (Namboard) en de introductie van coöperatieve marketing-bonden. Daarbij is ten zeerste aangeraden om de moeilijkheden te vermijden waarmee het Normboard geconfronteerd werd.
2. De overgang dient geleidelijk te gebeuren, anders zullen de coöperatieve organisaties waarschijnlijk in de onmogelijkheid verkeren hun verplichtingen na te komen.
3. Het nieuwe ministerie van Coöperatieven en Marketing moet volledig verantwoordelijk gesteld worden voor de marketing-beslissingen. Dit is noodzakelijk om konflikten te vermijden met het Ministerie van Landbouw en Waterontwikkeling dat nog enkele parastatalen bevoegd voor marketing, kontroleert.
4. Het nieuwe Ministerie moet serieus werk maken van een effektieve coördinatie, niet enkel met zusterministeries zoals Gemeenschapsontwikkeling en Waterzaken maar ook met de Zambiaanse federatie voor Coöperatieven.
5. De Zambiaanse federatie van Coöperatieven moet een serieuze training voorzien voor de coöperatieve bonden en hen zin voor zelfhulp bijbrengen eerder dan te betrouwen op de regering. Deze te sterke afhankelijkheid van de regering heeft trouwens geleid tot het mislukken van de coöperaties in het begin van de jaren '60 en dit mag zich zeker niet herhalen.

6. Erg belangrijk is tevens een betrouwbaar onderzoek naar de integriteit van het bestuur van de coöperatieve organisaties anders is het niet denkbeeldig dat hetzelfde ongeschikte personeel van bij de Namboard aangenomen wordt. Als dit gebeurt, is de verandering nutteloos.
7. Een grondige en dringende verbetering van de volgende onvolkomenheden van het systeem is een dringende noodzaak:
   - gebrekkig transport en kommunikatie
   - gebrek aan en onvolkomen bewaarfaciliteiten
   - gebrek aan een geschikt en coherent prijsbeleid
   - gebrek aan seizoen-krediet voor marketingdiensten.
8. De verdeling van de landbouw- en voedingsprodukten over het land dient de volgende struktuur te bezitten: daar niet alle provincies dezelfde goederen produceren, is het aangewezen dat elke streek zich specialiseert en voldoende produceert om aan de locale vraag te voldoen. Het overschot kan dan worden uitgevoerd naar andere provincies in ruil voor wat het mist.
9. De verwerking van voeding en voedingsprodukten dient gedecentraliseerd te worden. Zo moeten bijvoorbeeld molens worden opgericht in alle provinciale centra om de locale produktie te verwerken, zodat het niet meer nodig is alles naar Luzaka te vervoeren en na verwerking terug te brengen naar de produktiecentra. Dit laatste verhoogt immers de marktkanalen wat eventueel de marktkosten doet stijgen wat uiteindelijk door de consument dient betaald te worden (zie bijlage voor de handelsmarges). Waarom is het bv. nodig de cassava van Kaoma naar Luzaka te brengen voor verwerking in plaats van ter plaatse te verwerken en het afgewerkte produkt uit te voeren naar Luzaka? Deze verwerkingseenheden zullen tevens werkgelegenheid scheppen voor de plaatselijke bevolking.
10. Tenslotte dient opgemerkt dat in de tekst reeds aangepaste gevolgtrekkingen en aanbevelingen werden gemaakt.

ROLES, OBJECTIVES AND MEMBERSHIP FOR PRIMARY SOCIETIES, UNIONS AND THE ZAMBIA CO-OPERATIVE FEDERATION LIMITED

INTRODUCTION: This paper is aimed at giving a picture of the roles, objectives and membership of the Cooperative Movement in Zambia. The membership starts at primary society level and it builds up through Unions and National Organisations to Zambia Cooperative Federation (ZCF), the Apex body of the Movement at National level. The paper will therefore start with the smallest component of the Movement, that is, the primary society.

2.0 OBJECTIVES AND ROLES OF A PRIMARY SOCIETY:

The general object of the society shall be to promote the economic social and cultural interests of its members by:

2.1 - Purchasing, storing and transporting agricultural produce collected among its members.

2.2. - Marketing such produce or forwarding it to the Union of which the society is a member.

2.3 - Processing or handling any agricultural products in accordance with section 25 of the Cooperative Societies Act which states that:-

" A Society may be registered primarily to undertake and carry on all kinds of business operations connected with the Marketing,

buying, handling, feeding, fattening, finishing, slaughtering, preserving, harvesting, drying, processing, manufacturing, canning, cleaning, grading, storing, transporting, selling, or otherwise disposing of or utilising any agricultural product produced or delivered to it by its members or non-member patrons, or connected with the manufaturing or buying, selling or marketing of the by-products thereof."

2.4 - Dealing in and selling agricultural requisites and consumer goods.

2.5 - As and when permitted by the Registrar of Cooperative Societies, collecting savings from the members and participate in credit schemes organised to promote agricultual production among its members.

2.6 - The work of the society shall be conducted in such a way that a capital accumulation is achieved which ensures development and independence of the society. The endeavours shall be to finance the undertakings of the society, to the greatest possible extent by capital contributed by the members or created through savings in the society.

3.0 MEMBERSHIP FOR PRIMARY MULTI-PURPOSE SOCIETIES

3.1 - The society shall have a minimum of ten (10) members. No maximum limit shall be placed on the number of members.

3.2 - Membership shall be open to every man and woman who has attained the age of sixteen years and normally resides within the trading area of the society and is willing to promote the purpose of

regardless of social status, race, creed or political beliefs.

3.3 - Institutions and associations which are prepared to promote the objectives of the society may also be admitted as members.

3.4 - No member shall be allowed to hold more than 1/5 of the issued share capital.

3.5 - Applications for membership shall be made in writting to the Board of Directors and the applicant shall at the same time pay for one share and an entrance fee of 50ngwee.

3.6 - If membership is rejected, the amount paid for shares shall be refunded to that person.

3.7 - Each member shall receive a pass book in which shall be recorded his/her annual trade with the Society, the patronage bonus, share contribution with accrued interest and holding on savings account with accrued interest. Recording in a pass book may, if deemed convenient by the society be substituted by a statement of account where the corresponding figures are given

3.8 - Every member shall nominate in writting with two witnesses one person who in the event of his/her death, will inherit his/her shares or interest in the society. Each nominee shall be entered in the membership register.

3.9 - The member's accounts with the society shall be as follows:-

- Share Accounts
- Members' Savings Accounts.

0 OBJECTIVES AND ROLES OF A CO-OPERATIVE UNION

The broad objective of the Union shall be to promote the economic interests of its members by:

4.1 - Purchasing, transporting and storing agricultural produce collected by members.

4.2 - Marketing such produce or forwarding it to a marketing board for which the Union may be appointed agent.

4.3 - Processing or handling any agricultural products obtained from its member societies in accordance with article 25 of the Cooperative Societies Act which is stated in point 2.3.

4.4 - Dealing in and selling agricultural requisites and consumer goods on a wholesale basis if not competing with affiliated societies.

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4.5 - When permitted by the Registrar of Cooperative Societies, collecting savings from the affiliated societies or their individual members and employees of the Union organise Credit Schemes for the benefit of the affiliated societies or their individual members and the employees of the Union. The Union may obtain a loan to enter into such schemes.

4.6 The work of the Union shall be conducted in such a way that a capital accumulation is achieved which assures the development and independence of the Union. The andeavour shall be to finance the undertakings by the Union, to the greatest possible extent, by capital contributed by the member societies or created through savings in the Union.

MEMBERSHIP FOR A CO-OPERATIVE UNION

5.1 - The Union shall have a minimum of two (2) member Societies. No maximum limit shall be put on the number of member societies.

5.2 - Membership shall be open to all societies registered within the area of operation o f the Union and which are willing to work together for the betterment of the economic, social and cultural conditions of the Peasant/farmers in the area and who are or will become cooperative members.

5.3 - Institutions and associations prepared to promote the objectives of the Union may also be admitted as members.

5.4 - The responsibility of a member society for the liabilities of the Union shall be limitted to the paid up share capital of the Society.

5.5 - Application for membership shall be made in writing to the Board of Directors and theapplying society shall at the same time pay for one share (K10.00).

5.6 - If membership is rejected, the amount paid for shares shall be refunded to that society without delay.

5.7 - Each member society shall recieve a written statement from the Union at least once a year, showing the share capital held by the society in the Union as well as the amount on the savings account held by the society in the Union and the interest due to these accounts.

5.8 - Each member society shall have the following accounts with the Union:

- Share Account
- Savings Account
- Trade Account

THE ZAMBIA CO-OPERATIVE FEDERATION

The Zambia Cooperative Federation was established in 1973 basically to provide technical services to the Cooperative Movement. This was felt so because certain

societies carried them on their own.
The following activities are fully developed at the apex:-

(i) Member representation on important policy making bodies.

(ii) Information and Publicity

(iii) Marketing
(iv) Insurance
(v) Audit
(vi) Education and Training
(vii) Research and Planning.

6.1 - Member Representation - ZCF is representing the Movement on a number of boards and these are:-

- The Presidents' Citizenship College,
- The Cooperative College
- The Regional Council of International Alliance,
- The Board of Director of the Seed Company.

ZCF being a mass organisation is also affiliated to the United National Independence Party (UNIP)

6.2 - Information and Publicity - ZCF is publishing the COOPnews on behalf of the Movement. This publication comes out once every two months.

6.3 - Marketing- ZCF is distributing consumer goods, farm implements and any other goods members may require.

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6.4 - Insurance - ZCF is operating an Insurance Agency which is responsible for the Insurance needs of the Movement. It is intended that the Agency covers all Unions and Societies.

6.5 Auditing- An audit wing which is responsible for providing the audit needs for the movement has been established.

6.6 Education and Training - ZCF through its training officer co-ordinates training for the Cooperative Movement both within and outside the country.

The training officer is also responsible for co-ordinating grass root seminars for women.

6.7 Research and Planning - A Research and Planning Unit has been developed to assist member organisations with their projects and corporate plans. This, it is hoped will lead to an orderly growth of the Societies and Unions.

7.0 ZCF OBJECTIVES AND ROLES

The general purpose of the Federation is to advance and co-ordinate co-operative development in order to improve the economic position and the quality of life of the people of Zambia through the succesful practice of Cooperative self help.

Specifically, the objectives and roles are:

7.1 - To prepare plans for the further develop-

7.2 - To assist in the promotion of all kinds of viable societies in rural and urban areas.

7.3 - To assist member societies to achieve t their objectives, where necessary undertake or arrange for such examination and economic analysis as will assist societies experiencing difficulties to improve their methods of operation.

7.4 - To undertake and to carry on, on a co-operative basis, all kinds of business operations connected with procuring, purchasing manufacturing, selling, storage and transport of agricultural requisites, consumer goods, and household necessities in so far as the provision of these services by the Federation may be necessary to assist member societies, or societies expected to become members, to achieve their objectives or to assist with the development of other Cooperative Organisations to provide these facilities.

7.5 - To act as Commercial Agent for affiliated Organisations.

7.6 - To solicit grants bequests and gifts for the educatinnal and training purposes of the movement, provided that the receipt of such grants, bequests or gifts do not affect the independence of the Movement in general.

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7.7 - To affiliate and liaise with the International Co-operative Alliance and, where appropriate, with other agencies interested in the advancement of the Co-operative Movement in Zambia.

7.8 - To make representations to and consult with the Minister in charge of Co-operatives from time to time on measures for the encouragement generally of Cooperative development, including recommendations respecting Cooperative legislation and amendments there to and the rules there under as may appear necessary.

7.9 - To collect Assort and disseminate information and statistics relating to or of particular relevance to co-operation.

ZCF MEMBERSHIP

Subject to the approval of the Board membership of the Federation shall include:-

8.1 - Registered Federations of Societies, Marketing and Farm supply Unions or Associations, Cooperative Unions, Primary Societies comprised of individual members not affiliated with any Federation, Marketing and Farm supply Union or Association, or a Cooperative Union.

8.2 - A Municipality or other Public body performing a function or Government or providing a public service, a religious organisation, a labour or agricultural Organisation, or a non-profit Community service Organisation that desires to use the Commercial Services available from the Federation, provided that each such municipality, public body or other organisation

8.3 - Application for membership in the Federation shall be in writting and shall be signed by the Chairman and Secretary of the applicant society and shall be accompanied by a copy of its by -laws duly approved by the registrar in the case of a society.

8.4 - In promoting the interests of the Co-operative Movement, the Federation shall, whereever practical, encourage and assist primary societies to form Unions or apply for membership in existing Unions.

9.0 FUTURE PLANS

- The Co-operative Movement as a whole has a bright future. It continues to enjoy good Party and Government support due to its far reaching objectives. The Government has recently transferred some marketing functions from Namboard to the Unions. This directive is a big challenge to the Movement. More viable societies will need to be formed in order to support the Unions which will have to be formed in all Provinces. This responsibility will enable societies and Unions to expand and enter into other business operations in conformity with the cancept of Multi-purpose Cooperatives which was declared at the 1973 Second National Cooperative Conference.

9.1 - To smoothen the Namboard take-overs, ZCF will during 1981 acquire fifteen (15) Trucks to facilitate the Movement of produce to better ware houses. These trucks will

APPENDIX 3

Data used for the regression analysis for the various commodities as given below was obtained from Annual Agriculture Statistical Bulletin, November 1981

Table (a)

(a) MAIZE

Year	Price Kwacha/bag	Production (bags)
1970	3.5	1468972
1971	4.0	4265492
1972	4.3	6539157
1973	4.3	4435019
1974	4.3	6534333
1975	5.0	6216455
1976	6.3	8333022
1977	6.3	7738347
1978	6.8	6462847
1979	9.0	3732879
1980	11.7	4247404
1981	13.5	7703799

Table (b)

(b) SUNFLOWER

Year	Price Kwacha/bag	Productiom (bags)
1971	8.0	229
1972	6.0	2482
1973	6.64	7961
1974	8.95	80057
1975	9.40	164856
1976	10.00	319291
1977	10.00	266413
1978	12.50	151027
1979	13.70	238371
1980	16.40	344765
1981	17.60	384456

APPENDIX 3

Table (c)

(c) Groundnuts

Year	Price Kwacha/bag	Production (bags)
1970	10.2	45016
1971	10.2	84739
1972	10.2	81353
1973	12.6	40208
1974	17.0	45326
1975	17.0	81238
1976	25.0	118340
1977	25.0	93275
1978	28.6	27921
1979	32.0	34213
1980	35.0	25351
1981	42.7	16500

Table (d)

(d) PADDY RICE

Year	Price Kwacha/bag	Production (bags)
1974	12.0	4469
1975	12.0	12609
1976	14.4	26162
1977	14.4	23256
1978	14.4	36565
1979	16.0	23156
1980	18.0	27665
1981	18.6	33418

Table (e)

(e) SOYA BEANS

Year	Price Kwacha/bag	Production (bags)
1974	13.2	411
1975	13.2	4077
1976	17.0	6714
1977	17.0	14151
1978	21.5	13186
1979	25.0	14387
1980	32.0	39233
1981	36.3	40815

Table (f)

(f) WHEAT

Year	Price Kwacha/bag	Production (bags)
1975	16.0	10375
1976	16.0	43867
1977	16.0	59158
1978	20.0	58342
1979	20.0	72530
1980	20.0	106495
1981	26.0	127536

Table (g)

(g) SORGHUM

Year	Price Kwacha/bag	Production (bags)
1970	4.7	5887
1971	4.7	1128
1972	4.7	2458
1973	4.7	393
1974	5.0	3614
1975	6.0	1026
1976	6.0	1175
1977	6.0	8881
1978	6.0	9094
1979	6.0	1661
1980	9.0	1038
1981	9.0	128

APPENDIX

Table (h)

(h) SEED COTTON

Year	Price Kwacha/Kg	Production (bags)
1970	0.08	5445982
1971	0.08	12674659
1972	0.18	8349227
1973	0.25	5225156
1974	0.30	2172641
1975	0.40	2601792
1976	0.40	3884450
1977	0.46	8928831
1978	0.46	8829639
1979	0.46	14916241
1980	0.46	22912830
1981	0.46	16752180
1982	0.47	13171562

Table (i)

(i) VIRGINIA TOBACCO

Year	Price/Kg	Quantity (Kg)
1970	0.63	4794566
1971	0.69	5908410
1972	0.75	5531999
1973	0.86	6622425
1974	0.99	6200676
1975	0.81	6466211
1976	1.00	6262492
1977	0.98	5588072
1978	1.29	3703608
1979	1.51	4590507
1980	1.57	4126679
1981	1.65	2319163
1982	2.40	1868704

APPENDIX

Table (j)

(j) BEEF

Year	Price (c.d.w.)/100 Kg.	Quantity
1970	49.53	68399
1971	49.53	72805
1972	50.28	77908
1973	58.30	88176
1974	67.02	80139
1975	72.00	71659
1976	72.00	77602
1977	102.00	71505
1978	121.00	67744
1979	121.00	88597
1980	121.00	92358
1981	172.00	100052

Table (k)

(k) FRESH WHOLE MILK

Year	Mean Price Ngwee/litre	Quantity
1973	10.1	14563643
1974	10.7	13519081
1975	10.3	11911319
1976	15.0	10530002
1977	21.0	10353455
1978	25.0	9538144
1979	32.0	9326071
1980	38.0	10207684
1981	43.0	11993234

TABLE 7. RELATIVE CROP PRICE RELATIONSHIPS TO MAIZE PRICE

Agricultural Year	74/75	75/76	76/77	77/78	78/79	80/81	81/82	82/83	83/84
Crop									
Sunflower	3.38	2.86	2.86	3.31	2.65	2.52	2.35	2.33	2.32
Groundnuts	3.82	4.46	4.46	4.73	3.87	3.37	3.56	3.37	3.38
Paddy Rice	2.70	2.57	2.57	2.38	1.94	1.73	1.55	1.97	2.46
Soya Beans	2.64	2.70	2.70	3.16	2.69	2.74	2.69	2.64	2.43
Wheat	3.20	2.54	2.54	2.94	2.15	1.71	1.93	2.00	1.95
Sorghum	1.20	0.95	0.95	0.88	0.65	0.51	0.67	0.56	0.87
F.Millet	N/A	N/A	N/A	N/A	0.65	0.51	0.45	0.38	1.58
Seed Cotton	5.4	5.7	8.7	6.08	4.45	3.54	3.07	2.64	2.31
Virg. Tobacco	14.51	14.3	14.0	17.03	14.6	12.8	11.0	13.5	13.3
Burley Tobacco	17.45	14.5	17.95	14.6	10.7	9.65	8.40	9.56	8.55

Source = Agric. St. Bulletin 1982.

TABLE 8.

REAL CROP PRODUCT PRICES (1975 = 100)
(KWACHA PER METRIC TON)

APPENDIX 5

Agricultural Year	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	83/84
Crop										
Maize	61.23	70.0	58.9	53.13	62.38	71.59	73.92	76.87	81.55	
Sunflower	207.50	200.0	168.35	175.69	165.46	100.62	173.5	179.4	172.5	
Groundnuts	234.03	312.50	263.05	251.23	241.55	240.91	263.06	259.4	275.77	
Paddy Rice	165.2	180.0	151.52	126.49	120.77	123.9	114.59	151.32	200.56	
Soya Beans	165.56	188.9	159.0	167.89	167.75	195.82	198.77	203.2	201.89	
Wheat	195.82	177.8	149.66	156.15	134.18	122.36	142.39	153.74	159.33	
Sorghum	73.46	66.7	56.15	46.84	40.28	36.73	49.29	43.23	71.32	
F.Millet	-	-	-	-	40.28	36.73	32.87	28.34	129.34	
Seed Cotton	330.4	400.0	336.70	232.3	277.78	253.3	226.71	203.2	188.53	
Virg.Tobacco	888.44	1001.2	824.07	904.71	912.74	864.54	813.21	1037.6	1083.03	
Burley Tobacco	1068.28	1014.1	1057.83	772.95	668.96	690.8	620.31	735	722.02	

Source = Agric. St. Bulletin 1982.

POPULATION OF REPUBLIC OF ZAMBIA 1963 TO 1982.

YEAR	NATIONAL TOTAL.
1963	3490170
1964	3577424
1965	3666860
1966	3676301
1967	3767932
1968	3862130
1969	4056995
1970	4174648
1971	4295713
1972	4420289
1973	4548477
1974	4677000
1975	4831341
1976	4990775
1977	5155471
1978	5325602
1979	5649000
1980	5874960
1981	6109958
1982	6354356

Source: Interpolated from Central Statistics Office: Monthly digest of statistics vol.XVIII Nos 7to 9 July/September 1982 as follows:

Annual increases:

1963	TO	1969	2.5%
1969	TO	1974	2.9%
1974	TO	1979	3.3%
1979	TO	1984	4.0% (estimate).

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