DECISION MAKING IN FOOD MARKETING IN KENYA WITH SPECIAL REFERENCE TO MAIZE AND SUGAR

by

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

(R.A. ODINGO)

This thesis has been submitted for examination with our approval as the university supervisors.

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MEASURES

Maize	:	1 bag = 90 kilograms
		11 bags = 1 tonne
Maize meal	:	1 bale = 12 x 2 kilos
Sugar	:	1 bag = 100 kilograms
		10 bags = 1 tonne
Monetary	:	K£1 = K shillings 20

CONVERSIONS

1 hectare = 2.47 acres

$1 (US) = Kshs. 8.2

ABBREVIATIONS

AFC	Agricultural Finance Corporation.
CBS	Central Bureau of Statistics.
ECA	Economic Commission for Africa of the United Nations.
EEC	European Economic Community.
FAO	Food and Agricultural Organization of the United Nations.
GMR	Guaranteed Minimum Return.
IBRD	International Bank for Reconstruction and Development.
ICDC	Industrial and Commercial Development Corporation.
IDB	Industrial Development Bank.
IRS	Integrated Rural Survey.
KESMA	Kenya Sugar Manufacturers Association.
KFA	Kenya Farmers Association.
KNFU	Kenya National Farmers Union.
KNTC	Kenya National Trading Corporation.
KSA	Kenya Sugar Authority.
KTDA	Kenya Tea Development Authority.
MFP	Ministry of Finance and Planning.
MOA	Ministry of Agriculture.
MPB	Maize and Produce Board.
USAID	United States Agency for International Development.

TABLE OF CONTENTS

LIST OF STATISTICAL TABLES

LIST OF FIGURES AND MAPS

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Mr. J.L. Lijodi - Head of Development Planning Division.

Mr. L. Ngutter - Head Commodity Analysis Section.

Mr. T. Aldington - Adviser.

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Mr. J. Karanja - Commodity Analyst.

Mr. Muasya - Head of Land and Farm Management Division.

Dr. H. Schmidt - Research Officer, Farm Management.

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2. Ministry of Finance and Planning

Mr. C. Mbindyo - Under Secretary

Mr. J.O. Otieno - Senior Planning Officer.

Dr. Tench - Senior Planning Officer.

Mr. A.S. Dhillon - Cost Accountant (Price Control).

Mr. G.T. Ongaya - Central Bureau of Statistics.

Mr. G.H. Olum - Central Bureau of Statistics.

Mr. Kirimi - Central Bureau of Statistics.

Mr. Kangela - Secretary, Cereals and Sugar Finance Corporation.

Mr. Wahuria - Accountant, Cereals and Sugar Finance Corporation.

Kenya National Trading Corporation (KNTC)

Mr. Mwaura - Personnel Manager.

Mr. Ngotho - Chief Accountant.

Mr. Karanja - Distribution Manager.

Mr. P.J. Mugwe - Commercial Manager.

3. Ministry of Commerce and Industry

Mr. Mucoki - Director of Trade and Supplies.

Mr. D. Obago - Senior Trade and Supplies Officer.

Mr. Nagila - Trade and Supplies Officer.

Dr. Link - Adviser.

4. Kenya Sugar Authority (KSA)

Mr. J.E. Opembe - Executive Director.

5. Maize and Produce Board (MPB)

Mr. W.K. Martin - General Manager.

Mr. C.H. Webb - Finance and Administration Manager.

Mr. E.M. Gaitho - Field Services Manager.

Mr. A. Ongaro - Personnel Manager.

Mr. S.G. Karanja - Senior Accountant.

Mr. DaCosta - Sales Manager.

Mr. F.T. Kariungi - Economist/Statistician.

Mr. Murage - Assistant Statistician.

Mr. Ngigi - Movement Controller.

Mr. Silvester Ochanji - Depot Manager, Nairobi.

Mr. B. Mukara - Depot Manager, Kisii.

Mr. D. Mosera - Depot Manager, Kitale.

Mr. L. Okaka - Depot Manager, Machakos.

6. Ministry of Co-operatives

Dr. Mbaja

Mr. DeGraft

7. Office of the President

Mr. Namu - Inspector of Statutory Boards.

Mr. Mwai - Inspector of Statutory Boards.

8. Chemelil Sugar Company

Mr. W. Wamalwa - Chairman.

Mr. Thomas - General Manager.

Mr. R.B. Gadhia - Chief Accountant & Secretary.

9. Miwani Sugar Company

Mr. Ajulu - Assistant General Manager.

Mr. S. Obura - Technical Manager.

10. Mumias Sugar Company

Mr. Kodingo - Personal Assistant to Chairman.

Mr. A. Beevers - General Manager.

Mr. J. Otega - Personnel Manager.

11. M/S Mary Orie Rogo - Tondrie Farm Kitale.

12. Mr. P. Gumo - Large Scale Farmer, Kitale.

13. Two small scale farmers (wish to be anonymous), Kitale.

14. Two small scale farmers (wish to be anonymous), Kabondo.

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16. Mr. Kanyua - Sales Manager, Maida Ltd.

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ABSTRACT

Four criteria may be used for evaluating agricultural marketing: guaranteeing of urban food supply; stabilization of prices, both seasonally and between localities; technical allocative efficiency; and promotion of agricultural development. To achieve these objectives a marketing organization with fair prices is important and needs storage facilities and government support and participation. In Kenya this governmental intervention is achieved through controlled marketing using parastatal boards.

Many* writers have given economic reasons for removing government intervention because it does not satisfy all the four criteria. However, no studies have been undertaken on the organizational aspects that such changes will induce nor on organizational improvements to existing governmental marketing system.

This study was intended to investigate the present governmental organization in meeting the objectives of intervention in food marketing as measured by the above criteria. It has been noted that the system faces formidable constraints that requires it to adopt the scientific approach to decision making, which it is not doing at present.

Decision making requires collection of data, their analysis and selection of the best alternative courses of action. Good decisions are normally those taken at the points where the action takes place. This dictates that authority be delegated adequately throughout the system to allow for timely decisions.

* Heyer, Maitha, Senga, Editors, Agricultural Development in Kenya, Oxford University Press, Nairobi, 1976.

The contention of this study is that the objectives of the governmental food marketing policy are such that in the current stage of development, the decision making machinery faces many constraints. It has to serve conflicting interests of the producer and the consumer. This is particularly true of the guaranteed maize prices. Because of the structure of the world maize prices, Kenya cannot import maize more cheaply than it could produce it nor export at a profit. Therefore the price policy aims at self sufficiency in maize that would not result in a large surplus which would have to be exported at a loss. Unfortunately this is the situation that Kenya finds itself in at present with a large surplus.

On the basis of selected interviews at various levels, the decision making process has been analysed for maize and sugar in Kenya. The study has concentrated on the organisational aspects of the pricing and the distribution decisions affecting agricultural products.

Several recommendations have been made for improvement. Public intervention in marketing frequently aims to increase the bargaining power of producers against middlemen with whom they deal. This is being achieved with sugar cane where all growers receive the guaranteed price. However, maize faces problems as agents tend to pay the farmer a lower price than the guaranteed price. There is need to educate and assist farmers to deliver direct to the Maize and Produce Board depots, where they would be paid the controlled prices.

For better pricing decisions, it is essential to institutionalize the pricing machinery that can make full use of the environmental inputs. Further, although management decisions

seek satisfying solutions rather than optimum ones but they should start from a possible optimum solution and to modify it to suit the circumstances. This calls for greater use of operational research and econometric techniques. Two of such methods have been demonstrated in this study in using regression analysis for planning and pricing purposes and a linear programming transportation model for minimizing transportation costs and it is suggested that they produce better results than the present "rule of thumb" methods. In planning expansion of the sugar industry, planners should be aware of the pitfalls that plague the maize industry, and it is maintained that more rational decisions can be arrived at by using econometric techniques.

One cannot expect parastatal boards to always operate on a commercial basis because they are mainly judged by social returns rather than by internal rate of return on investment. However, their role need to be defined clearly with a measure of their performance made explicit. The Maize and Produce Board and the Kenya National Trading Corporation are weak in the planning and marketing functions which should be built into their organization. Above all, the ministries should allow them discretion in dealing with distribution and where decisions are needed from the ministries like that on export of maize or imports of sugar they should be based on information generated by these boards and the decisions should not be delayed unduly.

There is need to increase professional and management staff so that the pressure of routine operational duties do not push policy formulation aside. Such formulation is required on national food policy that can produce a balanced product mix in

terms of allocative efficiency of resources and nutritive diet for the nation. This study has shown the imbalance that could occur between maize and sugar with one replacing the other depending on their margin and yet maize is a staple whereas sugar can still be considered a luxury crop.

Maize by virtue of its being a staple crop rightly absorbs most of the governmental marketing capabilities to the extent that any discussion of governmental marketing system devolves on maize. It is for this reason that the study has devoted more time to maize than sugar. Finally it is concluded that the new producer price of maize at 80/= per bag has so changed the maize industry that any major reorganization of its marketing system that is contemplated should not be implemented until the current situation has stabilized. In any case any change in the system must be preceeded by adequate information on production, consumption and stocks. Similarly when self-sufficiency in sugar is attained and surpluses begin to be generated, carefully calculated and rational decisions will be necessary to deal with its marketing.

CHAPTER ONE

GENERAL BACKGROUND

1.1 Introduction

This study is about Decision Making in Food Marketing in Kenya with special reference to Maize and Sugar. It is a case study in policy formulation and implementation.

Managers are needed to convert disorganised resources of man, machine and money into a useful and effective enterprise. Decision making is a paramount dimension of the management process. In fact decision making can almost be equated with managing. This is what Herbert A Simon says.[1] Others however maintain that decision making is but one aspect - albeit an integral aspect - of all the total process of management and subscribe to the idea that "Decision making in business is what command is in warfare".[2] It has three stages: intelligence for searching the environment for conditions calling for decision, analysing possible courses of action and finally selecting a particular course from available alternatives. The choice will normally seek satisfying rather than optimal decisions.

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1 Herbert A Simon - The New Science of Management Decision, New York: Harper & Brothers, 1960 page 1.

2 Harold Ross, consultant, Jan Bouwmeesters and other Institute Staff - Management in Developing Countries, A field Survey - United Nations Research Institute for Social Development 1972.

My emphasis will be on management system rather than on authority - responsibility relationships between units and job levels. A systems structure is developed to handle inputs (problems) and outputs (solutions). If the system within which managers make decisions can be provided as a more explicit framework, then such decision making will be easier to handle.

> "Efficient management requires that the structure be in balance and adapted to the objectives and primary operations of the enterprise."[3]

It should show which members are responsible for which classes of decisions. This leads to hierarchical sequence of decision formulation. Hierarchy is universal in both human and natural systems and there is nothing wrong with it, as long as there is some flexibility.

Managers must be in the forefront of change and not mere administrators of existing undertakings. They must be decisive and have the ability to assess and make firm decisions without undue delay.

Modern theory of decision making employs a scientific approach. This means factual analysis rather than intuitive assessment and therefore the organisation must provide information through data collection and communication. The scientific approach is assumed to be the desired approach to decision making in contemporary management. The concern is not so much with the static aspects of science as a body of knowledge as with the dynamic

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3 Johnson, Richard A., Kast, Fremont E., Rosenzweigh, James E., - Theory and Management of Systems. McGraw Hill Kogakusha Ltd., Third Edition 1973.

or the process-of-inquiry view. It is a systematic process that brings order out of the chaos that typically characterise decision making. It increases efficiency in the allocation and use of organisational resources especially human resource.

A renowned philosopher, John Dewey provides one of the earliest descriptions of the scientific approach with his concept of the pattern of reflective thinking. Dewey's concept postulates seven states of thinking. Prereflection which is the perplexed confused situation at the beginning. Intellectualization follows in which the person perceives, reasons and understands the difficulty of the problem and out of this thinking grows the questions to be answered. Thirdly, the problem solver seeks plausible solution. Then follows hypotheses used as leading ideas in intitiating and guiding the collection of information. Reasoning is the mental elaboration of the idea that serves as part of the process of inferential solution. Proof is the testing of the hypotheses by imaginative action. Finally, postreflection is the satisfaction experienced as the problem solver reflects on the test evidence.[4]

There are many ways of breaking up the scientific approach to decision making, but most writers accept a scheme that encompasses nine phases which do not necessarily have to follow one another in a set order.

> "formulation of objectives; identifying problems; formulating hypotheses; gathering and evaluating information; explicating assumptions; formulating alternative solutions; selecting and implementing the

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4 John Dewey, "The Pattern of Reflective Thinking in Timothy W. Costello and Sheldon Zalkind, eds., Philosophy in Administration (Englewood Cliffs: Prentice Hall, Inc., 1963), page 339.

optimal solution; and making adjustments (if necessary)".[5] Unfortunately, not all administrative situations lend themselves to the scientific approach, the problem may be of a short duration or cost factor may restrict the adoption of a scientific approach. This is particularly true with decision making within what is essentially government organisations such as what this thesis is about. The inevitable delays before a decision can be taken may prove costly and thus prevent the realisation of objectives associated with "timely actions".

The format of decision making quoted above can be modified to the situation facing the decision maker. An omnipresent condition for decisions is the existence of problem situations that result from changing conditions in both the internal and external environment of organisations. To keep aware of the changes, decision makers must receive current information and facts and these rather than personal values must predominate in decision making. It is the intention in this thesis to discuss the flow of information to decision makers in the two parastatal bodies selected for analysis to demonstrate the main problem areas. One of these two bodies had its origins in the colonial period. The second one, namely the KNTC is a recent creation of the independent Government.

The transfer of managerial techniques to developing countries aims at improving production and consumption and thereby inducing development. The application of such techniques to

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5 Francis J. Bridges, Kenneth W. Olm, J. Allison Barnhill - Management Decisions and Organizational Policy: Text, Cases and Incidents. Allyn and Bacon, Inc 1971 p. 9.

marketing management is an important area of research, and this is the justification for this particular study.

In developing countries, food marketing is important for two main reasons. One, domestic supply of food has to keep pace with demand arising from fast growing population and urbanisation. To quote an authority on this problem we note that:-

> "The rate of population growth, the increase in per capita income and the elasticity of demand for agricultural produce give us an idea of magnitudes involved. A 3% increase in population, 2% increase in per capita income and income elasticity of 0.7 require on average 4.4% increase in agricultural production."[6]

Most developing countries have an income elasticity of demand for agricultural produce of 0.8. Two, rural development aims at increasing returns to agricultural production on which 80% of the population depends. Marketing is an important aspect of any rural development project dealing with production.

A dilemma arises: government attempts to ensure constant supply of food to urban areas at prices which low income groups can afford. This limits the prices that can be paid to farmers whose incomes are already below those of the low income groups in urban areas. The government therefore attempts to reduce marketing margins in food marketing to raise the prices received by the producers and to keep consumer prices low.

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6 Problems and Approaches in Planning Agricultural Development - Proceedings of the Joint German Foundation/ECA/FAO Seminar 1967 Addis Ababa - Printed Berlin (West) 1968.

Several marketing systems are available for the improvement of marketing programs but this study will concentrate on only two that appear more appropriate to the crops being considered. Maize is marketed under a marketing board system with monopoly of trading. A semi-public corporation markets sugar also under a monopoly system.

Food marketing normally involves conflict among economic, socio-political and administrative interests. It can be a very sensitive area and some of these influences will be seen in this study.

This study attempts to relate the techniques of decision making to this vital area of food marketing. It reviews decision centres and the flow of information through those centres which are in effect subsystems in the complex whole. Ideally the whole should function as one entity by virtue of the interdependence of its parts. In practice, the system may fail to maintain itself because it is unable to influence and adapt to the environment. Many institutions are rigid in their organisation thinking and they define the right "structure" and strive to maintain it as a universal phenomenon. The main task of the study as seen by the author is to investigate if the structure of the governmental food marketing system in Kenya meets its objectives in the changing environment. The changing environment requires organisations to appraise their objectives and goals continuously and to attempt to control and/or adapt to the environment.

1.2 Aims and Objectives of the Study

It is an accepted fact that the Government regards it as its duty to regulate both the production and marketing of agricultural produce in Kenya. Such intervention is intended to be in the interest of producers and consumers alike. However, the success of the proposals depends on the efficiency with which governmental decision making is taken and carried out. For this reason, one of the major objectives of this thesis is to study the framework within which governmental policy on overall food production and food marketing is done and to comment upon the efficiency with which the various operations are carried out. Of particular interest will be such considerations as to whether the process of decision making is well calculated and well defined in context. Secondly one is interested to scrutinise the institutions which have been set up to facilitate the making of various decisions in food production and food marketing. Are these institutions the most effective ones, and what authority and responsibilities have been delegated to them by the government and how effectively do they use this authority.

The second objective is to scrutinise and analyse the organisational structure which has been adopted by the various institutions for achieving their declared aims and objectives; for example it is of interest to know if the hierarchical structures which have been developed have been achieved through carefully calculated deliberate planning or if it has just been done at random. Within the structures used it is the aim to find out if

it is possible to identify the persons responsible for making decisions, and whether there are structured lines of communication between officers.

The third aim and objective in this study is to analyse the composition of the boards of directors of the various marketing boards with a view of finding out how the interests of producers, traders, processors and consumers are represented in the decision making process. In this connection it will be of interest to examine and show the extent to which the boards are controlled by the government and to look at the external forces affecting the implementation of agreed policies.

In order to arrive at some conclusions a lot of data has been collected. It has been established that the information exists and it is therefore the intention to show not only the availability of these data and information on which correct decision making can be made but to find out if they are used to assist in the process of arriving at what should be rational decisions. It is a scientific fact that modern decision making can largely be based on data analysis and prediction of expected results and responses and this is now common practice in developed countries; for this reason it will be of interest to find out from the study to what extent is applied research used in marketing in Kenya, as should be the case. For example to what extent does decision theory come into the every day operations of the various institutions used by the government to achieve its aims in the field of food marketing? The areas affected should include yield forecasts, pricing, and consumption

forecasts. Ultimately what matters is the effectiveness of decisions made and the efficiency of their operations. If it can be shown that there are problems in this type of area, some solutions for better performance in future can be suggested.

One other major area of concern is the relationship between the various competing marketing institutions. It is therefore aimed to analyse the existing institutions and to see how their tasks and resources are related, and to find out if ever efforts are made to avoid or minimise duplication in the interest of higher efficiency. In this connection it will be of interest to find out how the flow of information through the various lines of communication, authority and coordination are achieved. The objectives outlined above assume a system which aims to maximise the process of decision making in the interest of improved efficiency of operations. For this reason, one of the aims of this work will be to evaluate the existing system and see if it meets the objectives set out. Ultimately the most effective system should be sensitive and respond to the dynamic, economic, social and political environment. Thus it will be of interest to analyse the existing system against this background.

In the context of the foregoing propositions, it would be important to provide a model for policy formulation and implementation and this will be attempted in this thesis. There are many aspects to this problem which will be considered, and these will include among others, governmental facilitating, regulatory and interventionist programmes in food marketing based on data collection and processing for decision input. Finally an

attempt will be made to analyse the implementation of decisions through the hierarchy of food marketing institutions linking production and consumption.

In the decade following independence, Kenya has experienced rapid change from traditional farm gate economy to market economy. Further, the transfer of marketed agricultural production system to indigenous hands has proceeded rapidly. Unfortunately, the marketing system may not have fully adapted to this changing environment. Changing environment requires organizations to appraise goals continuously and attempt to adapt to or control the environment. The system has, for example, been criticized for perpetuating a colonial legacy of the domination of the small farmer by the large farmer and as constituting an exploitation of the consumer by the producer through the pricing system. These are some of the environmental factors that this study will attempt to analyse. It is likely that in the difficult circumstances, the policy outputs of the system will not meet the expectations of all the segments of the community.

My approach is not economic, rather it is from the policy management point of view. The emphasis

is not the marketing system as such but rather on the decision making process using food marketing to test that process in government. The interest is on how decisions are made, what information is available to the decision maker; whether a scientific approach is adopted in making decisions; whether the structure of the organizations are suitable for the type of decisions required; whether adequate authority is delegated and once delegated whether they are honoured.

Whereas for the purposes of this study only a limited area will be covered to provide material for analysis, it would be of importance to make recommendations which have wide ramifications in the whole area of food marketing. For this reason it is aimed to assess the necessity for a central marketing organization which would be charged with formulating a national food policy and for the coordination of common ministerial policy on all marketing matters. In that process, the study will also evaluate the public, fiscal and administrative resource allocation necessary for an integrated marketing machinery.

The choice was limited to maize and sugar because of the contrasts between them. Maize is a

"necessary" crop whose marketing creates many pricing and distribution problems. In contrast, sugar is considered a luxury and at present, the organization responsible for the production of sugar is not charged with the responbility of distributing it. The study of these crops should therefore bring out problems, which should be common to many other crops and this is the basis for the assumption that it would be possible to make generalizations from these particular case studies. However, it is necessary to emphasize once again that "decision making" is the main task of this study and that maize and sugar are incidential.

1.3 Methodology

1. A preliminary review of literature was undertaken to obtain ideas and to focus the direction of the study.

2. The field of study was narrowed by isolating two aspects of the system for analysis. Pricing and Distribution decisions were selected on the basis of their utility to public policy and of their importance in marketing.

3. The research relied heavily on interviews and observations and where data was available, these were used to substantiate research findings. Relevant documents are listed at the end of section on Bibliography. Similarly people who were interviewed are listed. The actual research methodology and the questions used are contained in Annex 6.

4. Although the study deals with governmental decision making, it was necessary to study two specific crops to derive a general picture.

5. Data was collected on production, consumption, price changes and other parameters as are listed in the list of tables, of maize and sugar for the period 1965-1975/76 or shorter periods depending on the purpose or the availability of information. This was done to find out the data which is available to the decision maker, to what use it is put and the extent to which it influences decisions.

6. Regression analysis has been attempted with maize to find the effect on production and consumption of such variables as price, population, income and time series. Figures on sugar production forecasts included in the study have been obtained from such analyses made by the Commodity Analysis Section of the Ministry of Agriculture from this useful econometric technique.

7. A transportation model using linear programming has been used to test the efficiency of the distribution system in the marketing of sugar.

8. A research assistant was used to collect some of the data from published material under my guidance.

9. Although most of the interviews were conducted in Nairobi, field trips were made to: Chemelil Sugar Factory and Miwani in Nyanza, Mumias Sugar Factory in Western Province; Kisii and Kitale MPB depots in maize surplus areas, and to Machakos in the maize deficit area.

1.4 Scope of Study

The study has focussed mainly on the Ministry of Agriculture which has the responsibility of organising agricultural marketing. Statutory Boards like Maize and Produce Board (MPB) and quasi parastatal Kenya Sugar Authority (KSA) are under this Ministry. Through its Commodity Analysis Section, the Ministry generates policy on producer prices for food crops, theoretically, in consultation with the Ministry of Finance and Planning. In turn, the Ministry of Finance determines consumer prices. At present these are the only levels that influence pricing policies of the products under review.

Once prices are determined, they are gazetted and passed down for implementation through the marketing institutions and the Price Controller who enforces the prices. MPB is the formal distributor of maize through agency system but half of the marketed output passes through the informal channels. Sugar is distributed solely by the Kenya National Trading Corporation (KNTC) through a system of agents scattered throughout the Republic. Both MPB and KNTC have a country wide network ofdepots acting as collecting and distribution centres.

Maize has been grown for many years both before and after independence with some form of control on its marketing. Its distribution system is suspected of being old fashioned and many studies have recommended its overhaul.* However one must distinguish between the probable outcomes in the event that the market is set free and ones preferred outcome. The benefits of decontrol

* see Masell, Heyer and Karani, 1965, Maize Policy in Kenya.

as claimed by the proponents of this theory are well known. However, the costs do not seem to have received as much attention. There are many costs which are financial and others which cannot even be measured. This study analyses the criticisms and suggests organisational structure that will allocate resources efficiently.

Kenya did not seem to have a policy on sugar but with the high world prices and the collapse of sugar exports from Uganda, a new interest has been created. This study attempts to investigate governmental policy aimed at meeting this changing situation.

It looks at the organisational system operating at present to meet all these objectives, to assess their efficiency and to suggest any improvements that could release organising energy which is the essence of economic growth. It is argued that the colonial civil servant was a system of control and that the independence civil servant is a system of development.[7] This study attempts to assess if the strategy and organisation of the public institution has changed to meet this new objective

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7. David K. Leonard and Kenneth Prewitt on Quantification, Productivity and Groups in Developing Research on African Administration, some Methodological Issues - Edited Adebayo Adedeji and Goran Hyden, East African Literature Bureau - Management and Administration Series No. 4, 1974 page 89.

1.5 Limitations

1, The Master of Business Administration Program at the University of Nairobi is organised into four parts. Three semesters are spent on course work and one semester on the thesis. This introduces a time constraint which limits the depth of the study.

2. Two food crops have been used to provide a comparison on methods of distribution. Sugar and maize were selected because one is marketed wholly through the Ministry of Agriculture while sugar is marketed by both the Ministry of Agriculture and Commerce and Industry. This comparison attempts to find out if any co-ordination difficulties arose between the ministries and thereby helping in the decision to establish one institution to deal with all marketing policies in the country. Naturally by studying two crops one foregoes more detailed study that would have been possible with one crop.

3. There is enormous material on maize and although I have attempted to read many of them, it is possible that many which were not readily available have been missed. On the other hand, very little material has been published on sugar and the local research that has been done, has been on aspects other than marketing.

4. I have interviewed mainly the people who generate information for decision making in various organisations. Some of these also made recommendations which the top decision makers normally accepted with little additional input. It was not

possible to interview some of the ministers, but their staff in the ministries provided adequate information.

5. Some of the information obtained was classified and for security reasons I am unable to publish them.

6. Finance was a big constraint. Funds were inadequate for travelling expenses to a large number of field stations. I had also wanted to do a survey of maize prices in local markets to compare with MPB prices. But for lack of funds only three markets were surveyed: Sondu in Kisumu District, Oyugis and Gamba in South Nyanza District.

1.6 Organisation of Work

The findings of the study are presented within a framework of modern management theory. As such maize and sugar are considered as incidental while emphasis is placed on management process. Chapter One deals with the General Background of the study and the problems it proposes to tackle. It includes the hypothesis, methodology, scope and limitations of the study.

Chapter Two defines marketing and systems approach to organisation and sets the objectives of marketing. It is within that framework that the following chapters examine pricing and distribution decisions and how they are made through the marketing institutions.

Chapters three, four, five and six relate to the field work in which an attempt is made to investigate the system in terms of the hypothesis being tested. Chapter three deals specifically with Pricing Decisions and Chapter four with Distribution. These two chapters treat pricing and distribution decisions generally using maize and sugar to draw out relationships between the institutions that handle those decisions at various levels of the system. In practice, the ministries of Agriculture and Finance set the prices at the top level and the rest of the system only participates in the distribution decisions. The distribution of maize is handled by MPB and of sugar by KNTC.

In Chapter five, the organisation and performance of MPB is analysed as a model for policy formulation and implementation. KNTC is analysed in a similar way in the same chapter but only in a broad outline.

Findings of earlier chapters are used in chapter six to draw comparisons and observations on the organisation of the marketing machinery for maize and sugar. Some conclusions and recommendations on what might be and their limitations are made in Chapter Seven. A bibliography is included at the end.

1.7 Review of Literature

I have used publications on general food marketing. These include F.A.O. Guides* which are surveys aimed at helping governments to improve the marketing systems of food crops. W.O. Jones in "Marketing of Staple Foods in Tropical Africa", has looked at market chains, trader's margins and seasonality of price variations. In Kenya, he concentrated more on maize than on other crops. Uma Lele* has done much useful research in food marketing and one of her publications of particular interest to this study is her paper presented at XVI International Conference of Agricultural Economists, Nairobi 1976. She deals with pricing policies and marketing strategies aimed at increasing efficiency in food marketing to aid rural development.

Maize is a staple food in Kenya and the government has always controlled its marketing since the colonial days. It has had an unstable history and governmental policy has always been influenced by either war conditions or by shortages of supply. Consequently, each crisis has been followed by a Commission of Inquiry which have dealt with the current problems with little thought to the future.

In 1922, Bowring Committee recommended that Kenya should concentrate on the production of maize in order to increase the value of Kenya's exports and to provide bulk freight for the Railways. In 1935, Agricultural Indebtedness Committee emphasized the importance of European grown maize to East Africa and advised that the organisation and structure of the maize industry justified

* FAO Marketing Guide No1 Marketing Problems and Improvements, Athens, 1958. No5 Agricultural Marketing Boards, Rome, 1966.

Lele, Uma - Optimum Pricing and Marketing Strategies ... Rural Development, 1976.

a national effort to assist it and safeguard its interest and that maize be regarded as an essential crop.

Low prices prevailed in nine years upto 1942 and combined with lack of statistical information on production and demand led to widespread food shortages. Some form of control had been established in 1942. In 1943 a Commission of Inquiry recommended discouraging exports and fixing prices before each planting season. The maize industry was thus stabilized for the period of the Second World War. However there were adverse consequences of the control and in 1951 a Committee was appointed to work out the structure and management of maize marketing organisation. A Statutory Board was formed in 1951. The Maize Board was formed in 1958.

With the introduction of hybrid maize in Kenya, it was forecast that Kenya could become an exporter of maize by 1968. A Mr. Mathews was forecasting this in 1962, but things did not work out so that in 1964/65 there was a serious shortage resulting in a famine and alleged corruption. In 1966 a Commission of Inquiry was appointed to investigate the cause of the shortage and recommend improvements. This Commission saw a weather cycle occurring every four to five years leading to reduced production that required contingency arrangements to meet it.

Maize and Produce Board stocks were low in 1970 and this was followed by a bad year in 1971 leading to serious shortages in 1972. A crisis arose once again and a Commission of Inquiry was appointed in 1973. Its terms of reference were:

" - find ways of increasing production

- raise guaranteed and stabilize price

- advise on storage, marketing and distribution of maize." It recommended several improvements but concluded that it was difficult to arrive at fair equity to all sections of the country, particularly as traders and consumers did not give evidence. It further recommended that a national food policy was needed that could be exercised under a ministry fully staffed to deal with its design and implementation.

In addition to these official Inquiries, much has been written on maize marketing. Their emphasis has been on decontrolling maize marketing. However, they have not investigated the structures of the policy institutions that influence maize marketing. It is the task of this study to attempt such an investigation.

Hesselmark, one time adviser to M.P.B., Schmidt, Gsaenger and Lorenzl[a] have done detailed research on maize marketing and their findings throw light on various aspects of interest to the policy makers. On the other hand they have been too persistent in advocating decontrolling the maize market. In general the government accepts the principle of reducing control as envisaged in the Development Plan 1970-1974 and the current Plan 1974-1978. Somehow or other this has not been done which would appear to indicate that the government finds something useful in maintaining the control.

In contrast to maize, there is a dearth of published material on sugar marketing in Kenya. Charles R. Frank Jr.[b]

Note: a - see 19 and 28
b - see 22

has done much work on the industry but his work has been on the region of East Africa. This was the situation in East Africa until autarky set in recently. So long as Kenya could obtain sugar at reasonable prices and assured supply from Uganda, it did not need a national policy on production. However, with the collapse of the sugar industry in Uganda coinciding with high world prices, it became urgent to set up a machinery to deal with sugar expansion in the country. Tate & Lyle[c] were commissioned in January 1975 to investigate the feasibility of new projects for projected expansion to 1985 and currently, the World Bank is looking into the rehabilitation of present sugar estates.

Note: c - see 26

CHAPTER TWO

AN OVERVIEW OF MARKETING AND DECISION MAKING

2.1 Definition

Marketing is a dynamic segment of a dynamic field called business administration. Most people equate marketing with selling and understand it to mean the activities that direct the flow of goods and services from producer to consumer. But marketing processes begin long before the goods go into production.

> "Marketing decicisons must be made regarding the product and its market, its pricing, and its promotion."[8]
>
> "The marketing concept calls for a management reorientation regarding what business a company is in. Typically when an executive is asked 'what business are you in?' the answer is 'we make...,' or 'we sell...,' These executives must start thinking in terms of what benefits they market - what needs (wants) are they satisfying."[9]

It can be observed that the socioeconomic structure in Kenya has evolved in the last few decades from an agrarian economy in a rural setting to a production oriented subsistence level economy in a society which is increasingly becoming urbanized. In this

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8 William J. Stanton - Fundamentals of Marketing Fourth Edition, McGraw Hill, Kogakusha, Ltd., 1975 page 5.

9 op.cit. Stanton p. 13.

process of evolution it would be logical to assume that the marketing concept would have emerged as a leading business philosophy. The marketing concept calls for the satisfaction of customer needs/wants. Here the government as the marketing institution seeks to satisfy customer needs at minimum cost. The customers in this instance are on the one hand the producers of maize and sugar cane and on the other are the consumers of maize and sugar products. While the producers want as high a price as possible for their goods the consumer would prefer a low price. Hence there is a built in conflict of interest in the administration of the marketing concept. This conflict can be real and is particularly important in Kenya where the marketing of agricultural products is dominated by government sponsored boards which on the whole perform all marketing operations. So here consumer needs dictate that marketing be related to farming patterns and the system should not overlook production methods. This raises the notion of an integrated and coordinated organisation being essential as a means of achieving the goals. One can achieve the coordinated effort through a systems approach to organisation.

2.2. Systems Approach

"A system is a regularly interacting or interdependent group of items forming a unified whole."[10]

In marketing, the "group items" include such objects as products, price structures, channels of distribution and promotional activities. Chapters three and four of this study will deal with pricing and distribution. Systems analysis is an aid to executive judgement and decision making and it will be seen in later chapters how numerical inputs can help management to think formally about the right aspects of a problem. But their decisions are constrained by both uncontrollable external forces and controllable internal forces. The ability of a decision making executive will be measured by the skill with which he adjusts to external elements in the changing environment, forecasts the direction and intensity of these changes and uses the controllable variables at his command in adapting to this external variable. As we proceed through this study this test should be borne in mind as the performance of various governmental institutions is assessed.

This study concentrates on only two components of a marketing mix: pricing, and distribution. The production policies are looked at only when they influence marketing decisions and promotional activities are not so important in this near monopoly marketing where supply does not as yet exceed demand

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10 op.cit. Stanton p. 25.

at least in the case of sugar. All these items are interrelated and decisions in one area usually affect action in the others. Indeed, this is the whole point of my study. It is helpful to regard each area of action as a subsystem building up the system and without which the system cannot exist. But there must be cooperative action such that the total effect is greater than the sum of the effects taken independently. To achieve this concerted effort, there must be policies to guide decision making. Such policy should be based on good research and should be stable and yet flexible enough to allow some leeway in executive judgement and action. Policy is developed after objectives have been determined.

2.3 Objectives of Governmental Policies in Food Marketing

An efficient food marketing system is of crucial, importance to a country under all conditions. The stage reached in development does not make a difference. In areas of dense population living at subsistence levels, the seasonal failure of a basic food crop can bring widespread famine. Meanwhile other parts of the same country may be holding food supplies which are surplus to their needs. Such a disaster can be aggravated by storage deficiencies, lack of communication and information on current stocks and future requirements, and the unreliability of the existing food handling machinery in recognizing and responding to the needs. It is for these reasons that the Government of Kenya takes great interest and controls the marketing of maize. But improvements to marketing systems should not be considered in isolation from improvements in production. The two should go hand in hand, otherwise bottlenecks occur as that currently facing the maize farmer in Kitale. Through improved production methods with hybrid maize, high yields have increased output to levels that the marketing system cannot cope with during peak harvest season. This subject will be taken up later on.

The colonial economy with its foreign mines and plantations was typically primary and outward looking. It is partly as a reaction against the colonial economy that the newly independent states have put a good deal of weight on import substitution. Primary-inward is typically the policy of some developed countries,

especially the common agricultural policy of EEC, but with the Green Revolution, substitution for imported food is a policy of many developing countries.[11] In the case of Kenya, the policy of self-sufficiency in food crops like maize has been followed for many years. As early as 1958 it was felt that it was fundamentally bad policy for a country like Kenya with an economy based on agriculture to rely on important staple foods from overseas. These considerations have determined the objectives of governmental policies in food marketing.

In Kenya, the main objectives may be cited as:*

1) development of agricultural production through efficient allocation of resources,
2) reducing price and supply instability,
3) ensuring low cost of supply of essential food to urban areas so as to control wage increase demands which lead to distortion of factor pricing in labour and thereby encouraging capital intensive technology,
4) equalising returns from sales to different price markets and outlets,
5) elimination of wasteful and inefficient handling methods leading to a reduction in costs of marketing to improve farm incomes and consumer prices,
6) using price incentive to influence farming patterns and to change subsistence farming system to a surplus production system,

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11 Paul Streeten, Editor, Trade Strategies for Development - Cambridge Conference on Development Problems, 1972 The MacMillan Press Ltd. 1973 page 4.

* see Lele, 1976.

7) setting prices at levels that maintain production and low enough for the low income consumer,

8) providing infrastructure that is responsive to fluctuations in prices,

9) producing a surplus for export.

These objectives point to the necessity of some government control in food marketing. So there should be no argument as to whether or not control should be exercised. The point is that concern should be with the strategies of control. These strategies should avoid inefficiencies that could arise from misallocation of public fiscal and administrative resources to implement the controls. They should also recognize possible adverse effects of control on the growth of production. An example that may be cited to illustrate the point is that of sugar-cane production in the Nyanza Sugar Belt. Before the last increase in sugarcane prices in 1976, controlled cane price had lagged behind the rising costs of inputs and this led to increased risks and reduced return on investment. Consequently farmers relied on old ratoon crops thereby reducing yields and intake to the factories which then operated at below capacity.

There are difficulties with maize marketing because the public marketing institution charged with its marketing is unable to control a sufficiently large enough share of the marketed surplus to influence the price. In fact MPB controls only 50% of marketed maize. And yet when the subsistence sector faces shortages, then the Board has to feed it and to deal with such enormous problem puts the Boards to a test they are not expected to cope with. But even then there is still justification

for delegating the task of marketing to a body which appreciates the various interests in the particular industry. Nevertheless, the objective of such a marketing organisation should be to market economically and efficiently as possible, maintaining regular supply to all parts of the country as needed. Such institutions strengthen the bargaining power of farmers and eliminate uneconomic long haulage.

Marketing Boards with monopoly trading and powers to accumulate funds become influential political factions. Fortunately in Kenya power is distributed and boards like MPB do not accumulate funds but operate under an overdraft from public financial institutions, in this case, Cereals and Sugar Corporation which will be discussed under financing on page 111.

2.4 Organization for Decision Making

Theories are not an end in themselves and here the concern is not with the process of decision making theory but rather with the organization for decision making. The decision process becomes more effective if it is coupled with effective policy implementation. Such implementation requires an action plan that maps out who will do what and how; with a built in measure of effectiveness. Decision implies a choice, there must be alternatives. The choice criteria may be influenced by:

> "managerial perceptions of external dependence, managerial attitudes towards risk, managerial awareness of past experience, and managerial power relationships and organization structure."[12]

Of these, interpersonal relations through the structure and power relationships has the greatest impact on decisions.

Decisions are made in the context of the decision maker and the decision situation. His attitude blocks out certain choices from view and where there is a hierarchical sequence of decision formulation leading from subordinates to top executives it means that the final choice is made from a very narrow field.

How do organizations actually make decisions? Charles Lindblom and David Braybrooke studied policy making in the public sector and recorded their findings in their book "A Strategy of Decision"[13] while Richard Cyert and James March wrote "A Behavioral

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12 William F. Glueck - Business Policy - Strategy Formulation and Management Action Second Edition McGraw Hill Book Company 1976 page 185.

13 C.E. Lindblom and David Braybrooke - A Strategy of Decision. (New York: Free Press, 1963).

Theory of the Firm"[14] based on empirical studies of decision making in the private firm. They identified an adaptive mode of decision making characterized by:

1) No clear goals and decision making reflects a division of power among members of a complex coalition,

2) Decision making process is characterized by reactive solution to existing problems rather than proactive search for new opportunities due to difficult environment imposing many problems and crises,

3) Decisions are made in incremental, serial steps, deviating only slightly from the satus quo in which policy making is typically a never ending process of successive steps in which continual nibbling is a substitute for a good bite,

4) Disjointed decisions are preferred because the demand on the organization are diverse and no manager has the mental capacity to reconcile all of them.

Russell Ackoff[15] has identified a planning mode that is anticipatory decision making directed toward producing one or more future states which are desired and which are not expected to occur unless something is done. In the planning mode, the analyst plays a major role in decision making. The analyst works alongside the manager. His role is to apply the techniques of management science and policy analysis to the design of long range decisions.

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14 R.M. Cyert and J.G. March - A Behavioral Theory of the Firm (Englewood Cliffs, N.J. Prentice-Hall, 1963).

15 R.L. Ackoff - A Concept of Corporate Planning (New York: Wiley Interscience, 1970).

2.5 Methods of Testing Allocative Efficiency

Information such as is obtained from quantitative analysis is relevant in answering a number of questions on allocative efficiency. It will be shown later in the study how regression analysis can indicate which factors in the environment are relatively more elastic and therefore can be used more effectively as instruments of governmental policy. Prices of sugar have been found to be the main influence on consumption and by regressing consumption against prices, one obtains an expected growth in consumption of 4.7% whereas conventional growth path based on time series is 7.5% The econometric method employing regression analysis yields better policy decisions on the expansion of the sugar industry. Another management science technique used is the transportation model utilizing linear programming to allocate sugar from certain factories to KNTC depots so as to minimise transportation costs.

The analytical method requires that information be available. Unfortunately in Kenya until recently, not much information was collected on food crops. However, many people now appreciate that good decisions cannot be made without information and many surveys have been instituted to collect, collate and store the information. The Central Bureau of Statistics is extending its service and the Integrated Rural Survey is a positive indicator of this. FAO has also realised the importance of marketing information and is making a positive contribution by sponsoring a project based at the Ministry of Agriculture but with sections in all marketing ministries to

assess the information situation and to find remedies.

Efficiency of organization cannot be measured easily in quantitative terms particularly where such institutions are public nonprofit businesses without a profit motive. However their results can be assessed through the consumers they serve. Disjointed decision making has been revealed by the recent sugar shortages. Mumias and Chemelil, the two largest sugar factories do not deal with distribution, they have no 'goodwill' to maintain by storing adequate sugar to serve their customers. And because they do not handle distribution they are not expected to provide storage for that purpose. The Ministry of Commerce and Industry which issues allocation orders and thereby balancing supply and demand would be expected to make contingency arrangements to ensure constant supply of sugar.

2.6 Summary

This chapter has defined marketing as including activities that deal with production, pricing and distribution of products. In terms of this definition food marketing policies must relate to production policies.

A systems approach to organization has been looked at as a possible way of assessing the performance of food marketing in Kenya. The systems theory works on the notion that there are independent subsystems of a whole contributing in a coordinated way to the goals of an organization. The goals must be explicit, in other words, there must be objectives set for the organization to guide the actions of each subsystem. Some of the objectives of governmental food marketing policies have been listed in this chapter.

When the definitions have set the scope of operation and the objectives have provided guidelines, the decision maker needs a procedure for decision making. The theory of decision making was introduced in chapter one and has been expanded here to highlight the process and the requirements for good decision making which invariably mean uninhibited flow of information to decision centres. This requires a proper design of organization structure suitable for the needs of the particular system.

An attempt is made to assess allocative efficiency using quantitative methods and where that is not possible customer satisfaction is used. More examples of the type will be given in later chapters.

CHAPTER THREE

PRICING DECISIONS IN AGRICULTURAL PRODUCTION AND CONSUMPTION

3.1 Introduction

In national policy, the grain sector of agricultural production is often a strong political influence and the protection of this sector is seen as the cornerstone of the whole policy. In a book on Trade Strategies for Development, edited by Streeten (1972), the Editor makes the following observations:-

> "Nations insist on the right to control the distribution of both population and income within their territories even if they have very imperfect control over the level of these variables."[16]

This quotation is a clear support of the role governments are expected to play in controlling agricultural production and consumption. On the same theme W.O. Jones (1969) has this to say:-

> "Adequacy of food supplies is an appropriate concern of government, and actions to assure a regular flow of foodstuffs at reasonable prices are generally accepted as a proper governmental function."[17]

The above quotations clearly justify the marketing policies followed by the government of Kenya with reference to agricultural

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16 op.cit. Paul Streeten (Editor) page 269.

17 William O. Jones - Marketing of Staple Food Crops in Tropical Africa: Overall Analysis Report, Food Research Institute Stanford 1969.

production and distribution as contained in the current Development Plan 1974-78, and which are summarised in the following paragraph from the plan:-

> "In fixing prices the government will maintain a fair measure of stability in farm prices while making the absolute level of prices attractive enough to encourage adequate production. On the other hand, the government is anxious to avoid raising prices to levels which are unreasonably expensive for consumers."[18]

The government takes it as its function to fix producer and consumer prices for maize, wheat, rice, sugar cane, beef and milk. The normal procedure in Kenya is that these prices are announced under the Agricultural Produce Marketing Act (Chapter 320) which is the instrument of controlling and regulating the marketing of agricultural produce. According to the Agriculture Act (Chapter 318), the prices of scheduled crops are to be fixed before 1st February in each year. The Agricultural Act provides for guaranteed prices and marketing of scheduled agricultural produce with a view to maintain a stable and efficient agricultural industry capable of producing Kenya's food requirements at minimum cost. The aim of the government is to make food available to the general population at prices which can be afforded even by the low income groups in the community.

The system operates through the appropriate ministry working through Boards etc. For example, the Maize Marketing Act (Chapter 338), gives powers to the Minister of Agriculture who shall from time to time, after consultation with the Board and with such bodies of persons as appear to him to represent the

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18 Kenya Development Plan 1974-78 Part I, Government Printer 1974.

interests of maize producers generally...and in consultation with the Minister for Finance fix prices at which the Board shall,..., at such times as the Board shall specify and at any railway loading point, purchase maize from producers..." Under Section 37 of (Cap. 318), the National Agricultural Board is established to advise the Minister for Agriculture in determining prices among other functions.

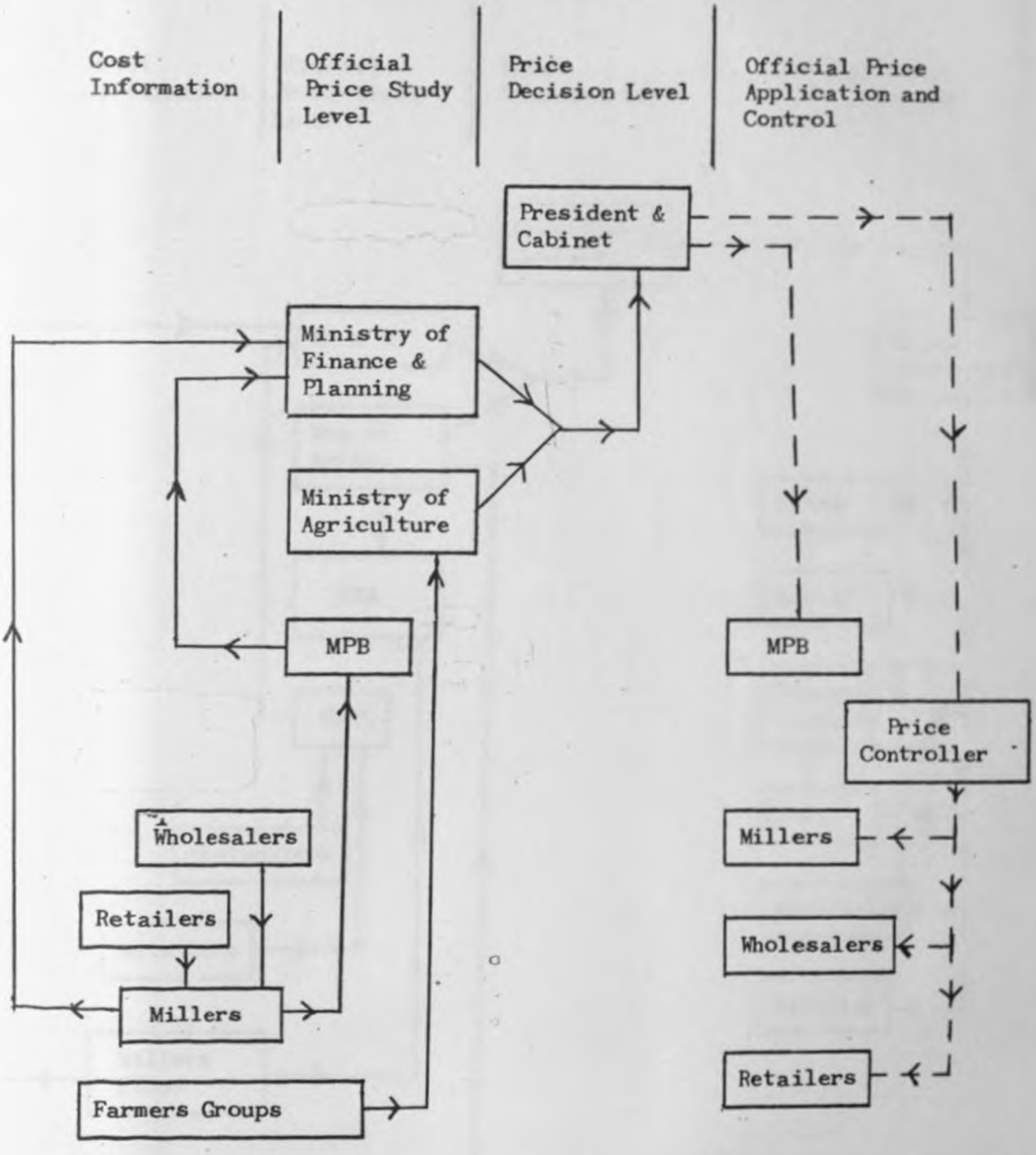
Theoretically, the Minister for Finance fixes consumer prices under Price Control Act (Cap. 504) once the producer prices are set as described above, but in practice the two ministries work very closely on both prices. If it is a policy affecting producer prices, then the Ministry of Agriculture may initiate it and similarly if it is a consumer price policy then the Ministry of Finance will initiate it. An increase in producer prices does not necessarily lead to an increase in consumer prices and vice versa. For example, when world prices are high and the cost of importing is also high then consumer prices have to be increased without an increase to the farmer. On the other hand when world prices fall then there is provision for the government to use the stabilization fund differential to increase producer prices without increasing consumer prices. Without centralized marketing arrangements these products could be subject to severe price fluctuations to the detriment of the whole society. The efficiency of a marketing system has a great bearing on the incentives to producers to expand agricultural production. The arrangements which have been quoted above are the methods used by the government to protect the producers on the one hand, and the consumers on the other. It is in this

context that the rest of this chapter will be examining governmental machinery that processes decisions on pricing.

The objectives of governmental policy on food marketing were listed in Chapter Two. An attempt will now be made to analyse the decision making machinery and how it is organised to meet those objectives. The machinery will also be assessed in terms of the theoretical framework of marketing and decision making which has already been outlined. If a hierarchical system exists, the subsystems contributing to the decision process will be analysed to assess their technical or political capabilities in performing the tasks assigned to them. This chapter and the next one on distribution decisions will be mainly descriptive in analysing the facts and outlining how the machinery works at present. The last two chapters will review the facts in the light of what might be a better organisation. The information has been obtained through interviews with people involved in the decisions. The subsystems have acted as a cross check on each other as there are people in each subsystem with knowledge of what happens in the other subsystems. Interview information has been supplemented with data from published research findings, other literature and government documents like the Laws of Kenya and Official Gazettes. If time had allowed, the method of 'participant observer' would have been used to assess whether what people say is what actually happens. This would have provided a means of checking if there are any disparities between what the administrators are supposed to do and what they actually do. In the absence of this check the existing hierarchical system will be critically analysed to see if it is likely to achieve the objectives for which it was intended.

Figure 1

Flow Chart of Maize Pricing Decisions 1977



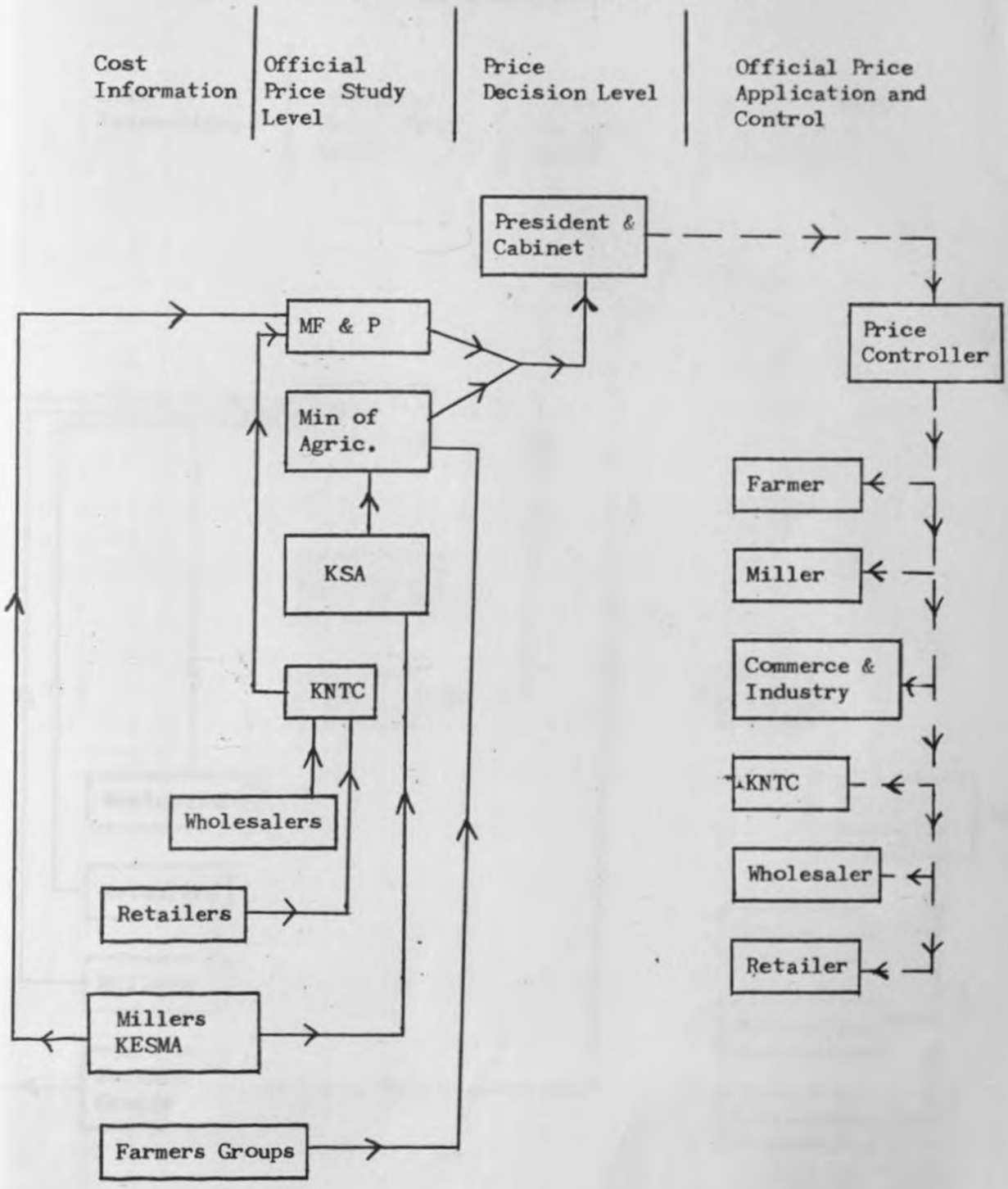
Note: MPB = Maize and Produce Board

Source: Field Survey (Mrs. R.A. Odingo)

Note: Mr. Mannerali has assisted with the flow chart.

Figure 2

Flow Chart of Sugar Pricing Decisions 1977



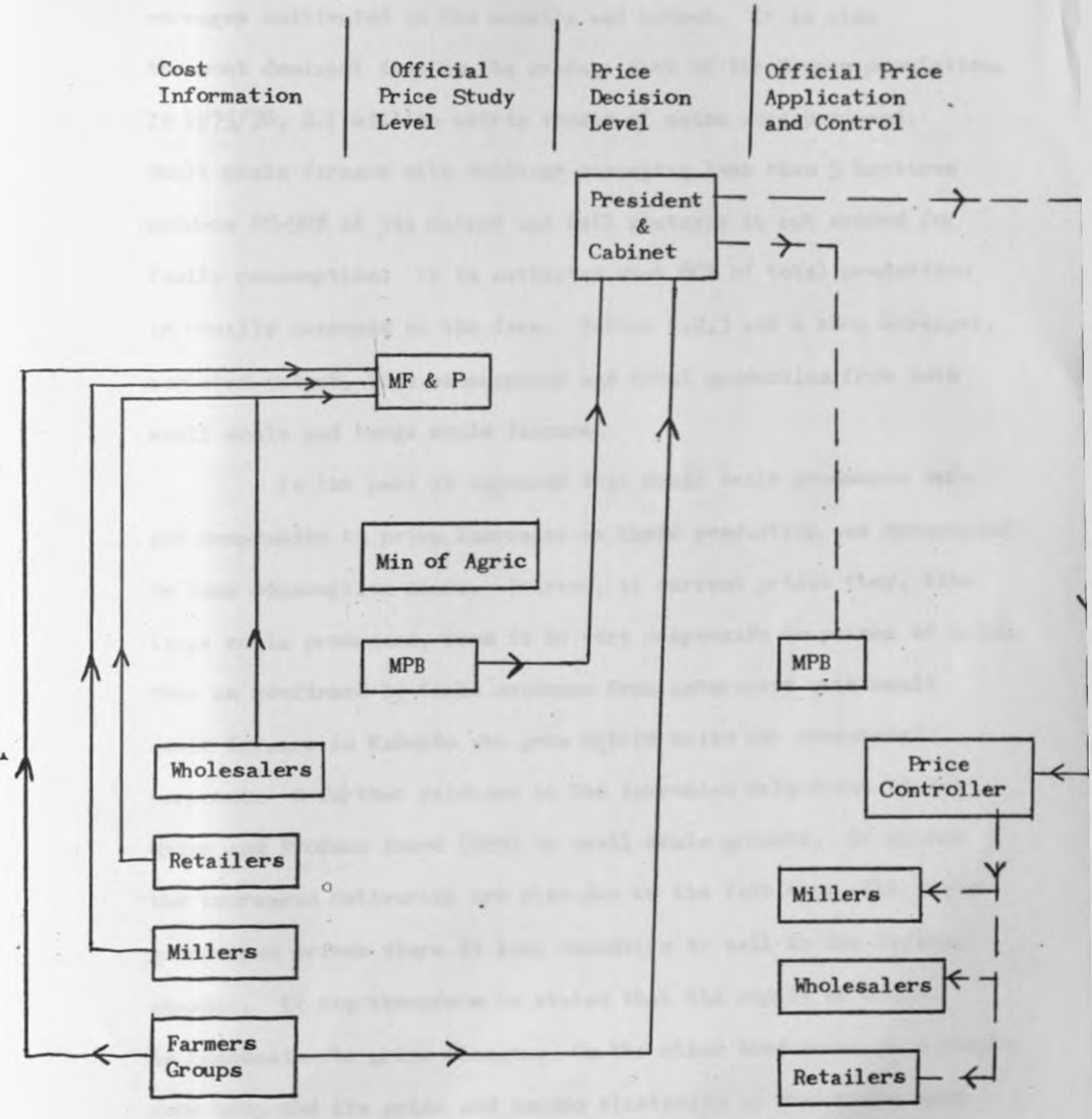
Note: MF & P = Ministry of Finance and Planning
Min. Agric= Ministry of Agriculture
KSA = Kenya Sugar Authority
KNTC = Kenya National Trading Corporation
KESMA = Kenya Sugar Manufacturers Association

Source: Field Survey (Mrs. R.A. Odingo)

Note: Mr. Mwangeli has assisted with the flow chart.

Figure 3

Informal Channels of Decision



3.2 Determining Maize Prices

Maize is the most important single crop in terms of acreages cultivated in the country and output. It is also the most dominant item in the average diet of the Kenyan population. In 1975/76, 2.1 million metric tonnes of maize were produced. Small scale farmers with holdings averaging less than 5 hectares produce 80-90% of the output and sell whatever is not needed for family consumption. It is estimated that 60% of total production is usually consumed on the farm. Tables 1,2,3 and 4 show acreages, marketed output, home consumption and total production from both small scale and large scale farmers.

In the past it appeared that small scale producers were not responsive to price increases as their production was determined by home consumption needs. However, at current prices they, like large scale producers, seem to be very responsive to prices of maize. This is confirmed by field evidence from interviews with small scale farmers in Kabondo who grow hybrid maize for commercial purposes. A further evidence is the increased deliveries to the Maize and Produce Board (MPB) by small scale growers. Of course the increased deliveries are also due to the fact that with higher guaranteed prices there is less incentive to sell to the informal channel. It can therefore be stated that the supply of maize is responsive to price changes. On the other hand maize is a staple food crop and its price and income elasticity of demand are very low. It is estimated that in Nairobi in 1972 the income elasticity was 0.03.[19] This creates a problem for the policy makers who have

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19 Hans G. Gsaenger and Gunter Schmidt - Decontrolling the Maize Marketing System in Kenya, Discussion Paper No. 254, Institute of Development Studies, University of Nairobi,

Table 1

LARGE FARMS

Land Utilization by Districts

Maize

District	HECTARES					
	1970	1971	1972	1973	1974	1975
Kisumu	2	3	2	4	7	10
Kisii	45	90	582	261	300	291
Baringo	7	59	59	-	-	-
Kericho	1597	1869	2306	2485	2754	3873
Trans Nzoia	21975	25188	27668	27478	23993	26436
Laikipia	3095	2969	2991	1901	2811	2130
Nakuru	8989	10164	10693	10530	7763	7744
Nandi	394	398	454	909	447	594
Uasin Gishu	21906	23889	30148	29761	23128	25394
Bungoma	40	87	76	87	55	77
Kakamega	92	53	53	82	13	10
Kiambu	177	470	531	227	253	313
Nyandarua	337	410	735	572	460	345
Nyeri	253	207	169	149	329	159
Muranga	114	247	492	961	922	499
Machakos	76	56	129	314	374	560
Meru	61	61	52	22	38	68
Kilifi	-	-	1	-	10	-
Kwale	-	2	-	-	-	-
Taita	-	-	-	-	-	-
NAIROBI	114	52	69	74	62	38
TOTAL	59274	66274	77210	75817	63721	68541

Source: Central Bureau of Statistics, 1975.

Table 2

Integrated Rural Survey of Small Farms 1974/75

Maize areas in acres by District

District	Acres
Kiambu	64188.45
Kirinyaga	87659.44
Muranga	132233.52
Nyandarua	41305.50
Nyeri	39852.43
Kilifi	51879.20
Kwale	22058.31
Taita	45489.55
Embu	33399.34
Kitui	70878.81
Machakos	228563.03
Meru	130139.14
Kisii	39534.81
Kisumu	30175.75
Siaya	96463.57
South Nyanza	78816.02
Kericho	63282.58
Baringo	3147.50
Elgeyo Marakwet	3224.46
Nandi	55383.04
Bungoma	75884.74
Busia	15757.13
Kakamega	160275.04

Source: Central Bureau of Statistics, 1977

Table 3

Integrated Rural Survey 1974-1975 Basic Report

Tables. Maize Production and Expenses by Province

In Shillings

	Central	Coast	Eastern	Nyanza	R. Valley	Western	TOTAL
LOCAL MAIZE							
Sold to Co-operatives	14034220	108200	16569260	9804660	526220	1079040	42121660
Crop sales to local market	25668789	23005671	14004839	13799998	3389823	5325105	186611095
Crop consumed	84228946	21830989	111970981	107018322	11208621	21224756	365482615
Crop given to labour	1733553	276161	938182	1024644	723754	386061	5082355
Crop fed to stock	4644914	1474882	611783	721506	355100	160074	7968259
Home grown seed	2506490	340144	7241042	3041511	123269	183327	13435783
Unaccounted disposal	318180	663050	230710	36210	1740	2230	1252120
Change in value of stocks	34630603-	4023783	15615281-	57699870	456889	58888182-	75307682
TOTAL OUTPUT	167757373	28947213	135946559	317338830	16783979	30468738	697242692
TOTAL INPUTS	10579200	1253604	17078452	9246351	2892199	3010247	44066053
HYBRID MAIZE							
Sold to co-operatives	2070440	64170	343360	3150340	21941700	3847540	31417550
Crop sales to local market	2178356	0	367458	7920061	1167311	39680476	61822662
Crop consumed	36533306	1100874	4525989	55366498	452178848	64983378	207727893
Crop given to labour	791205	2176	9544	246571	869267	2426400	4345163
Crop fed to stock	1717082	0	17965	209439	2258717	2511400	6714643
Home grown seed	0	0	0	0	0	0	0
Unaccounted disposal	0	0	48120	4740	0	339200	435060
Change in value of stocks	14883650-	1342094	4046393-	15270198	9899878	14578158	22152285
TOTAL OUTPUT	28405700	2509314	1264637	82207098	91857527	128361028	334604204
TOTAL INPUTS	19016130	382730	2190280	3798200	2764704	14703520	6773900

Source: Central Bureau of Statistics 1977

Table 4

MPB Trade in Maize - Some Statistics 1959-1977

Year	Stocks Beginning of Year	Purchases		Imports		Consumption General		Famine Relief		Stockfeed		Export	
	Bags	Bags	Value £	Bags	Value £	Bags	Value £	Bags	Value £	Bags	Value £	Bags	Value £
1959/60		1658999	3120541	-	-	1328374	3072474	-	-	76251	104269	100460	172956
1960/61		1586159	2987292	198554	428433	2002605	4450068	35311	66526	89329	125135	2312	4352
1961/62		1643165	3123109	712986	1468013	1352138	3255864	60000	85500	2944	30319	100843	157671
1962/63		2232974	4243488	-	-	917857	2272286	120034	171801	20698	4541	1062600	1753182
1963/64		1072963	1903737	-	-	1087706	2336343	18911	26767	23879	116885	611221	1028867
1964/65		1170351	2045379	142234) 253703)	347129	1781689	3723332	-	-	12293	30150	11467	21378
1965/66		1474343	2852744	2130731	-	1587822	3820082	-	-	147348	23163	-	-
1966/67		2508581	4997883	-	-	1530358	3969490	-	-	86095	216550	694338	1178904
1967/68	2094089	3581561	5698053	-	-	968289	2524086	24515	49030	79509	120533	2985764	4747315
1968/69	1630039	3245687	5032570	-	-	1146005	2549289	19117	38234	119053	157210	2715374	4585735
1969/70	436145	2151712	2997537	147979	398874	1773409	3779928	17534	35068	211576	276104	379988	641967
1970/71	552510	2667874	4165040	-	-	2946297	6121984	26215	52470	236094	219022	-	-
1971/72	245168	4211353	7927948	297945	928342	1860112	4194257	-	-	256799	356095	-	-
1972/73	2497186	5082607	9725930	-	-	1740922	4108799	-	-	411693	588291	1798800	4502839
1973/74	3370593	3726748	7688985	-	-	3579583	9212662	-	-	296047	526061	1511518	4616206
1974/75	1684549	5008582	16068495	-	-	3772722	13330447	-	-	-	-	-	-
1975/76	2613132	6141461				4203323							
1976/77	Closing stock 4500000*	6000000*											

Note: * Estimated from records.

Source: MPB Annual Reports 1974/75 and 1975/76

to balance supply and demand while minimising the need for exports when world prices are low. A pattern develops where shortages are followed by price increases which in turn produce excessive supply to be followed by lower prices and subsequent shortages. According to the World Bank Report on Kenya,

> "the tendency has been to adjust price levels too sharply upwards or downwards in response to essentially weather induced variations in annual output resulting in sharp reaction by farmers along with costly measures in disposition or procurement from abroad."[20]

This point is brought out by Table 5 which shows producer price variations over the last decade. This table should be read in conjunction with Table 4 which shows the trends in purchases by MPB which is a reasonable indicator of the percentage increase in marketed output. The adjustment of price level can be regarded as a common tendency of the past. Current policy reviews prices in an upward trend rather than reducing them. The price of maize is basic in promoting a better use of resources. At present probability theory is utilized to arrive at prices in that past demand is related to future sales on the assumption that the past will be closely related to the future. This is true of consumer products that are purchased frequently like maize. The demand for maize is determined by time factors that include population growth and urbanization. These factors are considered later with regression and correlation analysis (see page 153).

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20 Kenya Into the Second Decade - World Bank Country Economic Report, 1975 page 484.

Table 5

Producer Price of Maize 1965-1976 (per 90 kilos without bag)

	Shs.Cts.		Average Export Price**
2 March 1965	32.50	64/65	37.00
7 Dec. 1965	37.00		
28 Dec. 1966	28.00	65/66	-
10 Jan. 1967	28.00	66/67	27.00
23 Feb. 1968	28.00	67/68	25.50
3 Jan. 1969	25.00	68/69	27.00
Before 18 Dec. 1970	24.75	69/70	28.00
After 18 Dec. 1970	29.75		
3 Sept. 1971	29.75	70/71	-
24 Sept. 1971	35.00		
10 March 1972	32.00	71/72	-
19 Oct. 1972	35.30		
21 Sept. 1973	35.00	72/73	49.00
16 August 1974	40.00		
October 1974	50.00	73/74	61.00
23 Jan. 1975	65.00	74/75	*65.00
November 1975	65.00	75/76	*75.00
24 Sept. 1976	80.00	76/77	*72.00

Source: Kenya Government Gazette Supplements 1965-1977 and Maize and Produce Board Annual Report 1964/65-1975/76.

* Estimated export parity.

** Export price is export value divided by the volume and represents the world market price as it becomes relevant for Kenyan exporters. It is derived from the f.o.b. Mombasa price from which domestic transport costs are deducted.

3.2.1 Institutions Making Pricing Decisions

The Price Control Act (Cap. 504) provides for the establishment of a Price Control Advisory Committee to advise the Minister for Finance and Planning on matters affecting prices of goods and services. This is under the General Order which excludes scheduled crops covered in the Agriculture Act quoted above. Moreover changes in prices under the general order are made by the minister whereas for scheduled agricultural crops the Cabinet and the President make the decisions. Consequently the Price Control Advisory Committee does not deal with agricultural food crops. However there is no institutionalised body similar to this set up to deal with agricultural products in a similar manner.

A Cost and Price Committee was set up by officials of the ministries of Agriculture and Finance and Planning to design and provide policy options on both the producer and consumer prices of the scheduled food crops. It originally conducted formal meetings but by the nature of the problem and the need for close consultation at various levels in the process of formulation, the meetings have become increasingly informal.

During the year both the ministries of Agriculture and Finance and Planning receive varied representations on costs of production or processing or of retailing accompanied with requests for increased prices. The Kenya National Farmers Union plays a big role on behalf of the farmers in making such proposals. Statutory boards like MPB and KNTC make similar proposals on their operational costs and associated margins. Similarly millers

interests are represented by the Kenya National Mills Holdings which also suggests margins for wholesalers and retailers. These representations are cross checked by the operating ministry. For producer prices, the Ministry of Agriculture has its own machinery for generating the information which is described below. In the case of costs for the channels of distribution, a cost accountant in the Price Controller Department in Finance and Planning undertakes the analysis. If necessary meetings with various groups are called to negotiate the profit margin. These meetings are for checking information and are not intended to make decisions. They generate information which may form the basis for pricing decisions. The processing of information is a continuous process of reappraisal as new information is received in either of the two ministries.

From interviews with some farmers unions and statutory boards, it appeared that the representation is not always taken seriously by the ministries when pricing decisions are made. In particular KNTC found that transport allowance for traders was inadequately assessed and some officials felt that wholesale and retail margins on maize and sugar were too low. Many traders claim they stock maize meal and sugar not because they carry profitable margins but because they act as an incentive for customers to pruchase other profitable commodities. This difficulty arises because historical costs could include inefficiencies and therefore cannot be regarded by the ministries as representating the true position of the business. Further, costs may be magnified to obtain higher margins. In this connection MPB makes greater effort to verify the costs by obtaining from the suppliers to the

millers costs of items like packing paper. However it may take several years before the official machinery is satisfied that increases requested are justified. But there seemed to be justification for increasing transport allowance which KNTC transporters were unhappy about. It was understood that the District Commissioners were consulted by the Price Controller on transport costs prevailing in their districts.

There were also some proposals made by KNFU on the improvement of the pricing machinery which had not received any acknowledgement for a long time. When representations do not receive timely consideration by the official machinery, then some pressure groups decide to approach higher levels of the hierarchy for a decision.

3.2.2. Pricing Process

Agricultural prices are of a sensitive nature and have political connotations around them and therefore the last responsibility for them rightly lies with the politicians who bear responsibility to the people. It is essential to keep prices of essential food commodities at levels where low income groups can afford them otherwise high prices can cause political unrest. Further, increased food prices call for increased wages which apart from causing inflation lead to a slow down in economic development. It may discourage labour intensive technology thus causing wide unemployment which also can cause political unrest. Developing countries need to produce enough food for domestic consumption to keep wage rates down and thus keep exports of manufactured products competitive.

The civil servant has only technical responsibility in providing policy options. The Ministry of Finance and Planning is responsible for the control of the structure of prices in the country. For the producer prices the Ministry of Agriculture does the basic research and then discusses with the ministry of Finance and Planning.

Once every year from September/October the Ministry of Agriculture reviews the agricultural industry having regard to costs of production and market prospects with the object of determining prices. These costs of production are generated by the Land and Farm Management Division mainly for purposes of farm planning advice. A sample of the data form used is attached as appendix 1. These figures are also sent to the Planning Division to form a basis for production costs. From time to time economists in the Planning Division conduct sample surveys to obtain more accurate information for pricing decisions. The actual analysis of the data is done in the Commodity Analysis Section which is staffed by qualified professional economists with technical capability to analyse the crops with the aid of various econometric techniques.

At present the production costs used in price analysis are derived from large scale farms and therefore cannot be considered to be representative. But these were the only data available. However the Integrated Rural Survey is now making data on small scale farms available and this will improve the basis of cost estimation. Large farms may have machinery and other capital costs that are unnecessarily high and might lead to inefficiency being subsidised in the pricing system. Improvement in technology is supposed to reduce costs of production even when prices of

inputs rise. The productivity increases arising from the use of hybrid maize should reduce farm costs. If this is established then local maize prices could be set close to export parity to avoid export losses claimed to be occuring because producer costs are between import and export parity. In 1966 the import parity was 57/= per bag and export parity was 20/= per bag.[21] Table 5 already quoted above shows the trend in producer prices over the last decade against export parity prices. Just now the local price is 80/= per bag against export parity of 72/=. There is also just now a large surplus of maize and the temptation would be to lower producer prices to discourage future build up. This is what has happened in the past leading to cyclical rise and fall of local prices. The accepted policy now is to maintain prices on an upward trend. The question being asked is the level at which it should be kept. For consistency to be achieved, it is necessary that all levels in the decision hierarchy make decisions with full knowledge of their implications.

Based on the production costs and reasonable margin for the farmer, the Commodity Analysis Section formulates its pricing policy in consultation with the Planning Division of the Ministry of Finance and Planning. This Division has an agricultural section manned by economists with the necessary capability in the design of policy options. In addition, the Central Bureau of Statistics has professional Statisticians who collect and analyse data on cost of living index, income distribution and other indices. The Price Controller himself is assisted by cost accountants capable of

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21 The Kenya Maize Commission of Inquiry 1966, Government Printer, Nairobi.

working out various indices for trader margins of goods price policies. Close consultation at this level helps speed up matters so that the same process is not repeated in Finance and Planning when a formal recommendation is eventually forwarded from the higher level in Agriculture. It would appear that it is at this level that most policy options are made. The Commodity Analysis Section forward their proposals through the Head of the Planning Division to the Permanent Secretary who formally submits final recommendations to the Permanent Secretary in the Ministry of Finance and Planning. If the two ministers approve then a joint cabinet paper is prepared for their signature and submitted through the Permanent Secretary in the President's Office to the Cabinet. The memorandum contains integrated proposals on all levels of prices. They include producer price, parastatal marketing institution's operating costs, millers, wholesale and retail margins and the final consumer price. No civil servant from the two ministries sit in the Cabinet. If there are querries at Cabinet level which the two ministers cannot answer then the memorandum is returned. All pricing decisions are joint cabinet decisions, but the minister of Agriculture announces producer prices and of Finance and Planning announces consumer prices in a gazette order.

A similar process like that described above is followed by the Ministry of Finance and Planning where they have initiated the price change. These would be consumer prices and therefore the basis for calculation will be different. Here the emphasis is on cost of living index and income distribution in the urban rural

relationships. The Price Controller Section under the Fiscal and Monetary Division of Finance is central in the collection of cost data for consumer pricing and through the hierarchy to Deputy Permanent Secretary (Finance) consult with Planning Division (Planning Department) on any proposed changes in consumer goods. This procedure is more applicable to prices under the general order which do not require cabinet approval.

The Price Controller amends the consumer price orders accordingly. The process of setting prices does not always follow this order. Any of the levels described above may initiate action and if it comes from the top then the rest of the levels have to work out the implications and consequences of implementation. On the whole, the normal practice is for the policy options to flow upwards.

It is generally accepted that the process should be completed in time for the prices to be announced in January before the planting season. The price is then effective for the following crop season so that all farmers benefit. If there is a delay in completing the review then the chance of pressure groups intervening at various levels, and most likely at the top, is greater and where the top has not been briefed properly, disjointed decisions are made which are suboptimal and which may disrupt the system for several years.

As pointed out earlier climatic variations may reduce output at a time when stocks are low following excessive exports and if imports are not ordered in time, serious shortages occur which are normally wrongly associated with low prices. The shortage of 1971/72 appeared to be one of this nature as was confirmed by the

report of the Select Committee of 1973 which found the prices to be adequate. The producer price of maize in Kenya is above the export parity. The local price is 80/= per bag and export parity is 72/= per bag. Maize for stockfeed is sold at 35/= per bag. The difference in the last two figures constitute a subsidy by the consumer to the farmer, but it is essential to maintain reserves. The strategic reserve is currently set at 2 million bags or six months consumption rate. However at current consumption that supply is enough for four months only or even less and may need review.

In the ministry of Agriculture a group of economists is assigned a number of crops but they work together and consult on intercommodity relationships which are important for balance among competing crops so as to safeguard food production. These policy options are made to the top level decision makers who may also take an integrated view on food prices for all controlled food crops simultaneously. This happened in January 1975 when prices of maize, sugar, wheat and milk were increased all at the same time. Occasionally pressures come to bear at various levels of the decision hierarchy and therefore the best options may not reach the top and if they do, the top may be influenced by factors other than rational decision variables. When this happens a single crop may benefit from a large increase leading to a shift by farmers to it and thus creating an imbalance in food production.

The Ministry of Agriculture proposes to prepare food balance sheets for all crops to assist in pricing, import and nutrition policies. This requires data for crop models on production and consumption. At present the available data is mainly of

production from large scale farms and for consumption channelled through commercial outlets. However, the Integrated Rural Survey currently being undertaken will close the gap. At that stage pricing decisions will include all these factors on export and import analysis so that the local prices can move closer to those prevailing in the world market.

3.2.3 Implementation of Control

The guaranteed prices are only obtained at MPB depots. Otherwise when agents buy from farmers lower prices are paid. Upto 1976 the MPB fixed transport and agents' commission at 10% of guaranteed price for delivering maize from various points to the depots. From 1977 MPB has left it to the District Commissioners who are Assistant Price Controllers to fix transport rates for their districts and in turn the farmer is left to negotiate the margin with the agent. It was hoped that there would be competition among agents and that this could raise the price received by the farmer. There are normally more than one agent appointed by MPB to operate at a market and the number depends on the volume of marketed maize generated in the area. MPB Field Officers and the District Administration staff are expected to ensure that agents are paying a reasonable price to the farmers. However, there is very little that can be done to ensure that agents pay a reasonable price. This can therefore be regarded as one of the problem areas in the operation of the pricing mechanism.

The system limits the benefits that a farmer receives from the guaranteed prices. One solution would be for the farmer or where necessary a group of farmers, to hire transport and deliver their maize to an MPB depot. In fact MPB is encouraging this and where Co-operatives have shown interest MPB has also encouraged them. The trouble with Co-operatives is that they do not pay on delivery but accumulate produce and then deliver to MPB and pay the

farmer after a lapse of time. Sometimes the farmer is pressed for cash and is forced by circumstances to sell at a lower price to the agent. In this case however, he should not rightly blame the system for not protecting him. In addition to the problems outlined above, there is a new factor which affects even the well managed co-operatives like Kenya Farmers Association. It was established that the farmers are avoiding them so as to evade the recovery of GMR and other credits. Further there is even talk of agents putting political pressure to bear on decision makers in the local context to discourage co-operative marketing of maize. On the other hand some inexperienced co-operatives are not maintaining quality when purchasing produce and therefore they may buy maize that MPB cannot accept because of low quality. This then results in losses to the Co-operative and the farmer.

Table 6

Trends in Sugar Prices in Kenya Against World Prices 1966-1977

Date and Year	Sugar Cane Price per Tonnes Kshs.		Sugar Price Ex Factory per Tonne K£		Excise Duty Per Tonne K£	Consumer Prices per Kilo	World Prices £ Sterling per long tonne of Raw Sugar £ Sterling
1966		45		45	22.05	1.50	17.85
1967		46		46	22.05	1.50	19.35
1968		46		46	22.05	1.50	21.85
1969		46		46	22.05	1.55	33.85
1970		46		46	22.05	1.55	40.40
1971		46		46	22.05	1.65	46.10
1972	March	52	March	54	22.05	1.85	72.55
1973		52		54	22.05	1.85	99.30
1974	February	62	February	61.50	22.05	2.40	340.70
1975	January	92	January	93	22.05	3.20	243.45
1976	January	105	January	115	22.05	4.50	
1976	June	105	June	115	50.00	4.50	
1977	March	133	March	135	50.00	4.50	

Source: Kenya Official Gazettes and Tate and Lyle Report on Kenya Sugar Industry for World Price.

3.3 Determining Sugar Prices

Sugar became a controlled commodity under the Control of Essential Supply (Sugar) Order 1961. Since that time its pricing and distribution are controlled. According to Frank (1965)

> "The most important policy issue concerning the sugar industry in E.A. is the rate at which production should be expanded. Related to the question of expansion are a whole set of policy issues concerning the proper governmental measures necessary to achieve that rate of expansion. Foremost among these is future price policy."[22]

What Frank said of the sugar industry in East Africa is equally applicable to the industry in Kenya. Although sugar has been a controlled commodity for many years, government policy on it has not been deliberate until recently. For example it was found that sugar cane prices were not changed between 1965 and 1972 and remained at 5% of the sugar prices. Neither price was seriously examined until 1975 when substantial increases were made. Milled sugar prices were above supply and demand prices until 1971 and then went well below but now they are again above supply and demand price. Table 6 summarises these reviews. Rising costs of inputs in fertilizers, chemicals, machinery and fuel discouraged replanting of cane which led to a decline in total cane supply. The production of sugar fell from 120,000 tonnes in

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22 Charles R. Frank - The Sugar Industry in East Africa 1965, East African Publishing House, Nairobi.

1970 to 88,000 tonnes in 1972. On the other hand, consumption rose at a faster rate than had been expected to 194,000 tonnes in 1972. This led to a crisis situation in the country. The crisis came at a time when world prices were at their highest and supplies from Uganda were dwindling. All these factors pointed to the urgency of the need for government involvement and in 1972 the Kenya Sugar Authority (KSA) was formed to help coordinate and develop the industry. In the long run KSA or a similar body will have the powers to control production and marketing on the lines of the Kenya Tea Development Authority. The justification for this is that local production can save on foreign exchange. For example in 1975 the Chemelil factory alone produced 40,000 tonnes of sugar which the government bought for £3.7 million but was equivalent to £8-10 million if it had been imported. Occasionally the pricing decisions have been used to depress consumption. This was done in 1974 when the retail price of sugar was raised from 1/85 per kilo to 2/40 to 3/20 in 1975 and then to 4/50 in 1976. These price rises were also made to help pay for the supplementary sugar imports.

3.3.1 Pricing Process

Compared to maize, sugar cane takes 22 months to mature and earn an income. This means that a farmer has to wait for two years before harvesting. Unless the price of cane is reasonable to attract the small scale farmer, he would undoubtedly be reluctant to grow cane. Secondly since sugar and maize can compete for the same land and therefore their pricing must strike the correct balance.

These are some of the variables that the decision makers must be prepared to grapple with. There is an agreed parity between growers and the processors. At present the tonnes cane/tonnes sugar ratio of 10:1 is used. The factories argue that this ratio is impossible to achieve because of the generally low quality of cane which requires that over 10 tonnes of cane be milled to produce 1 tonne of sugar. Table 7 shows the variation of the ratio by factories. A ratio of 11:1 is considered more reasonable by the processors. But rather than increase the ratio, the factories should aim at helping the farmers to improve the quality of cane. Already Mumias Sugar Company under a system of providing inputs and advice to farmers on credit is achieving ratios below 10:1. The success of Mumias is being emulated by other factories and currently the World Bank is investigating ways of rehabilitating the existing sugar farms. Table 8 shows production of cane for mill white sugar in acreages and tonnages while table 9 indicates production and consumption projections. All these factors influence the pricing decisions on sugar.

Pricing is a key decision variable in the sugar industry where demand is very responsive to prices. In Kenya sugar showed a price elasticity of demand of 0.41 at the price of Shs. 1/72 and 0.72 at a price of Shs. 4/50 per kilo. The decision makers therefore have the difficult task of keeping producer prices high enough to stimulate expansion and keeping consumer prices low enough to encourage consumption. Other implications of this policy will be discussed later under the general heading of national food policy.

Table 7

Sugar-Factory Production, 1973 and 1974

FACTORY	Normal Gridding Capacity Tonnes/day	1973			1974		
		Average Grinding Rate Tonnes/day	Cane Milled (Sugar produced) Tonnes	Cane Sugar Ratio	Average Grinding Rate Tonnes/day	Cane Milled Sugar produced Tonnes	Cane Sugar Ratio
Chemelil (1968)*	2000	2000	397164 (35676)	11.1	2150	404984 (39059)	10.4
Miwani (1924)*	2000	1150	428525 (37036)	11.6	1140	355417 (30239)	11.8
Muhoroni (1968)*	1200	1360	346000 (32590)	10.6	1300	316650 (28450)	11.1
Mumias (1973)*	2000	1830	185595 (20314)	9.1	2347	438383 (55700)	8.7
Ramisi (1927)*	1500	715	171623 (12192)	14.1	680	155657 (10978)	14.2
TOTALS	8700	-	1528907 (137808)	-	-	1716093 (164426)	-

The average grinding rates quoted are based on the average tonnes cane milled per hour during actual grinding time.

* -Year of starting operation

Source: Kenya Sugar Industry, 1975.

Table 8

Kenya Sugar Industry - Production Areas and Tonnages

	Area under cultivation as at 1.1.75 Ha.	% Total Area	Tonnes Harvested 1974	Tonnes Estimated 1975	% Total Tonnes
Mumias nucleus estate	3159	6.6	242376	205000	12.7
Mumias outgrowers	5589	11.7	223146	313000	19.4
Ramisi nucleus estate	4490	9.4	134222	100000	6.2
Ramisi outgrowers	1224	2.6	26522	20000	1.3
Miwani nucleus estate	3258	6.8	99373	85888	5.3
Miwani outgrowers	8140	17.0	177863	200000	12.4
Chemelil nucleus estate	3080	6.4	144759	114055	7.1
Chemelil outgrowers	8931	18.7	354410	307091	19.0
Nyando estate	1535	3.3	22638	18000	1.1
Muhoroni outgrowers	8364	17.5	274730	250000	15.5
TOTAL	47770		1700039	1613034	

Source: Kenya Sugar Industry, 1975.

Table 9

Consumption and Production of Sugar

1975 - 1985 in '000 tonnes

		YEAR											
		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Consumption Forecast		231	245	260	280	300	325	350	375	400	425	450	480
Comutative Production		164	161	185	210	231	304	386	424	441	464	479	489
Existing Zones :	Ramisi	11	9	13	21	28	32	32	30	30	30	30	30
	Muhoroni	28	27	28	34	38	51	53	55	55	55	55	55
	Chemelil	39	40	40	40	47	52	54	56	56	56	56	56
	Miwani	30	28	38	35	32	39	46	44	44	44	44	44
	Mumias	56	57	66	75	85	95	105	105	105	105	105	105
Special Extension:	Ahero)Miwani	-	-	-	3	5	7	7	7	7	7	7	7
	Kano II)Zone	-	-	-	1	3	3	3	3	3	3	3	3
Total Existing Zones		164	161	185	210	231	279	301	289	289	289	289	289
New Project Zones :	Nzoia	-	-	-	-	-	13	38	50	60	65	70	75
	S. Nyanza	-	-	-	-	-	13	38	50	50	50	50	50
	Busia	-	-	-	-	-	-	10	35	50	60	70	75
	Kano II Plain	-	-	-	-	-	-	-	-	-	-	-	-
	Tana River	-	-	-	-	-	-	-	-	-	-	-	-
	Yala Swamp	-	-	-	-	-	-	-	-	-	-	-	-
Total New Project Zones		-	-	-	-	-	26	86	135	160	175	190	200

Source: Kenya Sugar Industry, 1975.

There is a need to monitor production costs continuously to facilitate timely and effective decisions. KSA is engaged in this task and an economist is stationed at Kibos in the Nyanza Sugar Belt to monitor costs of production of both the farmers and the processors. On the basis of these costs KSA prepares recommendations on prices and forwards to the Permanent Secretary of the Ministry of Agriculture. The process described in 3.2.3 for maize is followed in determining producer, processor, wholesale/ retail and consumer prices of sugar. Here the Commodity Analysis Section analyse and may visit farmers and factories to verify the costs. This provides a check on data to facilitate realistic price policy in relation to other crops with which KSA is not concerned. The Commodity Analysis economists consult with their counterparts in Finance and Planning.

In the preliminary stages KSA in theory should seek the views of the Kenya Sugar Manufacturers Association (KESMA). KSA as an agent of government charged with the coordination of the industry has responsibility both to the farmer and the processor. KESMA is much more concerned with factory prices and the parity between the growers and the millers. They may make recommendations direct to the two ministries. At no stage is the Ministry of Commerce and Industry involved in the pricing decisions although they have the responsibility of distributing the sugar and arranging for imports to bridge the gap between local production and consumption.

3.4 Pricing in the Distribution Channels

Having looked at the pricing mechanisms for maize and sugar separately, an attempt will now be made to compare the distribution channels as they affect these two commodities. This is done in the next section.

Maize and sugar are scheduled food crops marketed under control and their prices are set by government regulation. This means that the market forces of supply and demand do not set their prices. When producer prices are being worked out, simultaneously margins available to parastatal boards, processors and retailers are worked out and a consumer price arrived at.

The producer price of maize delivered at MPB depot is 80/= for the whole country. However selling prices from MPB depots vary according to the transportation costs and these together with miller, wholesale and retail prices are gazetted by zones and differ from zone to zone. Some examples obtained at Nairobi are used to illustrate this point as can be seen below:-

1) Ex MPB price = 80/= (producer price) + 1% shrinkage + 6/25 (price of bag) + 8/50 (handling expenses including MPB overhead) + 10/50 (actual railage cost - Kitale to Nairobi) = 107/05 per bag.

2) Millers margin

90 kilo bag of maize yields 72 kilos of shifted flour, therefore 1/65 is cost of raw material + other costs which are normally checked by MPB with the suppliers for example packing paper + margin and that determines the selling price exmiller or Shs. 3.37 per two kilo bag.

3) Wholesale and Retail Price

On the basis of (2) transport costs are calculated and a margin set for the wholesaler/retailer which is Shs. 2/50 per bale. This makes the consumer price 3/60 per two kilo bag.

Table 10 shows the various prices through the chain for the eight zones. The traders margin is controlled to protect the consumer. The consumer prices of maize have always been above export parity and this is where the system is claimed to exploit consumers.

Sugar is priced in the same manner through all the stages of the distribution chain. To the processor price is added excise tax which is initially paid to the factories which eventually pay the excise tax to the government. At current gazetted prices producers receive 133/= per tonne of sugar cane, factories receive 380/= per bag of mill white sugar which includes 100/= excise tax. The Ministry of Commerce and Industry meets transportation costs from the factories to KNTC depots with one or two exceptions like Kisii where transport to the depot is paid by KNTC, and KNTC receives 3/23 commission per bag. Like maize, transport costs are added to the margins at each stage. The share of various groups in the chain can be assessed from a breakdown of consumer prices in Nairobi for example:

Ex factory	Shs.	280	per bag of 100 kilos
Excise tax	Shs.	100	
Equalization Fund	Shs.	31.61	
Commerce & Industry (transport)	Shs.	5.66	
KNTC Commission	Shs.	3.23	

Table 10

THE PRICE CONTROL ACT- MAIZE AND MAIZE MEAL PRICES

(Cap.504)

FIRST SCHEDULE

	List "A"	List "B"	List "C"	List "D"	List "E"	List "F"	List "G"	List "H"
A. WHOLE MAIZE	shs.cts.	shs.cts.	shs.cts.	shs.cts.	shs.cts.	shs.cts.	shs.cts.	shs.cts.
(1) Sales to millers or traders per 90 kg. f.o.r. sender's station carriage paid or ex Maize & Produce Board store	102.04	100.85	103.90	110.20	107.05	108.45	110.20	111.90
(2) Retail sales to consumers ex trader's store per 90 kg. including price of bag	105.55	104.35	107.40	113.70	110.55	111.95	118.70	115.40
(3) Retail sales to consumers per ½ kg. weighed and packed by trader	-/65	-/65	-/65	-/65	-/65	-/65	-/65	-/70
(4) Retail sales to consumers per 1 kg. weighed and packed by trader	1.25	1.25	1.25	1.30	1.30	1.30	1.30	1.40
B. MAIZEMEAL (POSHO)								
(1) Sales per 90 kg. including price of bag	107.05	105.85	108.90	115.20	112.05	113.45	115.20	116.90
(2) Sales ex wholesaler's depot	109.05	107.85	110.90	117.20	114.05	115.45	117.20	118.90
(3) Sales to consumer per ½ kg. weighed and packed by trader	-/70	-/70	-/70	-/75	-/75	-/75	-/75	-/75
(4) Sales to consumer per 1 kg. weighed and packed by trader	1.35	1.35	1.35	1.40	1.40	1.40	1.40	1.40

Source: Kenya Gazette Supplement No. 24 of 1977, Legal Notice No. 88.

SECOND SCHEDULE

LIST 'A'	LIST 'B'	LIST 'C'	LIST 'D'	LIST 'E'	LIST 'F'	LIST 'G'	LIST 'H'
Malaba	Lugari	Nakuru	Nanyuki	Matathia	Ulu	Kikumulyu	Ndara
Myanga	Kipkarren River	Lanet	Naro Moru	Uplands	Kiu	Masongaleni	Maungu
Bungoma	Turbo	Mbaruk	Nyeri	Limuru	Kalembwani	Nawata	Wangala
Sudi	Lèseru	Kariandus	Karatina	Muguga	Kima	Darajani	Bachuma
Webuye	Eldoret	Gilgil	Fort Hall	Kikuyu	Nzai	Kathekani	Mwanitibu
Butere	Plateau	Ilkek	Sagana	Dagoretti	Sultan Hamud	Mtito Andei	Mackinnon Road
Yala	Kaptagat	Motendat	Maragua	Kibera	Emali	Kanga	Taru
Luanda	Kipkabus	Naivasha	Meru	Nairobi	Simba	Kenani	Samburu
Lela	Tumeiyo	Munyu		Makongeni	Kiboko	Kyulu	Maniewa
Kisian	Ainabkoi	Suswa		Embakasi	Ikoyo	Tsavo	Maji ya Chumvi
Kisumu	Timboroa	Longonot		Marimbeti	Makindu	Manyani	Mariakani
Kibos	Equator	Kijabe		Athi River	Mbuinzau	Ndi	Mazeras
Miwani	Makutano	Nyahututu		Lukenya	Kibwezi	Irima	Miritini
Kibigori	Maji Mazuri	Ol Joro Orok		Stony Athi	Magadi	Voi	Changamwe
Chemelil	Sabatia	Ol Kalou		Konza	Shingaraini		Mombasa
Muhoroni	Visoi	Oloelondo		Makuyu	Kajiado		Taveta
Koru	Kitale	Rongai		Mitubiri			Murka
Fort Ternan	Moi's Bridge	Menengai		Thika			Maktau
Tunnel	Soy	Mau Summit		Kalimani			Bura
Lumbwa		Molo		Ruiru			Mwatate
Kedowa		Turi		Kahawa			
Londiani		Elburgon		Dandora			
Muhoru Bay		Njoro					
Homa Bay		Solai					
Kendu Bay		Ol Punyatta					
Kakamega		Kampi ya Moto					
Kericho							
Kisii							
Sotik							

Wholesale margin	Shs. 4.50
Retail margin	Shs. 25.00
Consumer price	Shs. 450.00 or consumer price at 4/50 per kilo.

Prices at various places is determined by transport costs.

3.4.1 An Illustration of How Prices are Fixed

What has been described so far is the general procedure in making pricing decisions. However, to authenticate field work one specific price change is described here. It refers to the current prices of sugar which were announced by the Cabinet effective 1st March 1977.

3.4.2 Creation of a Decision Situation

Every July the Permanent Secretary to the Ministry of Agriculture writes to his Planning Division to commence review of prices of all scheduled crops with regard to changes in cost of production. This is a routine annual review which may reveal that there is no decision situation.

In this particular instance KSA had made certain recommendations to the Ministry which called for a decision. In addition the Mumias Outgrowers Company had made representation on behalf of the growers and so had KESMA. So there arose a decision situation when the Planning Division commenced its review of sugar prices.

3.4.3 Analysis of the Problem

In the annual review as has been pointed out the ministry relies on data of costs of production generated by its Land and Farm Management Division. These statistics indicated a need for change to certain level which was below that recommended by the interested groups. To ascertain that the information received was realistic, two economists from the Commodity and Analysis Section of the Ministry of Agriculture and one economists from the Ministry of Finance and Planning Agricultural Section went to the field. They visited factories and farmers in the Nyanza Sugar Belt and Mumias and also consulted the KSA economist based in the field.

On their return they were able to look at various alternative solutions and on the basis of costs and comparable prices of competing produce like maize and recommended a certain level of price change. This change involved only increasing grower and processor prices and maintained the old level of retail price. The recommendation was sent through the hierarchy to the Permanent Secretary who forwarded it to the Cabinet for approval. The decision is finally made by cabinet. From there it is passed to Price Controller for gazetting. In this particular case it seems that the change was not gazetted until May and even then only factory prices were gazetted.

In this particular case all parties concerned seemed to have been fairly satisfied with the outcome. However there are instances when groups are dissatisfied and therefore make representation outside the official machinery and appeal to various levels

of the hierarchy. It has been stated that if representations are actioned independently by the level approached without consultation with the rest of the machinery they result in disjointed decisions. Figure 3 attempts to show this informal decision flow as it is superimposed on the official channels illustrated in figures 1 and 2.

3.5 Hierarchical Systems

The Ministry of Agriculture is responsible for food production through its scientific role in developing and disseminating new techniques of agriculture through its extension service. This service promotes agricultural production through good husbandry. What has been lagging behind is the development of the marketing system but this is being put right through an FAO project. On the marketing side the ministry interacts with the Ministry of Finance and Planning in pricing decisions and supervises parastatal boards that market agricultural products as shown in earlier sections of this chapter. Along both fronts of production and marketing the ministry interacts with the Ministries of Land and Settlement and Co-operatives. The role of the Settlement Department would appear unnecessary in both technical and marketing fields. Agricultural activities in settlement areas are no different from those in other areas. Therefore these services should strictly be left to the Ministry of Agriculture. However, the Ministry of Co-operatives plays an important role in marketing. It is unfortunate that co-operatives have not been very successful. They should be mobilized to provide marketing services to small scale farmers particularly to those in remote areas where no other channel can reach. This is particularly important for maize collection.

The Ministry of Finance and Planning is charged with the responsibility of mapping the strategy for the whole of the Kenyan economy. It is within these strategic plans that pricing policies

for various commodities fit. That is one of the reasons that the Ministry of Agriculture has to consult closely with Finance and Planning.

The Office of the President intervenes at various levels from the grassroots level where crops are grown through the Provincial administration to the highest level of the pricing hierarchy. Greater use is made of administrative staff in implementing controls for which all of them including the police are appointed inspectors of prices with the District Commissioners as Assistant Price Controllers.

3.5.1 Group Properties

The managerial level for decision making can be said to be at the ministerial level. Here groups of people influence policy decisions that are sent to the executive authority for approval. Groups are often the important units of action in any management system. An administrative system has unique cultural attributes as postulated by Michel Crozier in "The Bureaucratic Phenomenon."[23] Organization theorists such as March and Simon, sociologists such as Blau and Scott, and students of small groups such as Theodore Caplow have presented a vast number of propositions on how individual behaviour is explained by the properties of his group.[24] Policy decisions are always made on the basis of the interaction of interest groups. An interest group is very broadly defined as an

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23 Michel Crozier - The Bureaucratic Phenomenon (Chicago: University of Chicago Press, 1964).

24 David K. Leonard and Kenneth Prewitt "Quantification, Productivity and Groups" in Adebayo Adedeji and Goran Hyden (eds.) - Developing Research on African Administration Some Methodological Issues, East African Literature Bureau,

organized or unorganized group of people with a common interest. The emphasis is on group properties that promote the motivation of individuals to inspire the best solution to problems. The task of this study is to produce substantive as opposed to conceptual theories. In pursuit of that goal some theories of human behaviour will be translated into reality and be used as a measure of the success of government policy making process. Leonard and Prewitt recognize five group properties that might be useful here.[24a] One property is classified as distributional and include attributes like attitudes. Where certain attitudes are distributed widely enough they can affect the service. For example if employees are committed to the cause of farmers they will attempt to allocate rather than concentrate to themselves the benefits of marketing.

Relational properties characterize the interaction within the agency or between agencies. Pressure groups can develop within and between ministries that can affect the quality of decisions. One prevalent idea on the Kenya marketing boards is that large farmers extert pressure on these boards and influence policy decisions in their favour at the expense of the majority of the population. Relationships may also be rigid and authoritarian or democratic that allows participation and this also affects performance of the managers. Role specialization rather than functional differentiation lead to little flexibility to meet changing conditions. All bureaucracies are blamed for emphasizing role, but even functional differentiation should be limited to the extent that allows it to give some adaptive capacity.

24a ibid. page 21.

The analysis of structural properties is indispensable in the study of management. It includes terms such as hierarchy, status, role, differentiation, and particularly in government, "authority structure". Strctures define the flow of transactions and interactions; communication structure defines the pattern of information flow. Organization charts are the permanent manifestation of structural properties of an agency. Nevertheless there are frequently "informal structures which are not sanctioned officially but nonetheless interact in the decision process and accomplish tasks. Decision-structures are common to all groups which regularly take votes or otherwise come to decisions about policy issues. There may be unanimous decision on most issues or there may be pressure groups formed that influence voting in their favour. It is understood that the decision machinery that determine agricultural prices does not include representatives of farmers, traders etc. for the reason that they may form factions that will determine policies such that benefits are disproportionately directed to them. This is a justified precaution on the part of the decision maker but this does not mean that better use cannot be made of the farmer or trader representatives.

The fourth property is the integral property. This thesis is concerned with the problem of assessing a reorientation of marketing policy from the colonial period to the independent state. In looking at the integral properties of the institutions, it is hoped to infer this policy orientation that differentiates the present system from the colonial system.

Finally, very often the performance of an administrative agency is explained in terms of a larger environment of which it is

a part. Indeed in Chapter 5 MPB and KNTC are treated in this context. When some characteristic of that environment is attributed to the agency it becomes a contextual property. In this analysis the political environment is important as it is used to influence prices and the marketing system. Moreover in suggesting improvement one has to be aware of the environment in which one is operating. What may work in an industrialised modern society may not work in a non-industrial more traditional society like Kenya. However one must not assume that contextual properties have particular effects on the operation of the administrative groups. The effects are a matter for empirical investigation and not a priori assumption.

This exposition is included here to assist with the analysis of the total hierarchical system that characterize the governmental food marketing in Kenya. It forms a preliminary step to the measurement of the productivity and success of the system. Where the properties are identified and measured they become important indicators of productivity. Further the utility of this classification of organization properties is in sampling strategy that help with the design of the research. The classification helps to isolate the variables that are considered critical in assessing administrative performance so that these are investigated.

3.5.3 Summary of Total System as it affects Maize and Sugar

Figures 1 and 2 attempt a synthesis of the hierarchical system that determines pricing decisions for maize and sugar. It has been pointed out that pricing decisions are made at the top level where political responsibility is taken for them. Policy options are, however, formulated by officers of the Ministries of Agriculture and Finance and Planning who bear the technical responsibility for them. The Ministry of Agriculture draws from the environment in its annual price reviews and together with the information generated by the Central Bureau of Statistics in the Ministry of Finance and Planning, provide the basis for price decisions. Although the technical level of the hierarchy does not have power to change prices yet it takes decisions on the options that are recommended to the political level. More often than not, the decisions taken by the technical level become the operative rules. So in a way it can be said that they perform substantive transformation of data into plans of action and the political level simply issues the orders.

The nature of the decisions involved limits the lower level of the hierarchy to a senior level in the civil service. They are all professional economists, statisticians or accountants. These people either provide data or transform them or design policy options. The options are forwarded through the head of division who is also a professional person of Deputy Secretary grade. He forwards the options to the Permanent Secretary who in turn

submits a cabinet paper through the Permanent Secretary in the President's Office who is also the Head of the Civil Service. He forms the highest level of the technical responsibility although he may not have the relevant technical knowledge to modify the recommendations. There is little feed back at each stage of the process.

The Cabinet takes a joint decision on prices although the orders are made by either the Minister for Agriculture or the Minister for Finance and Planning. When producer and consumer prices are approved they are passed through the Ministry of Finance and Planning for the Price Controller to amend various gazetted orders for the signature of the minister. It has already been stated that in the process of amending the orders, the Price Controller revises prices for the various stages of the distributive system. He does this in consultation with MPB or KNTC as the case may be.

What has been described is the official procedure but consultations do not always follow the same channels. For example it is found more expedient for the Commodity Analysis Section of the Ministry of Agriculture to consult direct with the Senior Planning Officers of the Ministry of Finance and Planning without going through the hierarchy. It is also not uncommon to address a proposal to a higher official and to send a copy to a colleague in the same grade. Indeed when KSA make proposals to the Permanent Secretary in Agriculture, a copy is sent direct to the Planning Division.

Decisions do not always flow from the bottom to the top within the hierarchical system of control already discussed. A pricing decision can be initiated at the top by the political level and passed down in which case the situation is reversed and the technical level has to work out the implications and the best way of implementation. Whenever a decision like this is taken, it has been difficult to marshall all the people concerned and to work out the implementation. On one such occasion MPB lost revenue because the machinery was slow in providing implementation decisions so that although producer prices for maize had been increased to 80/= per bag, MPB had no authority to revise its selling price which remained at 77/= per bag for several months.

CHAPTER FOUR

DISTRIBUTION DECISIONS

4.1 Introduction

Controlled pricing is used to set the upper limit of prices. Once the price is fixed by the government then steps must be taken to ensure that farmers receive the correct price and consumers are not exploited. This is done through a controlled distributive channel. To co-ordinate all this, statutory marketing boards are established to implement the control. The use of statutory marketing boards is an important aspect of the agricultural sector of the Kenyan economy from colonial times. The Maize and Produce Board is an offshoot of earlier marketing arrangements. In this instance, MPB is charged with the task of operating the distribution of maize. In the case of sugar there is no statutory board established to handle distribution but the KNTC distributes that commodity under the direction of the Ministry of Commerce and Industry. An alternative way to ensure that farmers receive the best prices would be to entrust co-operatives to collect the produce from the farmers. But co-operatives have had trouble in management, and this explains why the marketing boards and other organisations like KNTC have been formed to handle produce.

It is important to adequately appraise the different links in the marketing chain. At each stage there are problems of transport, organisation of primary collecting and buying centres,

and marketing margins. It will be noted from earlier discussion that the transport and trading margins are fixed through the control system. In this chapter an attempt will be made to analyse how the various agencies created by the government make distribution decisions in their effort to cope with distribution problems.

Some writers on African development have criticised the proliferation of licences, permits and other forms of control devices which developing countries pursue in the name of development. They caution against corruption which in their view seems synonymous with these controls.[25] Both maize and sugar are marketed under an elaborate control system. The government finds this the most rational way to handle a matter of national importance. However, rational decisions are not always based on economic factors as some non-economic factors may be more important. In this case self-sufficiency in staple food crops is paramount, and it has always been emphasised in Kenya as part of the national economic, and in particular agricultural policy.

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25 William Wamalwa - The Role of the Public Sector as an Employer Employment in Developing Nations - Report of a Ford Foundation Study 1974.

4.2 Marketing Channels for Maize

Two systems operate in the maize marketing system. The formal system is operated by MPB through its net-work of 33 depots and agents scattered in the country. The agents operating in small primary markets lack capital and organisation and as a result do not reach all the farmers. Whatever surplus is not bought by MPB depots and its agents enters the informal channel where the price is not controlled. Consequently at harvest time, the prices will be low in the surplus areas and in the deficit areas the price will be above the guaranteed price. MPB is supposed to move in maize to such areas but again the limitation of agents militate against this proposition. According to the law MPB is not empowered to sell direct. However, MPB makes efforts through local barazas to inform "wanainchi" that maize is available from their depots at lower prices. To encourage direct purchase, the minimum amount that can be purchased has been lowered to one bag.

Distribution

In terms of Legal Notice No. 45 of 1971 effective from Saturday 13th March 1971, a maximum of 10 bags of maize may be moved within a district and a maximum of two bags across district boundaries. Any amounts in excess of these require movement permits. There are two types of permits. One is a special type issued for movement

from farms and markets to the depots. These are operated by farmers or MPB appointed agents. The second permit is a general one issued to any trader for moving maize from the depot to his premises or from trader to trader and from district to district or farm to farm. All agents who purchase maize for sale to MPB and are therefore eligible for permits must be licensed by MPB. But for buying from MPB depots no licence is required. Anybody may buy maize from MPB depot and where a permit is necessary that is issued to anyone.

A question is always asked why MPB does not move and sell maize where the prices in the local markets are higher than MPB local selling price. As an explanation it has to be appreciated that to sell at local markets would require such additional personnel to MPB that it may not be worth the cost. Since anyone is free to buy from MPB it is hoped that either individual consumers or agents will buy from MPB and where there are agents free market competition should induce a large enough number of agents to buy from MPB and sell at a reasonable price. Further MPB using the market prices generated by CBS through IRS should inform local barazas of availability of cheaper maize at MPB depot. This should of course apply in reverse to farmers who are being paid too low a price by agents. MPB Field officers should educate them on how to organize themselves to reach the depots and receive the guaranteed price.

4.2.1 Farmer

A farmer may deliver his maize direct to the depot or sell to an agent. Most of the small scale growers use agents unless they belong to a cooperative that markets maize. The large scale farmers almost always deliver direct. There is no way in which MPB can ascertain that agents are paying the farmer a reasonable rate. At Kitale it was found that some small scale farmers facing transport difficulties preferred to sell their maize to agents at Shs. 70/= per bag when the distance from the depot was negligible. There are 4000 agents operating in markets and supposedly being supervised by Field Assistants of MPB. But the large scale farmer has greater problems.

When a large scale farmer plants 500 acres of maize he faces dis-economies of scale. He may not find enough labour for weeding and therefore he will resort to machine weeding which clears inter row but not in between plants. The effects of poor weeding on yield has been found to be greater than the effect of not applying fertilizers. If he harvests 20,000 bags, as some do, then he faces delivery problems. In Kitale maize ripens at the same time and because of the large crop farmers are given a quota to deliver. Then storage problems arise at the farm which may be aggravated by the non availability of transport to move the quota to MPB depot. Moisture content is another issue, where a farmer may hire transport to take maize to the depot and then it is returned because of high moisture content maximum moisture content allowed is 13%.

4.2.2 Co-operatives

The co-operatives generally in use are marketing co-operatives and are normally engaged at the terminal end of marketing i.e. only collecting produce and delivering it to the Board. But maize is a difficult crop for co-operative effort. When prices in the informal channels are higher co-operatives will not receive any crop and yet when those prices are low the co-operatives will be flooded with maize. This makes planning for storage unpredictable. While discussing co-operatives, special mention must be made of KFA which is a co-operative in itself but its management puts it apart from the co-operatives being considered here.

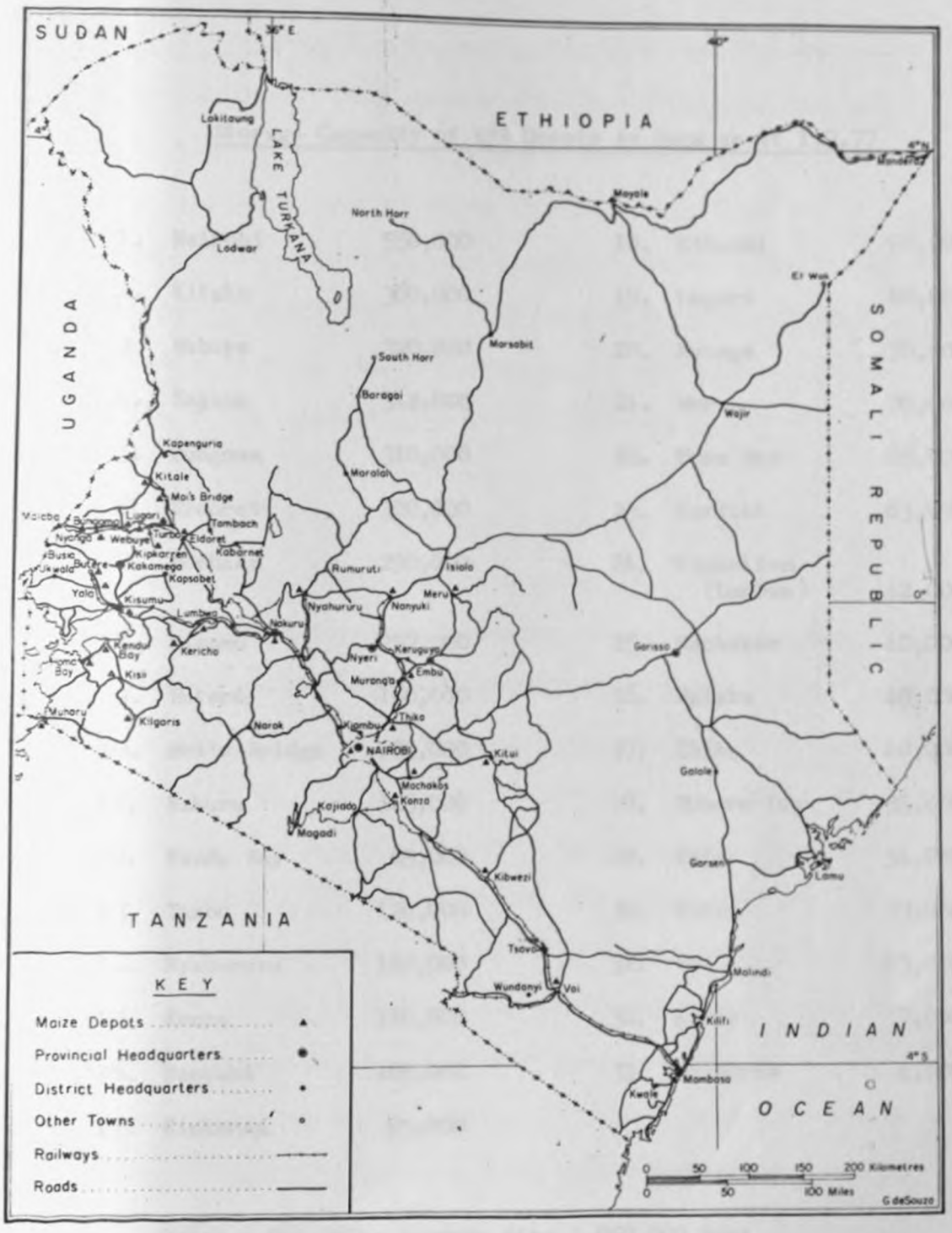
There are only 8 co-operatives in the country specialising in the marketing of maize. These have largely grown from the desire of growers to form them. In West Pokot for example the co-operative movement is particularly strong in the collection of maize. Where they work well they are of great benefit to the farmers. Elsewhere they present problems. In the final analysis, however, it will have to be co-operatives that will achieve the end result of ensuring fair prices to the farmer. The Ministry of Co-operatives is currently taking a positive view in training staff and committee members of co-operatives in better management techniques including the preparation of accounting documents and financial control. In addition new methods of office management are being introduced through a "card system" that will protect the claims of both the member and the co-operative. In the transitional period, Government is keeping a close eye on these institutions through co-operative officers who audit their finances and advise co-operatives generally.

4.2.3. MPB Depots

There are 33 depots in Kenya, and most of them are concentrated in the surplus areas and are also located mainly along the railway line or along the lake shore. The only exceptions are Kisii, Kericho, Kilgoris, Machakos which are not located on railhead. A few are also to be found in the deficit, consuming areas.

Map 1 shows their distribution. A good strategy would be to build storage in deficit areas and to use surplus areas as a clearing house so that as maize is purchased it is moved to the deficit areas. This approach was found being followed on a small scale in Nyanza. In this particular case, Kisii is in a large surplus area receiving 500,000 bags but has a small storage capacity of 4,000 bags whereas Kendu Bay on the Lake Shore and in a deficit area has 100,000 bags capacity to handle the surplus from Kisii. The arrangement was to avoid double handling of maize from Kisii and deliver the produce direct to the lake depots for movement to consumption areas. Unfortunately this has not worked well and it has now created a political problem on the question of issuing movement permits. Earlier MPB made a new rule that permits will be issued by receiving depots only. In this case it is Kendu Bay which issues permits to move maize from Kisii which is served by a depot whose manager is not allowed to issue permits. The Kisii farmers and agents have complained that they are being treated unfairly by this arrangement; and this interferes with the efficiency of the operations.

Maize and Produce Board Depots



Source: Base Map – Survey of Kenya

Storage Capacity of MPB Depots in Bags as at 1.7.77

1.	Nairobi	550,000	18.	Kibwezi	90,000
2.	Kitale	360,000	19.	Lugari	80,000
3.	Webuye	320,000	20.	Myanga	70,000
4.	Sagana	312,000	21.	Meru	70,000
5.	Bungoma	310,000	22.	Homa Bay	65,000
6.	Eldoret	300,000	23.	Kericho	63,000
7.	Mombasa	290,000	24.	Kipkelion (Lumbwa)	42,000
8.	Kisumu	257,000	25.	Machakos	40,000
9.	Butere	180,000	26.	Malaba	40,000
10.	Moi's Bridge	155,000	27.	Thika	40,000
11.	Nakuru	125,000	28.	Muhoru Bay	35,000
12.	Kendu Bay	65,000	29.	Yala	34,000
13.	Turbo	120,000	30.	Kitui	33,000
14.	Nyahururu	120,000	31.	Voi	13,000
15.	Konza	120,000	32.	Kisii	7,000
16.	Nanyuki	100,000	33.	Kilgoris	4,000
17.	Kipkaren	95,000			

Total 4,565,000 + Cypress bins 1,050,000 bags

(Kitale 600,000 bags and Nakuru 450,000 bags)

Extension in process Nairobi 220,000 bags.

The Kenya Farmers Association (KFA) run all the depots in the Rift Valley on a commission basis. At certain stations KFA handling of maize is uneconomical and their operational costs rise above those of MPB; in this particular case MPB is forced to take the depots. For example Turbo and Kipkaren have been taken over by MPB. The KFA is used in handling maize because of its wide representation in the various district, and because of the integrated services it provides to farmers with regard to inputs and marketing channels.

For better collection and distribution of maize throughout the country, the MPB is pursuing a new policy of establishing more depots in consuming areas, and is opening new ones in surplus areas like Suna in South Nyanza. The Nairobi depot is the only one which receives maize from other depots and despatches the largest stocks of maize. It does not make any direct purchases. In the calendar year 1976, it purchased no maize but sold 1,806, 444 bags. It has a storage capacity of 500,000 bags which is being extended to 700,000 bags. May be this is the argument used by the people who claim that MPB collects maize in a central position and then redistributes. But Nairobi also happens to be a major consumption centre and it also links the surplus supply centres to the west of the country with the deficit consuming areas to the east. It may thus be said that Nairobi plays a very central part in the distribution of maize in the country as a whole.

Kitale is the main depot that supplies Nairobi. Unlike Nairobi, it is a main collection centre and acts as a transit point as it sells very little to millers and consumers. In 1976, Kitale depot purchased 1,089,758 bags of maize and sold 171,933 bags.

It has a storage capacity of 360,000 bags and in addition it has cypress bin bulk storage equivalent to 600,000 bags. During years of good crop when storage becomes limited Kitale depot can issue permits to farmers and agents to transport their maize direct to Nairobi. Kitale is in a strategic supply area of the maize industry. The Trans Nzoia and West Pokot which are served by this depot account for over 1 million bags annually of maize purchased by MPB.

At the other extreme, Kitui depot is like Nairobi; it makes very little direct purchases, and that only during good crop years. Otherwise it is in a deficit area and receives its maize from other depots for distribution in the often famine striken areas of Kitui district. In 1976 Kitui depot purchased no maize but sold 185,176 bags. Machakos depot is also in a deficit area; over the last three years it had not made any purchases and in addition to sales it was providing to the Government 8000 bags per month of famine relief maize for use in the affected areas of the district. However at the time it was visited in mid July 1977 it was found that the good harvest in Machakos District had changed the position. There was no famine relief maize being issued and there were no sales. Instead purchases were so high that the store was full and some agents were being asked to deliver maize direct to Nairobi. In addition MPB itself was transferring some of the maize to Nairobi. The storage capacity at Machakos depot is 40,000 bags. A decision to expand the storage capacity was being processed, but it had been made more urgent by the exceptionally good crop year that had just been experienced in the district.

4.2.4 Millers

The supply of whole maize (unmilled) is not much use unless it is accompanied with milling facilities. In fact MPB sells the bulk of its maize to millers and this is the main pre-occupation of the sales Department in MPB. Millers are required by law to make monthly returns to MPB of the maize purchased, milled and sold. Millers are expected to buy maize from the depots nearest to them. However, one can speculate that some millers find it tempting to buy maize direct from agents or farmers without passing through MPB if they can that way obtain the maize at prices lower than the controlled ones. This appears to have been the case this year as MPB was found to be holding a record stock in history at 4.5 million bags by May, 27, 1977. The estimated maximum milling capacity is around 4 million bags per year, and it is a well known fact that most millers work below capacity. There are also many small unregistered millers. The MPB estimates that this year they may have to export some 2.2 million bags of maize.

Millers margins are worked out taking into account their costs and reasonable trading margin. The procedure followed in pricing has been covered in earlier chapters. It is only in surplus years that millers will resort to buying directly from producers to make higher profits though as already stated this is supposed to be illegal.

4.2.5 Wholesalers and Retailers

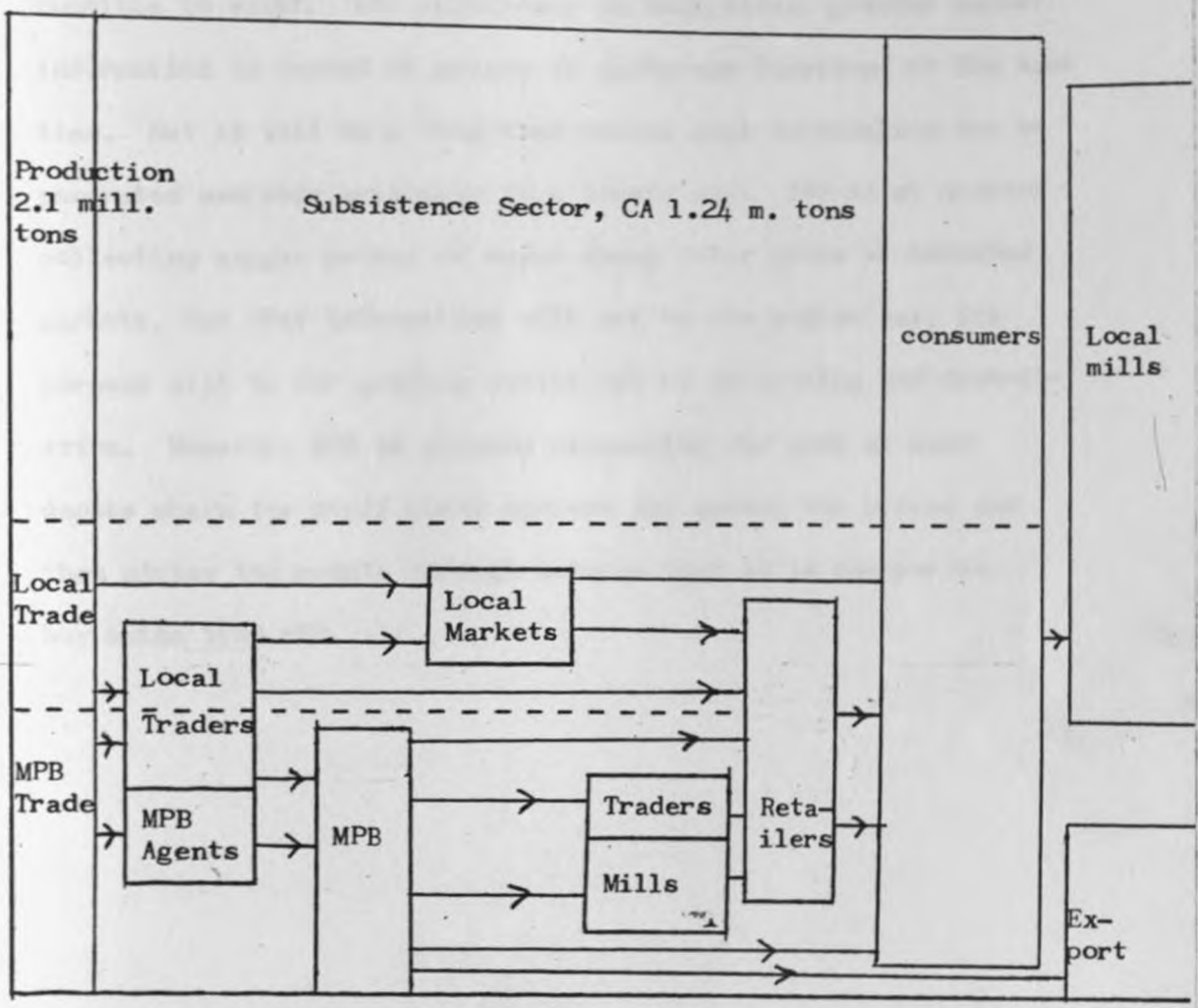
The final channel takes maize meal from the millers to the consumers. The channel may be referred to as that of the wholesaler or retailer. Both MPB and KNTC find the differentiation between wholesalers and retailers difficult to determine as they are engaged in the same task and purchase direct from millers. As a result only a small differential is allowed between wholesaler and retailer. This system may operate to the disadvantage of the small retailer who has to purchase from a wholesaler. However, field evidence did in fact show that the genuine wholesalers do not make a significant profit margin out of the whole operation. It is a known fact that some shopkeepers get no margin from maize meal and sugar but only stock them to attract customers to purchase other products. In the long run, the distribution points tend to adjust themselves to the demand and since this system is intended to protect the consumer it is a rational decision option to follow. Some ideas for improvement are offered in Chapter 7.

4.3 Summary

Figure 4 summarises the marketing channels for maize that were operating in 1975 and include both the formal and informal channels. The two subsystems are not independent of each other. The controlled system influences the price levels and volume traded in the informal sector. An example may be quoted here of purchases in Kirinyaga. Before prices were increased in September 1976 purchases at Sagana depot were 1,000 bags per week because most of the maize was flowing through the informal channel illegally across district boundaries to Machakos where the price in the informal market was above the controlled price. However as soon as new prices at 80/= per bag were announced, the purchases at Sagana depot increased to 6,000 and then 10,000 bags per week. Current trends suggest that the controlled machinery has remained dominant over the informal channels. MPB is buying more than it is selling and its stocks had as already stated, reached the highest in history at 4.5 million bags by end of May, 1977 which was two months before the end of MPB year. This would appear to weaken the argument of those who claim that the MPB plays a marginal role and that it should be used for stabilization only. They also argue that the informal system should be strengthened by setting the market "free" to competitive market forces. But it can be clearly seen that since the price paid for maize was raised which also coincided with two good crop years there has been a clear preference by most producers for the MPB which has definitely

Figure 4

Market Channels for Maize in Kenya, 1975



Source: Olof Hesselmark and Gunter Lorenzl in "Structure and Problem of the Maize Marketing System in Kenya" page 6.

tended to justify its existence.

One therefore assumes that the two channels will continue to exist. For efficiency on both sides, greater market information is needed of prices at different locations at the same time. But it will be a long time before such information can be generated and made available in a timely way. IRS is at present collecting sample prices of maize among other crops at selected markets, but that information will not be for public use, its purpose will be for guiding public policy on pricing and distribution. However, MPB is already pioneering the work at some depots where the staff visit markets and assess the prices and then advise the people through barazas that it is cheaper to buy maize from MPB.

4.4 Marketing Channels for Sugar

In contrast to maize it is said that sugar sells itself and only the means of distribution is needed. Indeed there is no statutory marketing board charged with the organization of the marketing of sugar as is common with other major commodities. KNTC does in fact fulfil the role of distribution but does not service the other links in the chain. Of course Kenya is not self-sufficient in sugar production and local demand exceeds local supply. But that position is changing fast and it is forecast that self sufficiency will be reached by 1980 and a surplus is expected to be generated shortly after that. When that stage is reached, it will be essential to have a statutory body charged with the task of organizing the industry in production and marketing.

4.4.1 The Kenya Sugar Authority (KSA)

KSA was originally conceived and established under Chapter 318 of Agricultural Act to promote the development of the sugar industry. Its functions were to include credit and infrastructure for outgrowers, harvesting, zoning cane to factories, prices to farmer and factory; but in effect its present role is only reporting of statistics to the Ministry of Agriculture. Tate and Lyle proposals see the future of KSA as a holding company for all the sugar investment and being able to control production and marketing much like the Kenya Tea Development

Authority.[26] Nevertheless, KSA provides a useful link between the farmers, the factories and government ministries. It has an economist based in the Nyanza Sugar Belt for the generation of first hand information.

4.4.2 The Role of the Farmer and Processor

The farmer experiences credit and machinery problems in sugar cane production in many areas, and this is where Mumias is a success story in overcoming the problem. The Mumias Sugar Company operates 3500 hectares of nucleus estate and an integrated outgrower system of 10,000 hectares. The company cultivates for the outgrower, provide seed and fertilizer and the farmer plants and weeds the cane. At harvest time the factory cuts and transports the cane to the factory. All these services are provided on credit to the farmer which is recovered when the cane is delivered. Net gain by the farmer amounts to 2265/= per acre (5662/50 per hectare) for first crop, 4114/= per acre for 1st ratoon and 3164/= per acre for 2nd ratoon. This system ensures high quality cane which improves the efficiency of the factory. This is a new management innovation which other factories are now copying to ensure increased production and a better quality crop.

Raw sugar cane is delivered by farmers to factories for processing into mill white sugar. Where sugar is grown far

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26 Tate and Lyle Report on Kenya Sugar Industry. 1975.

from a mill white sugar factory, it is processed into jaggery. The sugar factories also maintain in each case a nucleus estate to ensure a constant supply of raw sugar cane.

Ramisi and Miwani are the oldest sugar factories in Kenya established in 1924 and for 40 years there was no development. A sugar factory requires heavy investment and where the entrepreneur is not assured of high return he would not invest his money in a sugar factory. It is for this reason that the Government of Kenya in its bid to expand sugar production has gone into partnership with other agencies to establish sugar factories at Chemelil, Muhoroni and Mumias, which are operational and at Awendo (South Nyanza) and Nzoia, which are under construction. Although the Government holds majority shares at these three factories they are operated on a management agency basis. A management agency like Booker Agricultural International Limited which manages Chemelil and Mumias provides unrivalled experience. However there are loopholes that have to be watched when signing management agency contracts. Some of these are discussed later in Chapter 7.

4.4.3 Commerce and Industry and KNTC

Sugar is purchased by the Ministry of Commerce and Industry from the factories and Commerce and Industry pays transport costs to the depot. Commerce and Industry makes major distribution decisions. Like maize sugar is a bulky commodity and rail transport with concessionary rates is the

cheapest. Payment to the factory is made from the Sugar Equalization Fund operated by Commerce and Industry through the Chief Accountant in the Office of the President.

KNTC

KNTC only implement the decisions. From the factories sugar is railed to the 18 depots of KNTC that distribute the sugar. Map 2 shows their distribution and geographical relation to the factories. From the depots agents who are designated by KNTC buy and distribute to wholesalers and retailers. The problem of transport costs and retailer margins have been labored already and need not be repeated here.

Since continuous availability of a commodity normally increases its consumption, one may wonder as to whether KNTC system is efficient in meeting the objective. The distribution of depots is limited and it is doubtful if sugar is always available in some remote areas particularly when retailers complain that they make no margins on sugar. Appendix 2 shows the distribution of active agents by district.

Co-ordinating the distribution could be tricky. A Trades and Supplies Officer in Commerce and Industry makes allocations to factories, to send sugar to various depots, before the beginning of the month in which delivery is to be made. These are amended as necessary during the month as production figures are received, with information to KNTC. However, there are occasions when communication breaks down and transporters are sent away from the factories without any sugar due to mis-

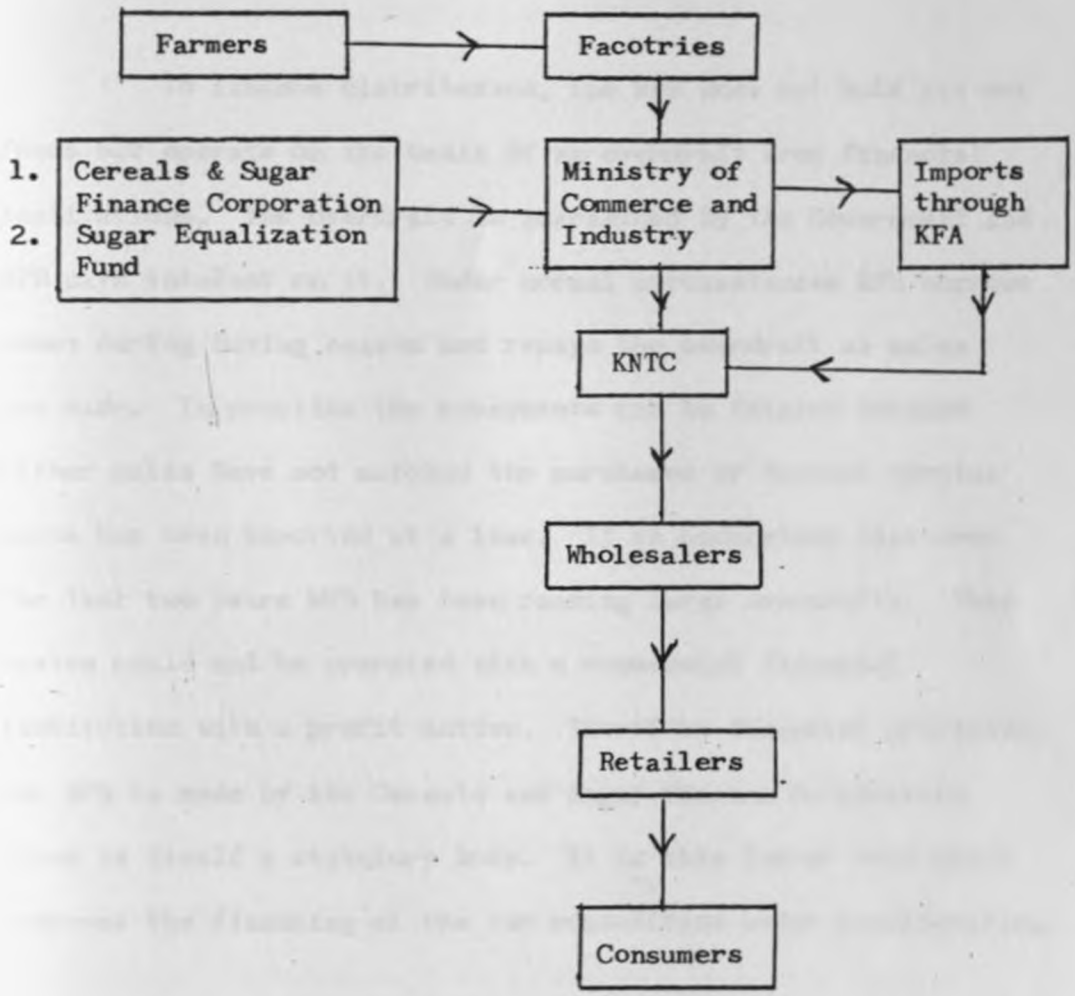
Sugar Factories and Kenya National Trading Corporation Sugar Depots

Source: Base Map – Survey of Kenya

understanding between Commerce and Industry and the facotries. However, this is a rare phenomenon, and the system seems to work. The same office monitors the need for import as necessary report to the Permanent Secretary who in consultation with the Ministry of Agriculture on local production authorises importation. The physical arrangement for importation is done by the Cereals and Sugar Finance Corporation. Figure 5 summarises the distribution channels for sugar. In comparison with maize it can be seen that the arrangements for the production and marketing of sugar are less complicated and that the few problems which arise can easily be dealt with.

Figure 5

Distribution Channels of Sugar in Kenya



4.5 Financing of the Distributive System

4.5.1 Maize Distribution

To finance distribution, the MPB does not hold its own funds but operate on the basis of an overdraft from financial institutions. The overdraft is guaranteed by the Government and MPB pays interest on it. Under normal circumstances MPB borrows money during buying season and repays the overdraft as sales are made. In practice the repayments can be delayed because either sales have not matched the purchases or because surplus maize has been exported at a loss. It is understood that over the last two years MPB has been running large overdrafts. This system could not be operated with a commercial financial institution with a profit motive. Therefore financial provision for MPB is made by the Cereals and Sugar Finance Corporation which is itself a statutory body. It is this latter body which oversees the financing of the two commodities under consideration.

Cereals and Sugar Finance Corporation

This corporation is established under the Ministry of Finance and Planning (Cap 329 Revised 1962). Its sources of funds are: short term borrowing from the local market and through government borrowing abroad from bodies like USAID and the World Bank. Some of the funds from abroad come for specified purposes like USAID loan which is made specifically for small scale farmers who

would not have security to borrow in the commercial market. The Corporation gives the money through KFA, Agricultural Finance Corporation (AFC) and other bodies that reach the farmer. For the distribution of maize, an IBRD revolving loan is provided to MPB. MPB is holding large amounts because of the new higher prices and also the strategic reserve of 2 million bags within a storage cost of 7-10/= per bag and stock cost of 107/= per bag. MPB cannot be judged on this and a decision has now been made for the Treasury to finance the reserve. In the final analysis if MPB incurs losses and therefore cannot repay the corporation, the Tresury will meet the losses from consolidated Funds. All this is done in the public interest to safeguard food supply in the country.

The corporation had a limit on borrowing of £45 million but because of maize marketing, this has been increased to £90 million. When the corporation signs loan contracts it also undertakes to ensure that the loan is used efficiently and therefore when it in turn loans to MPB or any other body, it expects the performance to be in terms of the loan agreement.

4.5.2 Sugar Distribution

In the case of sugar the Ministry of Commerce and Industry purchases sugar from the factories, the payment is met from the Sugar Equalization Fund which is operated by the Chief Accountant in the President's Office. The Sugar is delivered to KNTC for sale and the proceeds paid back to the Sugar Equalization Fund.

Sugar Equalization Fund

This fund is established under the Agriculture Act (Cap 338) Section 19. An amount is added to the retail sugar price which is paid to the fund. At present it is 31 cents per kilogram. However, when the fund runs low the Cereals and Sugar Finance Corporation gives it a loan which is revolving and is repaid when the sugar is sold. The corporation also pays for sugar imports and receives reimbursement as outlined above.

Import tenders are invited by the Sugar Equalization Fund. The Treasury then pays the money through the Crown Agents in London and is reimbursed by the Cereals and Sugar Finance Corporation and this becomes a loan to the Sugar Equalization Fund with interest. When sugar is sold the loan is repaid.

The Fund is also used to subsidise local prices when these fall below world prices. It is a stabilization fund for the consumer. Because of favourable world prices of sugar prevailing at present, the fund has accumulated a good reserve and therefore no loans are being sought from the Cereals and Sugar Finance Corporation to fund sugar purchases. However, in 1974 when world prices were high and imported sugar was costing Shs. 3.50 per kilo against a local price of Shs. 2.40 per kilo the funds ran very low and therefore consumer prices were raised to Shs. 3.20 per kilo to recoup the losses. Under the prevailing trading conditions the government is able to increase prices to farmers and processors of sugar from this fund without a corresponding increase to the consumer.

4.6 Summary

Unlike maize which is processed by many millers, sugar is processed at five factories and this makes distribution and its control relatively easier. Kenya is not yet self-sufficient in sugar and therefore no serious marketing problems arise for this commodity as they do with maize. But that position will change when Kenya becomes self sufficient in sugar production. Meanwhile the Ministry of Commerce and Industry imports sugar to bridge the gap between local production and domestic consumption.

The operations of the Cereals and Sugar Finance corporation are healthy with regard to sugar. The Sugar Equalization Fund may be said to be in a healthy state and therefore there has been no need to draw from the Cereals and Sugar Finance Corporation. In contrast the operations of the Corporation with respect to the MPB is very precarious just now. MPB holds an overdraft from the Corporation of £24 million which it will be unable to repay until certain decisions are taken by the Ministry of Agriculture and the Ministry of Finance and Planning. Some of these decisions involve permission to export to reduce stocks or a review of the interest rate on the overdraft. The interest alone absorbs 65% of MPB cash flow, and this institution is left with little else to deal with problems which may be encountered in the course of its operations.

CHAPTER FIVE

THE ROLES OF THE MAIZE AND PRODUCE BOARD (MPB) AND THE KENYA NATIONAL TRADING CORPORATION (KNTC)

5.1 Introduction

In Chapters three and four the governmental decisions on the pricing and distribution of maize and sugar were examined. It was noted in passing that the control system use MPB and KNTC to enforce the controls by providing a carefully regulated distributive system. In this Chapter, the two institutions will be analysed to assess the extent to which they achieve the intended objectives. MPB which deals mainly with the distribution of maize will be examined in greater detail to provide an example in policy formulation and implementation. The interest in KNTC will centre on its role in the distribution of sugar.

Agriculture is a sector that is widely assumed in the literature to be the most inefficient sector of the developing countries.[27] Within Agriculture in Kenya, marketing has received little attention until recently. Still less attention has been given to marketing of grain and therefore it would not be surprising if significant inefficiencies were detected in the organisation of the parastatal bodies that market food crops. The important question is whether or not intervention

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27 Pan A. Yotopoulos - Allocative Efficiency in Economic Development Research Monograph Series, Centre of Planning and Economic Research, Athens, 1967.

is an essential system though inefficient. An examination of MPB and KNTC should give clues to the answer.

Both institutions are operated under a fixed price system and it is maintained that this fixed price system limits the form of these organisations. But they should in the interest of efficiency of operation for maximisation of their objectives, appraise their goals continuously and attempt to adapt to or control the environment.

The extent to which the marketing structure can be changed depends on the level of administrative skills available to the organisation which can release organizing energy for economic growth. It is not to stress internal organisation structure but rather the results achieved. The organization should provide the members with a means of relating to each other in the conscious, systematic establishment and accomplishment of mutually agreed purposes. To assist in this, information must flow down the line so that a sense of common purpose and understanding is built. The organisation should be responsibility oriented so that each manager has a specific assignment where inputs and outputs can be measured and rewarded.

5.2 The Maize and Produce Board (MPB)

5.2.1 Objectives

This study is builtaround the theory that governmental intervention in the marketing of essential commodities is necessary to safeguard the food supply in the country. It does not question the existence of boards like MPB but rather seeks to analyse the efficiency with which they meet their objectives.

The objectives of MPB as defined in the Maize Marketing Act include: collection, storage and distribution of maize, assessing the magnitude of the crop and advising the minister on consumption rates and surpluses for export; and ensuring adequate reserve. These objectives entail decisions in three key areas. First, intake decisions on when to start buying, to provide financing and arrange storage. The second set of decisions is on distribution and the movement of maize from surplus centres, to consuming centres and that involves deciding on where to take the maize from. Thirdly, decision options must be developed for the minister on the strategic reserve and any exports.

It is argued by some writers that these decisions are rather simple as the rule is to purchase all the maize that is brought to the board and to sell it to those who ask

for it.[28] Hesselmark concludes that the decisions are simple in principle although administrative red tape sometimes makes them appear complicated. This study confirms that it is the administrative red tape beyond the control of MPB that complicates the decision rules rather than the structural organisation of MPB. Some of these external constraints are political or social and cannot be changed. MPB has been organised in a hierarchical system to meet these objectives. Figure 6 shows the organisation chart of the Board. It is admitted that sets of position descriptions and organisation charts are always imperfect descriptions of how things really get done. They do, however, give some order to what would otherwise be such a confusing situation that no results would be achieved.

5.2.2 Organization for Decision Making

Field Services

This department handles intake decisions connected with purchasing, maintaining, fumigating, and movement permits. It derives its inputs from the Economist/Statisticians who forecast yields using a new scientific method developed by the Board. From the yields, output forecast can be made using planted acreage from the Central Bureau of Statistics. Table 11 shows

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28 Olof Hesselmark - The Marketing of Maize and Beans in Kenya: A proposal for improved effectiveness, Discussion Paper No. 225, Institute for Development Studies, University of Nairobi, February 1977, page 16.

Figure 6

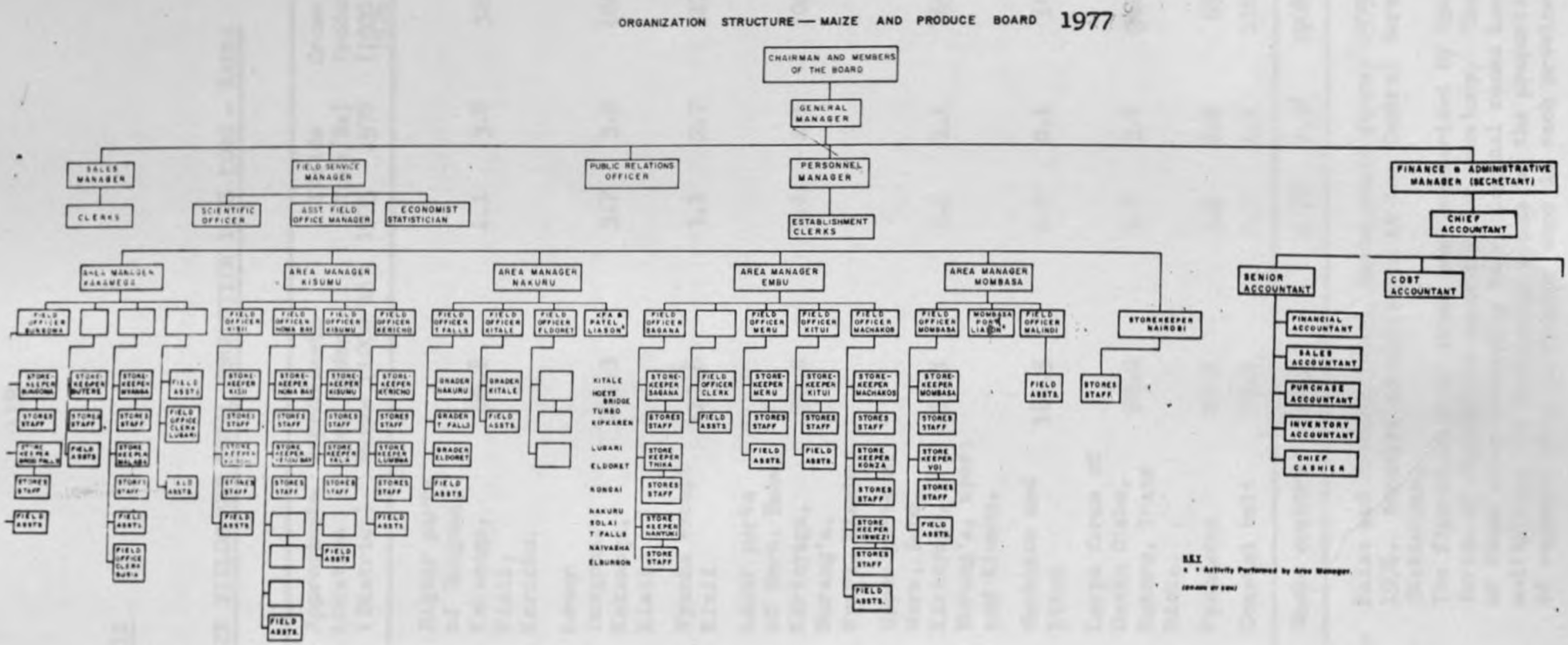
ORGANIZATION STRUCTURE — MAIZE AND PRODUCE BOARD 1977
CHAIRMAN AND MEMBERS OF THE BOARD
GENERAL MANAGER
SALES MANAGER
CLERKS
FIELD SERVICE MANAGER
SCIENTIFIC OFFICER
ASST FIELD OFFICE MANAGER
ECONOMIST STATISTICIAN
PUBLIC RELATIONS OFFICER
PERSONNEL MANAGER
ESTABLISHMENT CLERKS
FINANCE & ADMINISTRATIVE MANAGER (SECRETARY)
CHIEF ACCOUNTANT
SENIOR ACCOUNTANT
FINANCIAL ACCOUNTANT
SALES ACCOUNTANT
PURCHASE ACCOUNTANT
INVENTORY ACCOUNTANT
CHIEF CASHIER
COST ACCOUNTANT
AREA MANAGER KISUMU
AREA MANAGER NAKURU
AREA MANAGER EMBU
AREA MANAGER MOMBASA
STOREKEEPER NAIROBI
STORES STAFF
FIELD ASSTS.
KITALE
HOEYS BRIDGE
TURBO
KIPKAREN
LUBARI
ELDORET
KONGAI
NAKURU
SOLAI
T. FALLS
NAIVASHA
ELBURGON
KEY
x = Activity Performed by Area Manager.

Table 11

MAIZE YIELDS AND TOTAL PRODUCTION 1976 LONG - RAINS

Zone	Approximate Location (District)	Approximate Area under Maize (1000 HA)	Yields (Tons/Ha) 1975	Yields (Tons/Ha) 1976	Gross Production (1000 Tons) 1976
1	Higher parts of Bungoma, Kakamega, Kisii, Kericho.	86.8	4.1	3.8	329.8
2	Lower Bungoma, Kakamega, Kisii.	144.3	3.7	3.2	461.8
3	Nyanza except Kisii	117.6	3.1	2.7	317.5
4	Lower parts of Meru, Embu, Kirinyaga, Murang'a, Nyeri, Kiambu.	50.9	2.1	2.1	106.9
5	Upper parts of Meru, Embu, Kirinyaga, Murang'a, Nyeri and Kiambu.	69.1	3.4	2.4	165.8
6	Machakos and Kitui	181.5	0.7	0.1	18.2
7	Large farms of Uasin Gishu, Nakuru, Trans Nzoia.	92.6	3.7	3.7	342.6
8	Nyandarua	25.2	3.5	2.2	55.4
9	Coastal belt	73.4	1.7	1.5	110.1
TOTAL	Whole country	841.4	2.73	2.38	1908.1

Source: Maize and Produce Board, Maize yield survey 1975 and 1976. Acreages as published by the Central Bureau of Statistics.

Note: The figures on crop areas were summarized by the Central Bureau of Statistics according to province. The approximation of these areas according to ecological zones has been done by multiplying the provincial areas by the proportionate number of segments of a particular zone in each province.

yields and output as derived by this method for 1975 and 1976. The forecasts help with planning storage and movement facilities. Area Managers who are based in the field monitor the environment and through Field Officers and Depot Managers take decisions on when to start buying and during buying ensure quality and that moisture content does not exceed 13%. All fair average quality (FAQ) maize is acceptable under existing legal requirements. This is one of the external constraints that complicate matters and lower the standard of maize delivered. Until September 1976 maize was graded in three categories: grade I allowed 13%, grade II 20%, and FAQ 17% of defectives and the prices also differed. The current government ruling is that all maize fetch same price. After delivery, the scientific officer provides fumigation and preservation facilities.

These decisions can be regarded as simple where the size of operation is small. But when more farmers want to deliver maize than can be handled at a time then a quota system is necessary and permits should be issued only for such amounts as can be handled. Most farmers are impatient and soon queues develop with the attendant claims of corruption and then a crisis is created. The Board uses rail transportation because it is cheap and gives concessionary rates. For example, one bag of maize costs Shs. 10/50 to rail from Kitale to Nairobi but the Kenya National Transport Company (Kenatco) which is a public company would charge 8/= per kilometer for a lorry carrying 275 bags. When the railways are short of rolling stock and the Board cannot move maize then there develops a pile up in the

surplus area, beyond the control of the Board. The Board operates on an overdraft from the Cereals and Sugar Finance Corporation on terms that were outlined in Chapter four.

In the past, the decisions on the buying season were simple. The local MPB staff opened buying when they were satisfied that the maize was dry enough. Subsequently, the season closed when no more farmers delivered maize. This situation has changed and farmers seem to be delivering maize throughout the year. In Kitale the normal buying season was supposed to be November to June and in Nyanza there were two seasons, July to August and January to February. But all these have changed and in the current year field evidence has shown that maize is coming in at all times. It has therefore become necessary to take a decision to make a definite buying season. This proposal is being put to the Board of directors by the management. Storage seems to be a major problem in decision making. At present the storage facilities available can handle 5½ million bags at one time. However, since 1976/77 stocks have remained at their highest level at 4.5 million bags and the cypress bins with a capacity of 1 million bags were not being used bacause of high moisture content of the maize, a maximum of 11% is required, and therefore at the end of May, 1977 several depots had stacked maize outside under tarpaulin sheets : Turbo - 63591, Kisumu - 49,179, Kitale - 220, 313, Nairobi - 35,205, Eldoret - 34,018, Kendu Bay - 16,798, Moi's Bridge 102,862 and another 500,000 bags were expected to be purchased. Nairobi alone was expecting to stack outside 200,000 bags mainly from

Kitale farmers. In view of these storage shortages the Board plans to extend or build new depots with additional storage capacity of 500,000 bags. New depots were planned at Kihancha, Yala and Mwingi, Sagana, Thika and Eldoret. By the middle of June additional storage for 200,000 bags had been completed: Nyahururu - 40,000, Kipkelion - 80,000, Nakuru - 80,000 and these are included in the total count of storage capacity but Nairobi with an additional storage of 220,000 due for completion soon is not included.

A Scientific Officer who holds a Bachelor of Science degree heads a team of 5 fumigation officers who ensure that depots are kept clean and free from pests. In the past farmers were paid an extra 20 cents per bag if they used insecticides but this was stopped because of dishonesty among some farmers. But this has created a big fumigation problem because weevils attack the maize within 2-3 weeks of its delivery. It has been decided to re-introduce the subsidy on insecticides.

In the process of transferring some responsibility to the farmer, MPB is arranging for farmers to be subsidised for storing maize under proper condition on their farms. Co-operatives are also being encouraged to collect maize and deliver to MPB. This will eliminate the middle man (trader) in most areas. The trader is at the moment exploiting the farmer by buying maize at 50/=-60/= per bag and selling to MPB at 80/= per bag or in the informal channel for higher prices.

Grading is an important aspect. Most maize is accepted as fair average quality (FAQ) which allows 17% spoilage. All reasonable maize fetch the same price but the Board is negotiating

this to revert to old regulation of different prices for different grades.

Sales Department

This department handles distribution decisions. MPB is often criticized for not fully undertaking marketing functions. But its task as stipulated by the Act and as perceived by its management is to feed the nation and hold adequate stocks on reserve. Moreover, MPB is expected to buy all the maize that is offered in good condition and to sell whatever the market condition. This limits its operations as a commercial undertaking. But their role cannot be filled in any better way. In any case no middleman would accept to assume the risks associated with large inventories that characterize MPB operations. However, efficient performance of the distribution function require maintenance of adequate stocks at strategic geographical locations, with distributors and retailers to serve the market promptly. MPB meets this need through a network of depots. These are too concentrated in the producing area and the Board is now pursuing a policy of building more depots in the deficit areas. One such project is for Mwingi in Kitui. But the task of MPB is supposed to end once maize has been sold although it requires millers to send returns every month of their purchases, maize milled and sold. There are 53 millers in the country registered by the Board and 12 Provender millers catering for stock feed.* During the buying season maize is railed direct to millers in Nairobi from Kitale and this saves on storage.

* see Appendix 2

In the dry areas, the government gives famine relief and where the relief is free nobody buys maize even those who can afford. The policy now is for famine relief not to be free but to be subsidized. For example, the government buys from MPB and sells at a subsidy rate of 70/= per bag. Where people cannot afford even the subsidized rate, they are given free by the government.

Personnel

The personnel department is a service department that serves the line management in dealing with personnel matters including training. He maintains the link between the departments.

Finance and Accounting

The Financial adviser is also the company secretary. He is not a lawyer as most company secretaries would be but he has wide experience of finance from the Treasury and has served the Board for many years. Under him is a Chief Accountant and Senior Accountant who are professional accountants. They monitor the stock position by maintaining inventories from weekly returns received from all the depots. The returns show maize stock position at the end of the week. The Accounts Department summarize stock position for each month and forecast expected purchases and sales depending on weather conditions. The Department of Meteorology send rainfall figures for selected

stations. The summaries are made available to the board of directors for important policy decisions.

Policies

So far the description has been on the routine decisions that MPB management staff make in the process of implementing controls to meet the objectives of the Board. Apart from these routine decisions there are important policy areas where the Board through its board of directors provide advice to the minister of Agriculture. The final decision is made by the minister quite outside the control of the Board and yet those decisions affect the performance of the Board.

It has been pointed out that the fixed prices limit the organisation of the Board and yet the Board is not allowed to play a part in their formulation. But that apart, two decisions have an important bearing on the operations of the Board. One is on the financing of the strategic reserve. In the past the Board had to carry the stocks of strategic reserve on its accounts. Fortunately, it has now been decided that the Treasury will finance the reserve of 2 million bags. This will improve the financial position of the Board. The most sensitive decision is that of the disposition of the surplus maize that is not sold for consumption in the country. Through the stock summaries provided every month, the Ministry of Agriculture is kept in the picture on stock position. The board of directors make certain proposals on disposition. But the ministry may take such a long time to decide that the Boards operations become

jeopardized. Moreover three ministries are involved in the decision: Agriculture, Finance and Planning and the President's Office.

By the end of May 1977, no decision had been taken on exports and this has aggravated the storage situation. In comparison, one notes that by May last year, 2 million bags of maize had been exported. The stocks are at their highest this year and an urgent decision is necessary on exports. However, the position is made difficult by the low world maize prices. The world prices are about $110 per tonne but the Boards needs at least $160 per tonne of Mombasa to cover its costs. If it were possible to export to Tanzania or Uganda then a better price would be received. But the important thing is that the Ministry of Agriculture should take a decision. An alternative outlet is to sell for stock-feed at a subsidized rate. Apparently, a decision has been made on this but it is taking time to convey to MPB. The Treasury has to find money to finance. In years of shortages, MPB would advise the ministry of Agriculture on importation. Again decisions might be delayed and this could cause a crisis. A situation arose in 1964/65 when MPB monitored through its stock management an impending shortage and advised the minister. There followed a cabinet reshuffle that transferred MPB to a new Ministry of Co-operatives and thus split maize between production and marketing. A delay in authorising imports caused serious shortages.[29] MPB was blamed for the shortages until the inquiry cleared them. A situation

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29 Kenya Maize Commission of Inquiry 1966.

like this is unlikely to occur again with the strategic reserves but it demonstrates how institutions can be judged on decisions beyond their control.

In 1970/71 when there was a crop failure, because of inadequate rainfall, the Board took steps to encourage as much maize intake as possible by lowering quality standards. For example moisture of 15-19% was accepted. Also as a preventive measure stockfeed was cut down. 1971/72 was a reversal as heavy crop was taken which brought to the fore needs for long term storage.

MPB has a board of 12 directors headed by a non-executive chairman who like the other members is appointed by the minister of Agriculture and is responsible to that ministry for the performance of its functions. As a statutory board, MPB comes under the surveillance of the President's Office through the Inspectorate of Statutory Boards. The ministry of Finance and Planning control financial matters and is represented on the board.

The board considers general policy matters and leaves the management to perform the executive duties. MPB is characterized by specificity in role, in channel and context of communication. All the departmental managers report direct to the General Manager.

5.2.3 Performance

In the light of the objectives and the external constraints on MPB, one is tempted to say that MPB tries to do an excellent job in difficulty circumstances. In any case the alternative to MPB system that is claimed would be more efficient, i.e., the private entrepreneur, is unlikely to accept the risk of tying funds in storage facilities and stock and to accept such a small margin of profit. In 1958, the overhead of control was Shs. 3/30 per bag or 5%. Now it is Shs. 8/50 per bag or 9% of MPB selling price and constitutes 12% of what the farmer received at Shs. 80/= per bag. In the absence of any control the farmer would be even more exploited. It is argued that MPB does not reach all the farmers and that farmers have no alternative in such a situation or when MPB cannot accept maize because of lack of storage but to sell their maize to the informal channel at lower prices. Co-operatives are being encouraged to assist the small growers to collect maize and deliver to MPB. As for storage which is a problem afflicting the large scale farms, MPB will assist with a subsidy for storage on the farm.

MPB is often criticized for being marginal in meeting its functions. But progressively with improved prices, less and less maize is going to the informal sector. MPB now accounts for 40% of the marketed maize. This is considered to be a high rate of intervention by government. On the distribution side, MPB is limited by the fact that it does not control the distribution of maize meal which is the main form in which maize is consumed.

A better distribution of maize meal would increase sales from MPB. However, MPB stocks appear to be managed carefully. All the maize that spills in the process of handling is cleared and bagged. On the whole, loss through spillage, shrinkage, weevil damage and transit loss account for ½-1% of the stock. This is low compared to 3% loss normally allowed for such Boards.

Even without setting the market free, MPB need to strengthen its marketing capability. Already attempts are being made to distribute maize from stocks to areas of demand and new depots are planned for places like Mwingi in Kitui. However, more needs to be done to improve infrasturcture and information of the rural markets. IRS price information should be invaluable to MPB who already address barazas to inform people of the availability of maize at controlled prices. Table 12 shows a sample of the prices generated by IRS on selected markets, and thereby underscores the role of IRS.

In view of the large surpluses being generated it is necessary for MPB to develop efficient distribution and to find other uses to diversify. Stockfeed has already been mentioned but other Industrial usage should be investigated to cut on export when world prices are low. One other possibility is that of exporting maize meal. At present the law does not allow for this. It is mainly to protect local supply as it would be difficult to control the millers. However, MPB is building a mill at Nakuru which will process 100 tons of maize per day. This is in anticipation or rather a step in moving milling from private enterprise. If MPB produce maize meal then that can be exported instead of exporting maize.

Table 12

MAIZE PRICES - HIGHEST PRICES QUOTED PER KILO

IN SELECTED MARKETS APRIL - JUNE 1977

Market	April	May	June
Luorida	1.40	1.50	1.50
Oyugis	1.10	1.00	1.10
Gamba	1.00	.90	1.00
Sondu	1.20	1.10	1.10
Ahero	1.20	1.30	1.30
Keroka	.80	.95	.85
Migori	.80	.70	.70
Bahati	.75	.90	.95
Ndundori	.80	.90	.95
Karatina	1.15	1.10	1.30
Kutus	1.00	1.00	1.10
Mwendatu (Meru)	1.10	1.20	1.10
Kiocsa	.60	1.00	.80
Kikima	1.20	1.60	1.50
Wundanyi	-	-	-

Source: Field Survey Supplement with CBS experimental survey.

The current procedure followed in exporting maize is also not in favour of MPB. Once the Minister of Agriculture, in consultation with the President, has authorised exports MPB calls for tenders as they are not allowed to export direct. MPB rails the maize to Mombasa paying transport costs and loads on the ship. There is not much left to be done, to merit the commission paid to the exporters. The argument is that the exporters will have a better knowledge of the world market to know where the best prices are prevailing. But an improved marketing department of MPB should have the capability of monitoring world prices.

5.3 Kenya National Trading Corporation (KNTC)

The Maize and Produce Board has been analysed in detail because of its functions and operations which have become very controversial. Many writers have recommended setting the market free and this analysis has attempted to show that the problem is not so simple and in any case the prices introduced in September 1976 have completely changed the maize industry. KNTC is not in that position; it was set up for quite different purposes and is handling a commodity which is different from maize in many respects.

Sugar is processed at a few factories and is delivered all to KNTC depots giving that organisation a complete monopoly in the distribution. Sugar is said to sell itself and that only a distribution system is needed. KNTC provides that service through a network of 18 depots and - agents scattered throughout the country. Appendix 3 shows the number of distributors in each district, and Map 2 shows the various KNTC depots throughout the country.

5.3.1 Functions

The KNTC was formed in 1965 under company act as a limited liability company, to deal with physical distribution of domestic manufactured goods. It started its operation with sugar but now deals in 41 commodities although sugar still forms over 70% of its total turnover. Its role was to Kenyanize the wholesale and retail trade and assure that small villages are provided with essential commodities.

It has been stated elsewhere that the Ministry of Commerce and Industry takes all the distribution decisions and KNTC simply implements them. Most of the residual decisions are routine programmed type. The policy decisions are made by a board of directors consisting of a Chairman and ten other members representing the government and the trade. The day to day business of KNTC is the responsibility of the General Manager and his management staff. KNTC has organised itself in functional departments. Figure 7 represents the organisation chart of the company. KNTC places great emphasis on man-power resource development. The Personnel Manager has the responsibility of arranging training programmes both locally and abroad. The measure of his success is seen in the level of Kenyanization. All the management positions are filled by Kenyans. KNTC employs 270 permanent staff and 800 casual staff to help with handling various items but mainly sugar.

5.3.2 Policies

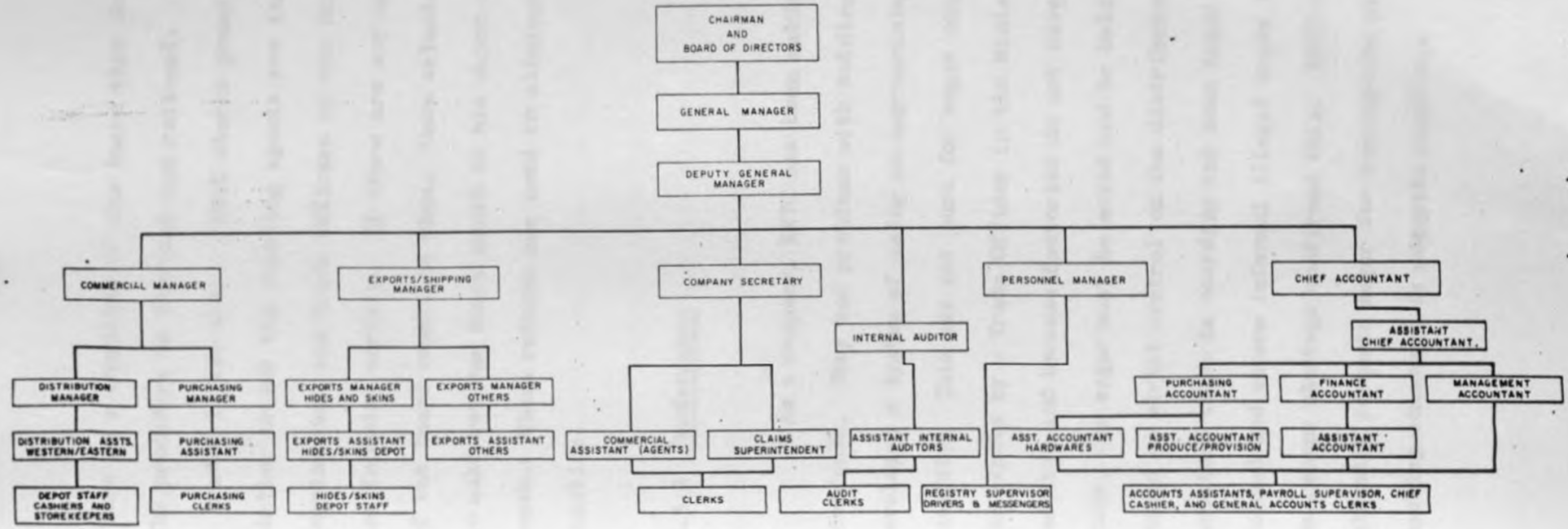
In meeting its objectives KNTC makes decisions in two key areas. First the distribution of depots have to be decided on. There are some depots which run at a loss but because this is a service company as well as a commercial undertaking it can make a deliberate policy to spread services even where they are uneconomical in the public interest. However, overall the financial position has to be balanced. There are 18 depots handling sugar with proposed new ones for Garissa and Wajir. Secondly, agents who distribute the sugar have to be selected.

Figure 7

KENYA NATIONAL TRADING CORP. LIMITED

ORGANISATION CHART

(MARCH 1977)



There is a committee of the Board that does the selection. The procedure is thorough and rational. Any applicant must be a trader in the area. KNTC checks premises and verifies whether or not the existing agents are inadequate. The District Commissioner and Trade Officers of the Ministry of Commerce and Industry certify. If there are any appeals the full meeting of the board considers them. Once selected an agent is required to make returns every month to his depot of the sales in the month. These returns are used to eliminate agents who become inactive.

5.3.3 Performance

As a company, KNTC has been making profits and declaring dividends. They had problems with holding high stocks but they developed a system of using an appropriate economic order quantity. This may not work for sugar which is allocated to the depots by a Trade Officer in the Ministry of Commerce and Industry and because factories do not have storage for holding stock, the sugar must be moved and be held in KNTC depots. There should be strict control on the distributors but on many occasions there is hoarding and some sugar leaves the controlled channed and enters informal illegal trade through smuggling. The recent shortage confirmed this. KNTC claimed that it was releasing adequate sugar for consumption and yet it was not reaching consumers in adequate supplies.

The question of coverage is also tricky. KNTC attempts through its agents to reach all the people in Kenya. But the agents are limited by lack of capital and may not always be in a position to stock enough sugar. It started by giving sugar on credit, but there was a high rate of defaulting and the company did not have enough capability to cope with bad debt collection. Credit was stopped and all sales are on a cash basis. However, the traders can take loans from Industrial and Commercial Development Corporation (ICDC). ICDC has the capability to handle, and the machinery to collect loan repayment.

KNTC operates on a commission basis which varies with the commodities. In the case of sugar a commission of 3/23 per bag is charged. Margins for distributors is considered low particularly the transport allowance which the Price Controller fixes. This creates a problem of finding transporters who will accept the low margins. The company had a problem when it opened a depot at Embu and the Price Controller could not agree on a selling price. Rent was paid for six months while the depot remained empty. The Price Controller also only approved 2/50 per bag transport allowance from Sagana to Embu whereas transporters wanted a minimum of 3/25. Eventually the Price Controller found a transporter who could accept 2/80 but KNTC margin was reduced to meet that. Trader's margins are also too low. It is felt that they could be paid more from the share of the factory but this suggestion will be considered more fully in the next chapter. The zoning of price areas is also not rational. For example, traders in Kiambu buy their sugar in Nairobi and sell in Kiambu at the same price as in Nairobi.

Maybe Nairobi traders meet higher overhead costs but that could not be as high as the cost of transporting the sugar to Kiambu. KNTC feels that its representation on transport should receive a better hearing from the Price Controller and that the District Commissioners who are Assistant Price Controllers be used more by the Price Controller to provide information on transport rates in various parts of the country. In any case the transport rates for KNTC agents had not been revised for the last five years. Those in Kisii wanted 9/= per bag to transport sugar from the Nyanza Sugar Belt factories to Kisii against the present rate of 5/=; Thika to Machakos wanted 4/= against 3/10 and Nanyuki to Meru wanted 6/= against 3/50.

One may ask whether KNTC should continue as a monopoly or with increasing private capability in commerce it should accept competition that could test its efficiency. It is unlikely that the stage has been reached. Commodities still disappear from the shops and without central control of essential commodities, the consumer may be exploited. Besides, some remote areas may suffer from lack of entrepreneurship and therefore a central body to undertake the services even when uneconomical is necessary and KNTC plays this role. With regard to Kenyanizing the distributive trade, one can say that KNTC has been very successful.

5.4 Comparisons between MPB and KNTC

The Maize and Produce Board and the Kenya National Trading Corporation are statutory boards. The former deals with the marketing of maize which is controlled and lesser food crops like beans, sunflower, bixa, cashewnut, peas, wimbi, millet, sorghum, green grams, groundnuts, rice and caster seed which are not controlled. The latter handles the distribution of locally manufactured goods but there is no legal control so that like MPB, KNTC finds that some manufacturers distribute their products direct and thereby making market penetration difficult for appointed agents. However, sugar which forms 76% of its turnover is marketed under control. These are both service organizations serving the public interest. However, MPB is more of a service organization than KNTC which is also profit motivated. When KNTC makes a profit it declares dividents whereas when MPB makes a profit it ploughs it back in the form of higher prices to the farmer. This point is demonstrated by the cashewnut venture at the Coast. There MPB is in partnership with the Industrial and Commercial Development Corporation (ICDC) and the Industrial Development Bank (IDB) in processing the cashewnuts. When a profit is made ICDC and IDB want the profit retained or distributed as dividents. But MPB would like instead to increase the price to the farmer. On one occasion there was such a deadlock that MPB appealed to a higher institution which authorised the higher prices.

MPB is arranging for a second cashewnut factory at

Kwale which it is undertaking singly and which it hopes to leave entirely to a farmers co-operative once the loan is repaid. KNTC would of course operate on the same lines as ICDC but to be fair to them one has to accept that they are incorporated as a commercial undertaking.

KNTC itself distributes in addition to sugar, cement, salt, hardware, bicycles, matches, textiles and others all together 41 commodities. The purpose of KNTC was to Kenyanize the distributive trade whereas MPB has the task of feeding the nation so one can see the national importance implied in these functions.

MPB deals with both producers and consumers and therefore has to organize itself for the decisions inherent in those relationships. The decisions have been dealt with in the preceeding sections. When there are shortages of maize or rice or beans the public outcry is directed at MPB for an explanation. However, shortages of sugar or cement do not create a crisis for KNTC. The crisis is directed at the factories or the ministry of Commerce and Industry. So in a way KNTC is protected and as was pointed out earlier, it does not make decisions on planning it only takes routine programmed operational decisions.

Looking to the future one might ask what these two organizations might be like. In the next two chapters, MPB will be analysed in terms of future operations in either a 'free market' or with increased participation in a controlled system of marketing. Those who advocate a free market see the qualitative role of MPB increasing while the volume of operations decrease. From the analysis so far the reader will have a clue that this thesis does not advocate freeing the market. But that

will be discussed in the last two chapters. In the circumstances, the role of MPB is seen as increasing with more crops being brought under it. On the other hand the role of KNTC may well decline. Sugar forms it main operation and without sugar it would find it difficult to finance itself. Table 13 shows the significance of sugar in KNTC operations. At present Kenya is not self-sufficient in sugar and the ministry of Commerce and Industry has to import sugar. This situation is changing rapidly with a possibility of export surplus before 1985. The expansion of the sugar industry anticipates the formation of a body that would handle both production and marketing. Such an institution might be an expanded Kenya Sugar Authority. If that were so then sugar may be transferred from KNTC but even if it remained, KNTC would merely continue as an agent with no increased role.

Both MPB and KNTC have a policy making board of directors appointed by the minister for Agriculture in the case of the former and the minister for Commerce and Industry in the latter case. The members include government officials and private citizens who represent geographical areas as well as relevant trades. KNTC board has 11 members including a chairman and government representatives come from Commerce and Industry and ICDC. MPB board has 12 members and wider government representation from the President's Office, Agriculture, Finance and Planning, Provincial Commissioners from Coast and Western Provinces. This demonstrates the onerous public responsibility that MPB has to shoulder. Their management organization has

Table 13

KNTC TURNOVER

Year ending 30th June	Value K£ Million			Sugar Value as % of total
	Total	Sugar	Other Products	
1965-66	8.13	7.5	0.63	92.3
1966-67	7.96	7.6	0.36	95.5
1967-68	11.30	8.4	2.90	74.3
1968-69	12.33	9.1	3.23	73.8
1969-70	14.70	9.8	4.90	66.7
1970-71	16.02	11.3	4.72	70.5
1971-72	20.09	13.8	6.29	68.7
1972-73	23.96	15.9	8.06	66.4
1973-74	25.88	18.8	7.08	72.6

Source: KNTC Annual Report - 1974.

already been described. For the size of the operations their staff complement is minimal. MPB employs 850 people and KNTC employs 270 people but in addition use external management agencies. Both engage casual employees for loading and unloading the commodities.

In 1974/75, KNTC made a profit of £330,813 from a total turnover of £34,117,718 and declared 30% dividend.[30] For the same period MPB had sales worth £13.3 million although operations were conducted at a loss of £292,205 due to the price structure and the need to write down stocks to realistic market levels.[31] MPB cannot be judged on this performance which is influenced by external environmental factors beyond its control.

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30 Kenya National Trading Corporation Limited Annual Accounts and Report: 1974/75.

31 Maize and Produce Board Ninth Annual Report 1974/75.

5.5 The Role of the Inspectorate of Statutory Boards

The Inspectorate was established in the ministry of Agriculture in 1965. It was started at a time when the management of Boards was changing hands as expatriate staff were leaving and local persons with relatively little managerial experience were taking over. The Inspectorate was therefore expected to be a watchdog for their performance and also to advise them on better management. It did not have a legal establishment and today it has no legal authority except that it derives its powers from the President's Office.

Originally the Inspectorate was to cater for only agricultural marketing boards. However in 1970 it became clear that even other boards needed the services of the Inspectorate. It was then that the Inspectorate was transferred to the Office of the President to undertake this work for all the boards. The Inspectorate is not officially appointed to the board of directors but attends board meetings of all statutary boards. However, there are over 100 such boards and it is not possible for the Inspectorate to attend all of them. From the circulated board papers and agenda, it is possible to know which meetings need the presence of the Inspectorate.

The Inspectorate is meant to co-ordinate all the information from the statutory boards for the cabinet. It is an overseer in a mixed economy of both private and public corporations. It is meant to study the information on overall position of boards more thoroughly than either the ministries of Agriculture,

Commerce and Industry, Finance and Planning, or any other operating ministry for a particular board. It checks on the performance and accountability of the boards and has public relations work in helping to advise the boards on procedure and government policy. In practice the Inspectorate is understaffed to fulfill this role. It has one Inspector with professional accountancy qualifications, two Senior Assistant Inpsectors with legal and auditing qualifications; two posts of Assistant Inspectors requiring commercial and accountancy background are unfilled. The present staff are well qualified to undertake the task. Nevertheless the Inspectorate needs to be strengthened to undertake the duties which the Ndegwa Commission recommended.

That Commission saw the Inspectorate as fulfilling a useful role but wanted it to undertake more professional lines in assisting the boards. The Ndegwa Commission saw the duties as including management costs and efficiency studies, financial reporting, accounting procedure and organization and methods.[32]

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32 Report of the Commission of Inquiry (Public Service Structure and Remuneration Commission) 1970-71, Government Printer, Nairobi 1971 page 210.

The Inspectorate is rightly located in the Office of the President because it is there that all final decisions must be made. But the decisions should be based on facts and reason rather than the use of power.

The Inspectorate should not involve itself with planning, policy and administrative issues but the board of directors should oversee policy and planning functions of the boards. To achieve this it is necessary to have a clear delineation of authority and legislative precision in respect of the functions and organizational structure for a given board.

5.6 Summary

This chapter has discussed the functions of MPB and KNTC which are the main institutions involved in the distribution of maize and sugar. They have been examined in terms of organization to meet the objectives. For the boards to function properly and meet their objectives it is necessary to establish good personal and business relationships between top managers in the civil service and parastatal bodies. The civil service should involve itself with policy formulation for the boards and to delegate decision making and implementation of policy to the boards.

Once the civil service has delegated authority to the boards, the latter are in turn expected to exercise that authority in accordance with good management practices. Such new techniques can only be acquired through training of staff and recruitement of younger people with the right qualifications.

Some comparisons for the present and the future have been made between KNTC and MPB. These two boards are different in their functions in that MPB is charged with the task of marketing a staple crop, maize, while KNTC is a semi commercial undertaking which was started to help indigenous people to take over the distributive trade.

Both MPB and KNTC should continuously redefine their functions to meet changing economic and social environmental conditions.

A section has been included on the Inspectorate of Statutory Boards which is under the President's Office and sits informally on the boards of these institutions. It performs an audit function in controlling the statutory boards. It is emphasized here that it should leave the function of overseeing policy and planning functions of the boards to the relevant ministries and the board of directors and to provide professional advice to the boards.

The descriptive exposition of the marketing system is now concluded. Attempt will now be made to relate the descriptive chapters to the chapters which form the background and theoretical framework for decision making in food marketing. This synthesis is the theme of chapter six and chapter seven.

CHAPTER SIX

FINDINGS AND OBSERVATIONS

6.1 Introduction

This study has employed a systems approach that helps to break down the policy process into its component elements and aids in the identification of the forces that shape policy. From the description in Chapters three, four and five it is now intended to highlight some of the elements of decision making that were found to be significant in terms of the objectives of the governmental food marketing policy. The hypothesis is that in the colonial time policy innovations such as the manipulation of pricing and marketing favoured the few European farmers. In the changed environment of independence, the policy is to divert a larger proportion of development resources to areas or individuals previously denied access to them. This is a general policy but it can be applied specifically to agricultural marketing where it gains greater importance because 80% of the population derive its livelihood from agriculture.

At independence Kenya inherited a relatively efficient civil service. In some ways it was not adapted to the task of delivering developmental services to the mass of the people. Agricultural marketing boards and some services of the Ministry of Agriculture for example largely served the expatriate farmers. But an efficient machinery existed and it was easier to adapt

and reform the structure than to build one from nothing.[33] It is therefore not surprising that some structures of the past still exist but if they meet the objectives of the present situation, there is nothing wrong in continuing them. From the experience of some of Kenya's neighbours it would appear that it is wise to tread the path of change carefully. But this is not to say that the system is perfect and the purpose of this study has been to analyse it in terms of the constraints that it faces.

The biggest constraint is the political influence on authority delegation which needs remedying and in order to do that the top managerial level has to be defined. In the present study it appeared to be in the ministries, but it needs modifying to achieve modernization so that policy may be processed in a more efficient way. Some of the political influences and pressure groups will be discussed shortly.

This study has identified three types of decisions in the pricing system. There are some independent decisions taken by the chief executive to meet certain circumstances and the circumstances do not normally allow for consultation with the official administrative machinery. These decisions are rare although their impact can be far reaching. Secondly there are decisions taken through the administrative machinery. That is, decision inputs are processed through the various stages that assess them and select the best alternative courses of action to meet the demands. In other words they are processed using the

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33 Gerald Holtham and Arthur Hazlewood - Aid and Inequality in Kenya Odi 1976.

scientific approach to decision making. Finally there are decisions which by-pass the official machinery and bring pressure to bear at the level where demands are expected to receive the greatest reward. This type of pressure leads to disjointed decision making with adverse effects. Figure 3 attempted to portray this situation which is to be discouraged. However, it can only be stopped if the pressure groups are allowed an official channel and participation at a level where their inputs receive due attention.

The present procedure of making pricing decisions does not draw enough from the environment. Informal consultations exist but mainly of a one way communication in which various pressure groups make their representation to policy makers who may use them as and when convenient. There is need to have a more formalized system for these exchanges and it is for this reason that the establishment of sub-committees for the proposed Agricultural Price Determination Committee is being recommended.

6.2 Approach to Price Setting

6.2.1 Criteria

In a free market the forces of supply and demand set prices. In a monopoly, a seller can select the level of output and price that offer the greatest returns relative to his cost of production. An appreciation of marketing of agricultural products is required to guide governmental action. Since government monopoly is supposed to act in the public interest, it is all the more important that they follow an enlightened and rational pricing policy.

From the analysis contained in Chapter Three, it will be noted that the pricing of both maize and sugar are based on historical costs of production to the farmer and similarly to the other channels of distribution. The use of farmer's cost of production is questionable because the demand for the product has to be taken into account. Furthermore there is no one cost of production but a wide range of costs depending on the soil, rainfall, size of the farm and the capacity of the farmer.[34] At present average costs used are derived from large scale farms whose costs are normally higher than usual. However it must be accepted that in times of adverse conditions their decision to produce or otherwise can have important consequences for the supply situation.

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34 D.R. Campbell Pricing Farm Products, Ministry of Finance and Planning, Kenya, 1972 (unpublished).

A better method, in theory, is to base the price on anticipated supply and demand. In practice it is difficult to anticipate conditions of supply and demand. In the case of maize, regulated producer prices in 1969 and 1970 were set largely at what was anticipated to be the likely supply and demand, that is approaching the net export price.[35] In retrospect this turned out to have been too low (Shs. 25 per bag). In 1971 the price was increased but obviously was still below the supply and demand price and supplies were soon exhausted. Tables 4 and 5 show these trends. Since 1972 the price has been increased progressively until today it is above the net export price. This has been criticized as exploitation of the consumer by the producer but government decisions look at wider benefits rather than purely accounting ones. The export losses arising from the pricing system are accounting losses but when one considers the alternatives of having inadequate supplies and possible imports then one begins to appreciate the social benefits to the community. So the difficulty facing the policy maker can be appreciated. It is difficult to arrive at prices that will clear the balance of the surplus and yet take account of the probability of poor crop years, arising from weather conditions.

Nevertheless there are some considerations necessary for arriving at prices that are fair to the farmer and the consumer. It is essential to strike a balance to achieve the objectives. If producer prices are low then there is rural to urban migration and if consumer prices are high they affect cost

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35 op.cit. Campbell.

of living and income distribution by reducing real income of the wage earner. Some of these considerations will be discussed in the next chapter.

The criteria for pricing sugar between the grower and the processor does not appear to be equitable. Besides prices have been inconsistently increased to the benefit of the factory and not the farmer. Factories seem to want a rate of return above 20% which is unrealistic. This conflict creates a polarization of opinion between the farmer and the factory, each stressing its relative advantage. However KSA is trying to create a partnership between the two. In places like Mauritius the share of the value of the end product between the grower and processor is 70:30 but in Kenya it is only 60:40. It is for this reason that the World Bank recommended a price of 150/= per ton for growers. On the consumer side the share of excise tax and equalization funds are high but these are necessary for economic development provided the retail prices are not unreasonably high. And as was stated earlier the consumer price levels are used to depress demand as necessary.

6.2.2 Data and Techniques

It has been pointed out that the professional personnel only provide policy options to the political level that make pricing decisions. In designing these alternative solutions one assumes that the technical level has analysed adequate data or has accumulated as much information as is necessary or feasible for reliable decision making.

There is generally a dearth of quantitative information and where available it is not complete or accurate or timely to be useful. For example there is little knowledge on where much of the maize crop is stored apart from that which passes through MPB. Without quantitative figures it is impossible to measure supply response and acreages which could be used to set the prices at appropriate levels. It was originally intended in this study to attempt a multiple regression and correlation analysis that could indicate the degree to which certain variables explain variations, e.g.,

Supply = f(acreage yield, rainfall, prices, price of substitutes,.....)

Demand = f(population, urbanization, disposable income, price, price of bread....)

However, such a comprehensive analysis was not possible because of lack of data. Acreage figures on maize are published by the Central Bureau of Statistics for large scale farms and none for the small farm sector. However, Integrated Rural Survey is now yielding similar information on small scale farms, but this information is required over a period of time, and will be useful in future years but not now. MPB has developed a reasonable system of measuring yields and when total acreage becomes available then it will be easy to estimate total production fairly accurately. Sales from Kenya Seed Co. are also being used to estimate the acreage that is planted. Rainfall figures are provided by the Meteorological Department. Prices are available in the Official Gazette Supplements dating from the time of the control in the '50s. Wheat prices are also available. On the demand side, population figures are available,

urbanization index is available for the 11 largest towns, disposable income is available and prices are also available. However, total consumption cannot be ascertained because records are available for only that portion that reach MPB and a few millers. It is estimated that 60% of the maize is consumed on the farm. Using IRS figures in table 3, it is estimated that 65% of the small scale farm production is consumed at home. However when total production is included, using figures from table 4 for 1974/75, then the percentage drops to 55%. If these figures could be generated for a reasonable time period then variables which cause variations could be isolated for policy decision.

A partial analysis has been performed using purchases of MPB as supply and MPB sales as representing consumption. Purchases have been regressed against price to determine the correlation and sales have been regressed against time to provide a time series trend that is explained by population growth, increased disposable income and such factors (Figs. 8 & 9). It is assumed that MPB operations are a good indicator of the maize industry. When there is a bad year, MPB sales are high and purchases low; and in good years, sales are low and purchases are high. However to derive total production and consumption trends for the country, data is required for the variables covering all the production and consumption in the whole country.

Eighteen observations have been used in this regression covering the period 1959/60 to 1976/77. The simple linear regression equation of the form $y = a + bx$ has been used.

FIGURE 8 PURCHASES AGAINST PRICE

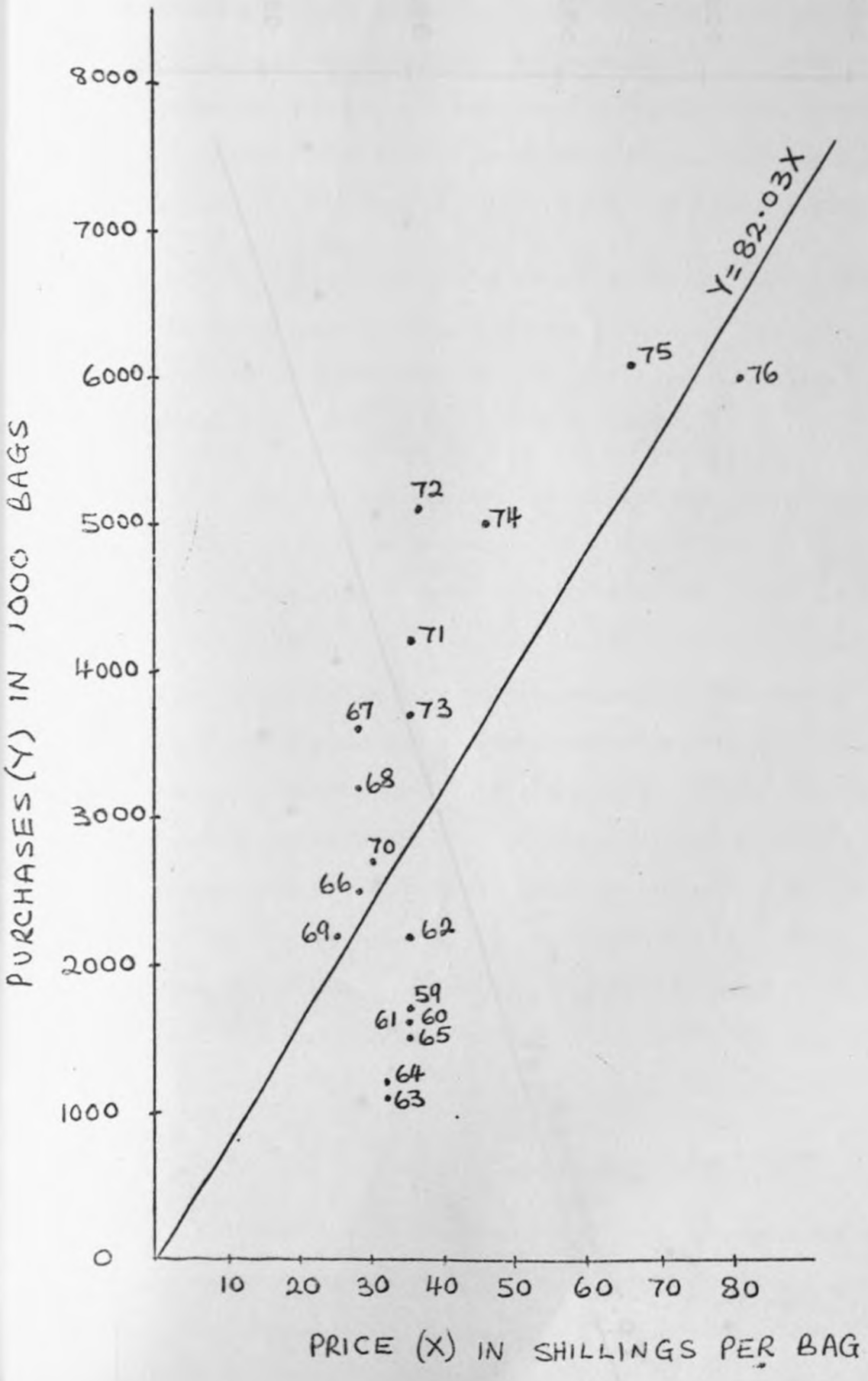
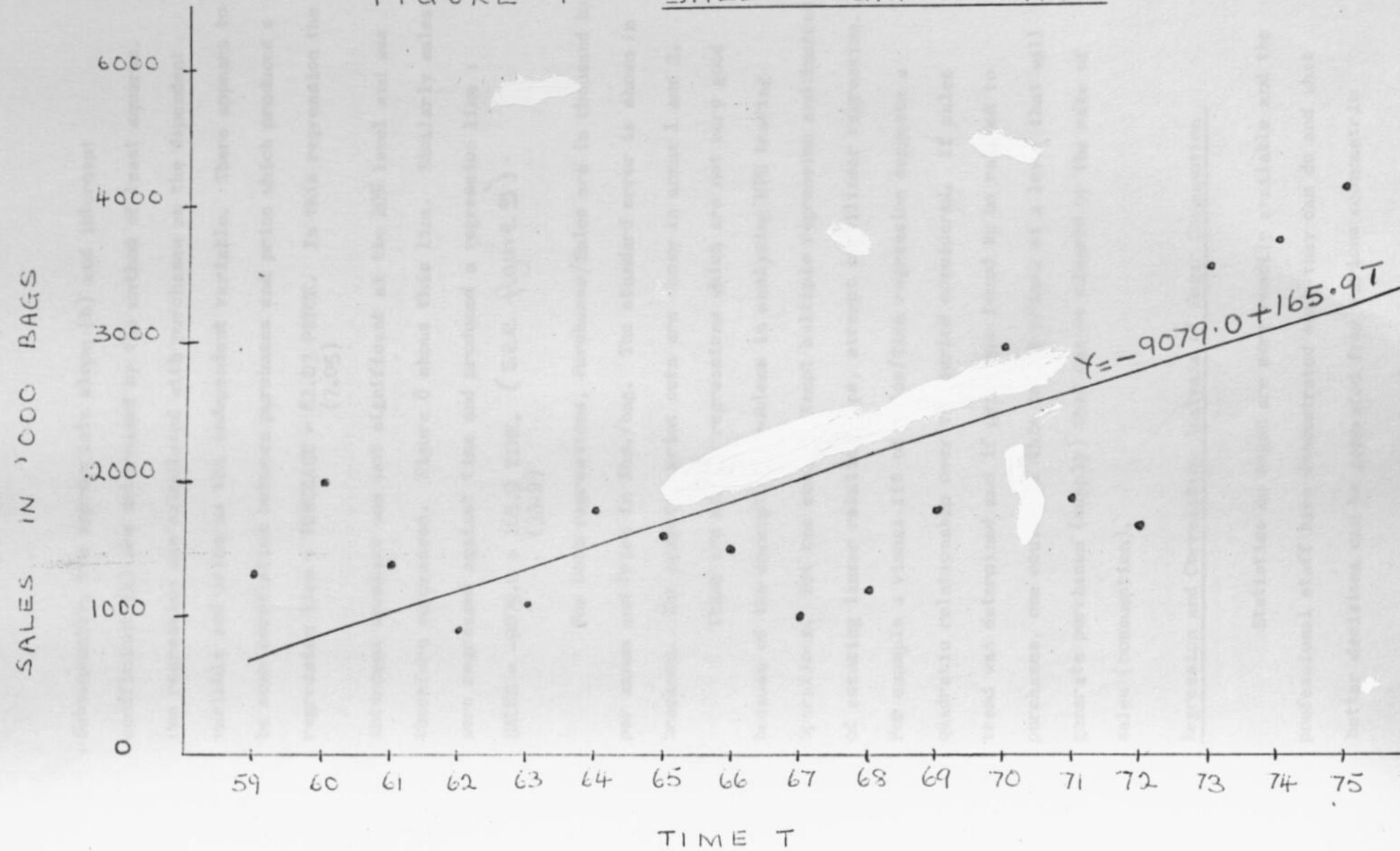


FIGURE 9 SALES AGAINST TIME



Subsequently, the appropriate slope (b) and intercept coefficient (a) are determined by the method of least squares. One regression was calculated with purchases as the dependent variable and price as the independent variable. There appears to be some correlation between purchases and price which produced a regression line : PURCHASE = 82.03 PRICE. In this regression the (7.05) intercept constant was not significant at the 20% level and was therefore suppressed. Figure 8 shows this line. Similarly sales were regressed against time and produced a regression line : SALES = -9079.0 + 165.9 TIME. (see figure 9). (33.9)

For both regressions, Purchases/Sales are in thousand bags per annum and Price in Shs./bag. The standard error is shown in brackets. The computer print outs are shown in annex 1 and 2.

These are simple regressions which are not very good because of the conceptual problems in analysing MPB trading operations. But one could attempt multiple regression and instead of assuming linear relationships, attempt curvilinear regression. For example a visual fit of Sales/Time regression suggests a quadratic relationship over the period considered. If sales trend was determined and if price was found to be related to purchases, one could use this to set prices at a level that will generate purchases (supply) that can be cleared by the rate of sales (consumption).

Regression and Correlation Analysis of Sugar Consumption

Statisties on sugar are more readily available and the professional staff have demonstrated what they can do and what better decisions can be generated from various econometric

techniques. At this point it is intended to demonstrate what can be achieved with regression and correlation analysis in determining consumption projections.

The usefulness of projections:

a) Prediction of consumption.

b) Rational decision making in planning production..

c) Feedback to managers in the sugar industry.

Requirements:

a) Information should be accurate and available over a period of time, at least 20 observations.

b) Use econometric techniques with the data available to analyse consumption trends.

At a seminar given in the Ministry of Agriculture on 3.3.77 T. Aldington (1977) demonstrated the use of regression analysis on sugar. An attempt has been made to use the same method to analyse various aspects of sugar production in Kenya for the purposes of the thesis.

Data

Consumption figures are reasonably accurate for the last 20 years i.e. 1954-1976. Prices trend are also available for the same period. Disposable income figures are also available. See annex 3 for the basic statistics for sugar consumption analysis. Time series include factors like population and urbanization.

Analysis

Until 1973, there seemed to be no correlation between price and consumption. This was so because prices remained relatively similar over that period. In 1973 there was a decline in real prices and therefore highest consumption was recorded. Only in 1975 did the price rise above that of 1954. Regression and correlation analysis, using data for the period 1954 to 1976, has determined a strong correlation between prices and consumption.

Aldington (1977) using multiple regression equation of the form:

$$y = a + bx_1 + cx_2 + dx_3$$

where y is the variable to be predicted, x_1, x_2, x_3 are the independent variables on which the prediction is to be based; a, b, c, d are unknown constants; derived the consumption equation for 1954-1976 as :-

$$C = 7.38 - 2.91Ps = 0.21Y + 0.30T, \quad r^2 = 0.97$$

Using mean figures $\bar{P}s$ = Shs. 1.72 per kilo

$\bar{Y}$ = £30.4/caput

T = 11

C_1 = 11.94/caput

where C = consumption

Ps= Price

Y = Disposable Income

T = Time

r^2= coefficient of determination which indicates the proportion of the variation in the dependent variable that is explained by the independent variable

$\mathcal{E}_d$ = Elasticity

Increase price by 10% i.e., to Shs. 1.89 per kilo

Then C_2 = 11.45 kg a reduction of 4.1%

$$\mathcal{E}_d = \frac{-0.41}{0.10} = -0.41$$

∴ When price was 1.72 $\mathcal{E}_d$ = -0.41

When price was 4.50 $\mathcal{E}_d$ = -0.72

Increase the price and consumption declines.

The equation of consumption gives consumption projection growth path and using schedule of production the supply growth path can be obtained. Any position required by a target date can then be found.

For example by 1986 it is planned to produce 491,000 tons or 25.4 kg. per caput.

If it is assumed that Y increased by 2.7% p.a. and inflation at 5% p.a., this gives an increase of 7.7% at current prices.

∴ Y_{86} = £127.8

T_{86} = 33

∴ The price that will clear the supply of 25.4 kg. per caput is 6/43 per kilogram.

In 1976 price is 4.50 per kilo which is equivalent to Shs. 7.33 in 1986. Which means that to clear the supply through the local market, prices have to be held down and to be allowed to grow at a slower rate.

Decision makers can use this method to guide policy. For example in 1975 increased prices reduced consumption and

therefore saved on foreign exchange as shortfall had to be imported at high world prices. On the other hand if prices are not kept low, at current planned production, self sufficiency will be attained in 1980 and a local surplus will be generated for export by 1985. The world prices are low at the present time, and sugar prices are normally volatile and risky in the international market. So it is important to schedule production factories more realistically. By using extrapolation on growth rate calculated on time series before 1973, the Kenya Sugar Authority was using 7.5% growth in consumption which was well above the more realistic growth rate. As a result factories were scheduled earlier than should have been in terms of the current growth rate derived from the above analysis which is 4.7%.

Nevertheless the factories have been started and a decision has to be made on how to deal with the excess. Planned production and consumption projections generated by the regression analysis are shown in table 14 indicating the balances. To hold the prices down as suggested above has limitations in that production costs increase and selling price cannot be suppressed too much. The alternative is to divert sugar to other industrial uses. If it is necessary to export at lower prices, then this might still be profitable if the factories had the capacity and if only relevant costs are considered in arriving at the decision. For example fixed overhead costs cannot be included and if the factories operated at capacity on shifts, production costs can be reduced and sugar exported at a profit. In addition exports earn valuable foreign exchange which helps improve balance of payments. Some policy options on this topic are developed in the next chapter.

Table 14

Sugar Projections

Production at '000 metric tonnes

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Chemelil	46	45	46	50	55	57	57	57	57	57	57
Miwani	25	24	25	30	35	38	42	47	57	57	57
Muhoroni	26	24	26	30	35	38	42	47	57	57	57
Mumias	64	70	75	90	130	140	150	156	156	156	156
Ramisi	6	7	10	12	18	20	22	25	25	25	25
Nzoia	-	-	-	-	25	40	60	60	60	60	60
S. Nyanza	-	-	-	-	-	25	40	60	60	60	60
S. Total	167	170	182	212	298	358	413	451	471	471	471
Busia	-	-	-	-	-	-	25	40	60	60	60
Yala Swamp	-	-	-	-	-	-	25	40	60	60	60
Small Scale	-	-	4	10	12	12	12	14	16	18	20
TOTAL	164	170	186	222	310	370	475	545	607	609	611
Estimated Consumption Upper limit	195	212	230	250	269	290	312	338	368	398	430
Balance	(31)	(42)	(44)	(28)	41	80	163	207	239	211	181

Source: Ministry of Agriculture (T. Aldington)/and Kenya Sugar Authority for Production, 1975. 1977

The data analysed so far could be stated to be used exclusively for econometric techniques. However there is a wide range of data that can be useful for pricing decisions. This research revealed that the Central Bureau of Statistics plays a very passive role in the process of even transforming the data. There is little personal or face to face contact with the Planning Officers and the Price Controller. The Central Bureau of Statistics (CBS) collects data for its purposes, analyses them and publishes them. When they are published, the policy makers probably use them without much acknowledgement to the Bureau. Surely it would be better if the planners briefed the Bureau on what information they required to make pricing decisions. This is particularly relevant for the trader margins. But it is possible that the present approach to pricing decisions does not call for the use of CBS. It is understood that CBS is used marginally to test the sensitivity of prices where it is considered necessary. Apparently this does not happen often and normally the Ministry of Labour is the one that asks CBS after the event what effect on cost of living is when prices are increased. Another point made during the research was that prices of Agricultural products are not tied to cost of living as that could cause inflationary trends. Nevertheless some thought should be given to them. The alternative pricing system which is being recommended calls for a wider analysis of indices and will depend very much on the inputs from CBS probably made specifically for pricing decisions.

Minimizing Transportation Costs for Sugar

Though the system of distributing sugar seems to work in general as stated in page 107, this does not mean that improvements cannot be effected. There appears to be a need of minimizing transportation costs for sugar. The Trades and Supplies Directorate of the Ministry of Commerce and Industry can allocate sugar quotas to factories for delivery to various depots in a way that can minimize transportation costs. Lower transport costs could reduce the price of sugar to the consumer.

To illustrate what could be achieved with operations research techniques to arrive at better allocation decisions, a transportation model using linear programming has been built from data obtained from the Ministry of Commerce and Industry and from KNTC.

Formulation:

The formula for the linear programming model was derived as follows:

Let m represent a set of sources: s_1, s_2 ——, sm and n a set of destinations: D_1, D_2, ..., Dn let ai be the number of supply units available at source i, (i=1, 2, ...,m) and bj, the number of demand units required at destination j, (j=1, 2, ..., n) per unit of time e.g. a year.

Let cij be the unit transportation cost on route (i,j) joining Si and Dj, there are mxn such costs as inputs or parameters to the problem. The objective

is to determine the number of units to be transported from source i to destination j such that the total transportation cost is minimised. The decision variables are represented by Xij, i.e. the number of units to be transported from source i to destination j; these are mxn in number and all are greater than or equal to zero (i.e. $x_{ij} \geq 0$).

The total cost of transportation as a function of decision variables is represented by

$$E = X_{11}C_{11} + X_{12}C_{12} + \ldots\ldots\ldots + X_{1n}C_{1n}$$

$$+ X_{21}C_{21} + X_{22} + C_{22} + \ldots\ldots + X_{2n}C_{2n}$$

$$\vdots$$

$$+ X_{m1}C_{m1} + X_{m2}C_{m2} + \ldots\ldots\ldots + X_{mn}C_{mn}$$

$$= \sum_{i=1}^{m} \sum_{j=1}^{n} C_{ij}X_{ij}$$ This has to be minimised

subject to

$$\sum_{}^{n} X_{ij} = a_i,\ i = 1,2,\ldots\ldots\ldots,\ m \text{ (supply constraint)},$$

$$\sum_{}^{m} X_{ij} = b_j,\ j = 1,2,\ldots\ldots\ldots,\ n \text{ (demand constraint)},$$

$$X_{ij} \geq 0$$

The total supply is $a_1+a_2+\ldots\ldots\ldots a_m = \sum_{i=1}^{m} a_i$

The total demand is $b_1+b_2+\ldots\ldots\ldots b_n = \sum_{j=1}^{n} b_j$

A balanced transportation problem has

$$\sum_{i=1}^{m} a_i = \sum_{j=1}^{n} b_j$$

Where the problem is not balanced as in the case under review, a slack is used to convert it to a balanced transportation problem.

This will now be described in some detail under the next heading. Tables 15 and 16 provide the data used in the linear programming analysis. Actual allocation to factories was assumed to be the supply available and quantities received by the depots was assumed to be their demand. The receipts and the supply may not necessarily agree because some of the sugar included in the supply may be on transit and therefore not included in the demand total.

There are five factories and one import centre that feed six supply points. There are 18 depots constituting demand points. The cost matrix shown in annex 4 is derived from the railway tariff and road transport costs as allowed by the Ministry and KNTC. Destinations are listed horizontally and sources are listed vertically on the left. Total quantities produced from each source are listed in a column at the right hand side of the table, while in a lower row across the body of the table, requirements of each destination are marked. Grand totals of requirements and availabilities are not necessarily equal.

Table 15

Supply of Sugar in Bags 1975

Factory	In Store	New Production or Import	Total Supply	Total Allocation
1. KFA Mombasa (Import)	356670	107220	463890	342120
2. Ramisi	420	74140	74560	74130
3. Chemelil	18680	400150	418830	411950
4. Muhoroni	670	263550	264220	267770
5. Miwani	1200	267110	268310	268020
6. Mumias	4900	591460	596360	593950
TOTAL	382540	1703630	2086170	1952940

Table 16

Actual Sugar Allocation from Factories to KNTC Depots in Bags - 1975

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	17577	14430	14299	63558	27079	11405	3000	5996	0	0	0	0	0	0	8886	2080	2000	7856
2	0	0	0	4250	0	0	17800	0	0	0	0	0	0	0	0	0	0	4397
3	8697	49551	40708	66117	22095	26660	1600	41707	3120	17058	69190	0	1500	4000	27400	800	3880	1152
4	0	17420	28299	32109	2890	7008	26000	26511	72382	10380	14565	0	2660	4610	1665	16150	9090	0
5	8290	5100	5990	35048	5100	8403	1200	9250	0	37845	125359	0	2500	6880	9215	75807	7680	600
6	31219	58210	52078	157842	22038	29374	0	7640	0	0	0	57760	54290	7882	9750	0	8998	931
TOTAL	74188	146711	141374	384820	79292	102577	29600	91104	75200	65283	209114	57760	60540	102920	61396	26610	31648	15417

Key:

Supply Source

1 KFA (Imported)
2 Ramisi
3 Chemelil
4 Muhoroni
5 Miwani
6 Mumias

Destinations (KNTC Depots)

1 Muranga
2 Thika
3 Karatina
4 Nairobi
5 Machakos
6 Nanyuki
7 Voi
8 Nakuru
9 Kericho
10 Kisii
11 Kisumu
12 Kakamega
13 Kitale
14 Eldoret
15 Meru
16 Naivasha
17 Nyahururu
18 Mombasa

Assumptions:

This analysis using Linear Programming has been based on the following assumptions:-

a) not possible to transport fractions of items.

b) transported items not returned.

c) costs are linear.

To derive the results quoted a computer programme was used. The program was run on ICL 1900 computer and the print out is attached as annex 5. From the print out, an optimum allocation has been summarized in table 17. This table should be compared with table 16 which shows how the allocations were actually made. But more important is the costs involved. The minimum cost arising from the optimum allocation is Shs. 16,099,900 compared to the actual cost of Shs. 22,358,900, resulting in a saving of Shs. 6,259,000.

It is therefore recommended that management science techniques be employed by the distribution system to maximize benefits. Obviously the optimum solution may not be totally acceptable to management decisions; after all it has been stated in this study that management decisions seek satisfying solutions rather than optimum. But it is useful to start from a possible optimum solution and to modify it to suit the circumstances.

In this particular case there are constraints that could limit the optimum solution. For example Mumias and Chemelil factories close for overhaul for two months in a year at the same time and during that period their supply is not available. Secondly the import centre has a slightly different quality of sugar which the allocation system may wish to send to certain consumption areas irrespective of cost.

Table 17

Optimum Sugar Allocation from Factories to KNTC Depots in Bags as Derived from Linear Programming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Stock	Tota
1		17600			79300		29600								61400			154200		3421(
2				10400															63700	741(
3			300	133200				91100	75200		80600						31600			4120(
4				241200												26600				2678(
5	74200									65300	128500									2680(
6		129100	141100			102600						57800	60500	102900						5940(
Total Demand	74200	146700	141400	384800	79300	102600	29600	9110	75200	65300	209100	57800	60500	102900	61400	26600	31600	154200	63700	19580(

Key:

Supply Source

1 KFA (Imported)
2 Ramisi
3 Chemelil
4 Muhoroni
5 Miwani
6 Mumias

Destinations (KNTC Depots)

1 Muranga
2 Thika
3 Karatina
4 Nairobi
5 Machakos
6 Nanyuki
7 Voi
8 Nakuru
9 Kericho
10 Kisii
11 Kisumu
12 Kakamega
13 Kitale
14 Eldoret
15 Meru
16 Naivasha
17 Nyahururu
18 Mombasa

6.3 Organisation for Decisions

The process of decision making that has been described and portrayed in figures 1, 2 and 3 indicate a long chain of decision points. It is not surprising anyhow as public institutions are ranked low in risk taking and are governed largely by mechanical and rigid structures of control. For that reason consultation with all the interested parties is essential to reduce the risk of blame in case of wrong decisions. This delay in decision making at the ministerial level can be disastrous to the parastatal boards whose operations are governed by those decisions. A case in point is that of the current maize situation at MPB. In the current year 1976/77 MPB sales have been low while purchases have been high, leading to a record stock on hand already referred to in earlier chapters (see appendix 4). Because of the limitation of storage, MPB is stacking maize outside and in another few weeks they will be required to purchase the new crop. A bumper crop is expected in 1977/78. An MPB preliminary survey of crop prospect in the current season forecasts 10-20% crop intake above that of 1976/77 which amounted to 6 million bags. It is therefore essential for MPB that a decision is made on whether to export the surplus at a loss, to sell it at subsidized rates for stockfeed or to continue to carry the stock with possible deterioration and loss through inadequate storage.

It is understood that MPB has made its recommendations on how to deal with the surplus. In any case MPB circulates

monthly stock positions to the Ministry of Agriculture, Ministry of Finance and Planning and to the President's Office. According to the law, the Minister of Agriculture has the authority to make the decision. But in the interest of the nation, the Ministry of Finance and Planning has to be consulted as they have to find funds to cover export losses and the President's Office is involved as it bears final responsibility to the nation. So decision makers in these three ministries have to be consulted and in the process it is hoped to get the best decision. In practice, delays occur and reduce any benefits arising from a more timely decision.

The size of the governmental machinery leads to fragmentation of decision making power, contradiction in objectives and complexity of communication. For the purpose of this thesis the fragments are classified in two groups, i.e. the ministry level and that of the statutory boards. With rising costs it means that errors in decisions can be very costly and therefore it is essential to make good decisions which result from the combination of scientific knowledge and a proper understanding of behavioural science. The managers in these institutions need to learn the decision process. It was encouraging to note that all the institutions visited in government ministries, parastatal boards and private orgization had courses in management. It is to be hoped that modern management techiques will be used in everyday operations in future.

At both the ministry and the board level, the organisation consists of a hierarchical model. It has already been pointed out that bureaucratic organisations can function if they

accept flexibility. So there is no quarrel here with the hierarchical model. In fact no one model can explain how public policy should be formulated or how the government works in practice. Nevertheless imaginative management approach is needed to mobilize and exploit the potential in manpower resources. Authoritarian management arising from the bureaucratic model can result in wasteful meetings, excessive reports, departmentalism, top down planning, inadequate resources deployed in the field and ineffective work programming. Time did not allow for detailed assessment in this respect.

The relationships between officers concerned were found to be reasonable although there were instances when it appeared that the Permanent Secretary level did not have a two way communication channel with the subordinates when they submitted policy options. Sometimes pressure was brought to bear on them that led to certain decisions without adequate communication with the subordinates. However, the problem of pressure groups was found to bear on all levels of the decision hierarchy. Some of this pressure may not even be explicit. For example when commodity analysts in the Ministry of Agriculture base costs on large farms, they are already being influenced by a group. However the implicit pressures are not the problem here; it is the explicit influences that can and do distort decisions.

In economic development impetus comes from those groups of individuals with drive and organizing ability who can grasp the elements of innovation and combine them into a new productive effort. It is on this basis that Kenya has continued to pursue

the policy of a dual structure in farming allowing for both small farms and large farms. But progressively the farms will become smaller and the larger farms will become fewer.

By 1968 it was estimated that only 35,000 families had been settled.[36] The figure has increased but it is difficult to estimate because of Shirika farms where groups buy farms and share among themselves, even then it is a small proportion of the total population. This proportion derives its influence from the nature of the selection of the settlers. The former "White Highlands" is modernistic and commercial and has a great influence on agricultural policy. De Wilde (1967) had some relevant comments to make on the re-settlement process which are quoted below:-

> "For the larger farms of the low density schemes, it has undoubtedly been desirable to insist on settlers who had capital and the experience necessary for the management of such holding. The possession of capital is usually evidence of some enterprise, experience has shown that a man with capital often has a business or an occupation which pays well... We noted that farmer absenteeism was more marked on low density schemes and that some of the most neglected farms belonged to businessmen or Government employees... In a number of cases such people have managed to obtain two or more settlement plots..."[37]

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36 R.S. Odingo - Settlement and Rural Development in Kenya, in Studies in East African Geography and Development, S. H. Ominde (editor), Heinemann Educational Books Ltd., London 1971, page 173.

37 John de Wilde et.al. - Agricultural Development in Tropical Africa Vol. II. Published for IBRD by Johns Hopkins Press, Baltimore, Maryland 1967 pages 212 and 213.

From the foregoing observations, it can be said that these settlers are the people who already have influence with the official machinery. They may be organised in formal groups like KNFU or informal groups. One point should be made clear here. There is nothing wrong in forming pressure groups, that is, if the idea of groups being negative is discarded. There are interest groups, most affected by decisions, who become the major source of inputs making demands on the administrative machinery which acts as conversion mechanism.[38] Hence in this case good use can be made of pressure groups. The trouble with the present organisation of governmental marketing machinery is that it allows pressure to be applied at various levels. When this happens the people charged with the responsibility of say analysing prices find their analysis thrown out of gear and it may take a long time to rectify. This is a major constraint against which the decision maker at the civil service level has to cope with. An allowance has therefore to be made for this when assessing their performance. Pressure groups that often control policy making through specialised access to decision makers will always be present.

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38 Peter Moll – Public Policy, Winthrop Publishers MC. Cambridge Massachusettes, 1974 page 50.

6.4 A Critique of Marketing of Maize and Sugar

The distribution decisions are embodied in the acts of parliament and the parastatal boards charged with the distribution of the commodities only take routine management decisions. Any serious policy departure from the act has to be approved at the ministerial level. There seems to be little problem with the distribution of sugar apart from some shortages. However some reorganisation is anticipated when KSA has its powers and functions defined and enacted. It is inevitable that KSA will develop along the lines of KTDA* in which case it will take over the distribution functions currently being performed by the Ministry of Commerce and Industry. When self-sufficiency is reached in 1981 and no imports are required, the main function of the Ministry of Commerce and Industry will have disappeared and with it the necessity of maintaining the Sugar Equalization Fund. At that stage that ministry should drop from the hierarchy of distribution and allow KSA to coordinate the industry and either continue to use KNTC as a distribution agent or take over that task also. The present size of KSA does not compare to the task but personnel can move with the functions to KSA from the Ministry of Commerce and Industry or from other institutions.

On the whole the marketing of sugar does not generate as much heat as that of maize. The controlled system of maize marketing has been criticized for many reasons and it may be worthwhile to look at some of the criticisms.

* Kenya Tea Development Authority.

6.4.1 Criticisms of Controlled Maize Marketing

This section looks at the marketing system itself rather than at the performance of MPB which will be dealt with in the next section. In the book entitled Agricultural Development in Kenya, Heyer (1976) has the following comments on maize marketing in Kenya:-

> "Despite of, or because of, the high degree of centralised control that is exerted over the marketing of the basic food crop, maize, Kenya still experiences problems of unreliable markets both for sellers and for buyers, and differential and fluctuating prices, although prices are supposed to be stable and uniform."[39]
>
> "...inequity in the pricing system which exploits consumers in favour of producers...and on one occasion even general taxpayers."[40]
>
> "One of the most serious weaknesses of the pricing system is that it distorts the geographical pattern of production so that Kenya produces maize less efficiently in marginal areas than she might if specialization in areas of comparative advantage were encouraged."[41]

These are criticisms of the marketing system. There are others directed specifically at the operations of MPB. In other words one level of the criticisms looks at the total marketing system whereas the second level of criticisms is directed at MPB as a subsystem with specified functions. It is however

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39 Heyer, in Heyer & Maitha eds. op.cit. page 25.

40 Heyer, in Heyer & Maitha eds. op.cit. pp. 325 and 326.

41 ibid.

difficult to separate the two for analysis and therefore a few examples of the second level of criticisms by the same author will be given here before the implications on the total system are discussed.

> "Much of the food marketing system, and particularly the marketing system for maize, is high cost because of the controls. There is also a poor range and quality of marketing services and the services extend very unequally throughout the country. Localised shortages occur quite frequently, and conversely, it is not infrequent for producers to have nowhere to deliver."[42] "...the Maize and Produce Board is not guaranteeing a supply of maize in all areas at the official price, nor is it guaranteeing a market for maize in all areas at the official price. This constitutes a very basic failure to fulfill its responsibility under the Ordinance."[43]

These views expressed by Dr. Judith Heyer are widely held by many researchers in this field like Olof Hesselmark, Hans Gsaenger, Gunter Schmidt and G. Lorenzl. Hesselmark and Lorenzl (1976) have the following to say:-

> "The market controls prevent short-term movements during the harvest season, and create unnecessary price differentials in space and time. It has been suggested that the role of the MPB should be redefined to a stabilising one, where MPB acts as a buyer and seller of 'last resort', maintaining a floor and a ceiling price."[43]

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42 Heyer, in Heyer & Maitha eds. op.cit. page 25.

43 Heyer, in Heyer & Maitha eds. op.cit. page 325.

44 Hesselmark and Lorenzl. op.cit. page 14.

And Gsaenger and Schmidt (1977) comment as follows:-

"...the present 'control' system is an impediment to an optimal allocation of resources, thus causing welfare losses."[45]

Arising from these studies and their criticisms, most of these scholars have recommended decontrolling the market either fully or partially with the governmental intervention remaining in stabilization through floor and ceiling prices and by maintaining a buffer stock. This argument is supported by lucid economic reasons of the gains that could accrue to both producers and consumers. Gsaenger and Schmidt quote some similar experiences from India and Pakistan in the field of grain marketing where some benefits accrued from a free market.[46] This is a reasonable theory and the general consensus is that the best system of intervention is where official organisation supports market prices by buying when demand is weak and selling when prices are high. What has not been considered in these alternative methods is the organisational aspects of the change and whether the environmental factors are conducive to or can permit such improvements to be effected.

6.4.2 Organization for Change

First of all the relaxation of controls on the marketing of maize must be preceeded by adequate information on stocks, production and consumption. Through the technique of the MPB in

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45 Gsaenger and Schmidt op.cit. page 1.

46 Gsaenger and Schmidt op.cit.

assessing yields and acreages provided by CBS it is possible now to estimate the output with reasonable accuracy. But statistics on total stocks and consumption are still very limited. Until that information is available, it would be unwise to consider decontrolling the market as that could be disastrous to the nation and could lead to famine in poor crop years.

Secondly maize is a bulky commodity and requires vast storage capacities. No private enterprise will accept to store and tie up capital in inventories of maize. This means that the Government institution will continue to provide storage and infrastructure to be used by a few priviledged monopolies. Traders are also the transporters which means that transport costs will be higher still with little benefit to the producer or consumer. MPB currently works on a margin of 9% and no private trader will accept such a low margin. If anything the producer and the consumer are likely to be exploited more in a free market than at present. It is commonly argued that there is economic merit in setting the market free and that it is the organizational aspect with political influence and pressure groups that do not allow the market to be freed. In the chapter on the overview of agricultural development policy in Kenya, Smith (1976) has the following comments:-

> "Leys argues that since independence the control of the boards has effectively passed into the hands of the larger African farmers who, at the moment at least, require as much protection as the early settler and hope to obtain this for domestically

consumed crops through a manipulation of marketing board policies."[47]

Whereas it is agreed that pressure groups do influence the system in some ways, but in this particular instance it is doubtful if it is vested interest that perpetuate the controls. This study maintains that the organizational implications of such changes have not been adequately explored. For distribution purposes it is necessary to have a country wide information on prices prevailing at various rural markets. The collection of this information is being pioneered by CBS and is being published for limited circulation. But even if they were made public the present level of literacy may not make it useful to the majority of the population. More importantly it should be reiterated that marketing developments must go hand in hand with production improvements. In this respect the governmental marketing institutions provide credit for inputs like fertilizer but if that outlet is removed then the production is likely to suffer. The private trader may not be able or willing to give credit to the farmer.

The fundamental theory behind the free market with partial government intervention is that floor and ceiling prices only be set. To set these minimum and maximum prices require accurate prediction of production so that minimum prices can be set at export parity. Although production can be predicted accurately enough for storage and planning purposes the prediction may not be accurate enough to yield realistic prices. As has been pointed out, attempts to match supply and demand in a

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47 L.D. Smith (1976) An Overview of Agricultural Development Policy in Heyer & Maitha eds (1976) op.cit. page 135.

pricing system has not been successful. Of course it has been suggested that these prices could be reviewed in the light of new information. But that suggestion underestimates the organisational and managerial capability required to generate realistic price decisions at short notice and in any case the bureaucratic system may not be flexible enough to delegate authority fully at levels where action takes place.

Reducing controls has been muted in two development plans, 1970-74 and 1974-78 but nothing has happened and it is understood from reliable sources that it is not the intention of the government to decontrol the market. This is not through political pressure as claimed by authors quoted above, but through a systematic approach that weighs the costs against the benefits. There may be apparent accounting losses through the present system but the government has wider perspective and considers all social costs and benefits.

This study ventures to suggest that the new producer price of 80/= per bag for maize at MPB depot which was effective from 24.9.76 may have fundamentally altered the perspectives of the arguments quoted above. Many criticisms may be cannot be proved any longer. If anything, more and more maize is going to the formal marketing channel than is going to the informal channel. It could be true that the smaller millers are buying outside the official channels but that is due to a temporary stock pile of stock on the farms in Kitale area. It is necessary to wait until the effects of the new price have run their course to see the new equilibrium level before any fundamental changes can be effected.

Another organisational constraint is the need to keep the crops in a proper balance. So the pricing system must be done through a central authority that has the knowledge of a proper product mix that can plan a balanced production pattern to ensure a nutritious diet to the nation. Further, maize is a staple food crop and therefore there is no justification for saying that it should not be encouraged to grow in marginal areas. The more people that can grow their own food requirements for their consumption the better. The validity of the marginal area theory only arises when there are alternative food crops that can be encouraged like cassava and millets.

6.4.3 Observations on the Performance of the Maize and Produce Board and KNTC

This study has confirmed that parastatal boards like MPB cannot plan in advance because their financial resources have to be approved by another authority. Where such expenditure is considered not on the basis of diminishing marginal utility, but rather bargaining, the position becomes even more difficult. The socio-economic responsibilities and objectives are restricted in terms of economic operation because of the guaranteed prices. The principle of covering costs is limited by the fixed prices. In such circumstances, the organization does not have a feeling of working independently and cost consciousness and efficiency cannot have their effects more readily because the system always has access to the Exchequer.

There is a practical problem in determining when an agency like MPB or KNTC has achieved minimum costs or maximum productivity. Comparisons with similar projects can provide criteria but access to data can be difficult. The same applies to the so-called "commercial rules" which management should use as a guide. For one thing, by their nature and objectives, governmental parastatals cannot function as private commercial concerns because they are judged by social returns on investment rather than on private internal rate of return on investment. Finally there is the thorny problem of when MPB is justified in demanding reimbursement from the government. Since no direct charge is made on the grower for export losses it represents a subsidy to the grower. It would be better if the grower bore the burden either by deduction from the price or from other taxation as is done for export crops. Unfortunately this is impracticable in terms of maize where the producers are so dispersed and numerous that the cost of such a system would defeat its own purpose. So the state has to bear the loss and the public has to pay in the interst of having an assured food supply.

It is essential to clarify the objectives of an institution and management needs to be made aware of the criteria for success or failure of its work. Obviously the responsibilities of MPB are so great that they cannot be covered by the income of MPB and this arises from exporting or getting rid of the surplus at a loss. Therefore government need to give MPB a clear guide line on the measure of their performance. This is now being met to some extent because the Treasury undertakes to finance export losses. However MPB has to obtain permission from the ministries

of Agriculture and Finance and Planning before exporting. When this decision is delayed then the performance of MPB is jeopardized.

6.4.4. Weaknesses

Both MPB and KNTC lack planning as a function which should be built into the organisation as a staff department. Accounting sections of these institutions perform these functions but more for inventory control rather than for long term strategic planning.

Storage is the most important aspect of maize marketing. There is need to view the whole system and to plan storage in terms of the overall goals. Consideration should be given to deciding locations that are most economical to build, bearing in mind economies of scale and accessibility to growers and consumers. An integral part of storage development, is the provision of effective and cheap means of transport. The rail tariffs are expensive for maize. At present rail costs are too high, e.g. for Kitale-Mombasa it is 16/50 per bag against a buying price of 80/=. However road transport is even more costly as has been pointed out. Sugar has the same rail transport costs but its value is higher and hence in this case the costs are acceptable. However one striking finding was that transport costs did not seem to be taken seriously by either the Ministry of Commerce and Industry or KNTC. This point is illustrated by the use of a linear programming transportation model.

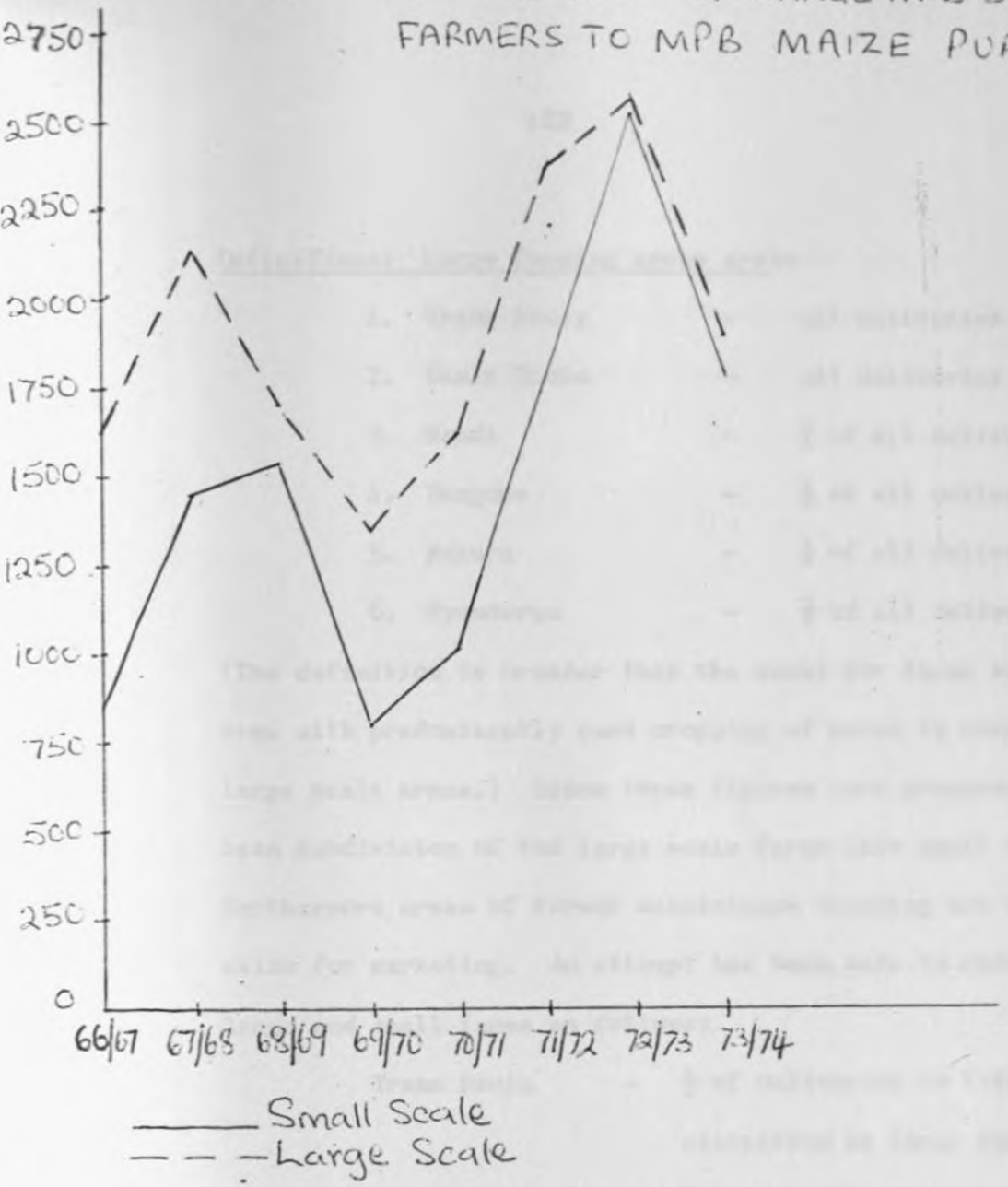
Maize storage needs planning and costing of the benefits of provision of more driers so that grain is accepted without much limitation that leads to corruption and also so that the crop is stored in good condition. The drying facilities are poorly distributed and at present are not being fully utilized. There are two drying plants located at Webuye and Bungoma which are very close to each other. Each drier has a capacity of 10 tonnes per hour. There is no drier at Kitale which is the largest maize collection centre in the country. New storage techniques also need planning and development so that maize can be preserved for longer periods. The current system stores for a maximum of three years. That is claimed to be the optimal period for using reserves but where there are large surpluses then longer preservation could allow manipulation of the world market.

An agency is a gain to the nation if its activity as a middleman between the smallholder and the market is needed and the total activities are showing a net value added per unit of capital which has to be as high or higher than with alternative investment. Chapter Seven will look at some of the alternatives and to assess MPB and KNTC systems in the light of this statement.

Finally, it appears from the findings that the system of marketing has changed as indicated by the operations of MPB described below. One of the criticisms in literature on the controlled system of maize marketing and particularly of the Maize and Produce Board itself is that it is a colonial relic that continues to serve the large scale farmer at the expense of the small scale farmer. This has not been found to be true for several reasons.

MPB has extended and is continuing to open up new depots in areas of small scale farming. In this way more small scale farmers are able to reach the Board and to market their maize. Admittedly the agency system does not allow the farmer the full benefit of guaranteed prices but the farmers themselves over time will overcome the problem by using cooperatives or informal farmer groups. O. Hesselmark while working with MPB prepared figures showing the contribution of large and small scale farms to MPB purchases for the period 1966/67 to 1973/74. Although his definition would include some small farms in the large category yet the figures show that the small farms are making a progressively bigger contribution and in fact are overtaking the large farms in volume marketed to MPB. Figure 10 shows this trend graphically. A modified definition has been used to analyse 1974/75 and 1975/76 figures taking into consideration subdivision of large farms into small farms for settlement. Again the figures are not accurate but serve to prove that small farms contribute a larger percentage than large farms. In fact the current trend in Trans Nzoia and Uasin Gishu observed in the field is for the large farms to reduce their acreage of maize and to move to wheat or barley or dairying to avoid the problems arising from marketing large amounts of maize at the same time. For example Tondorie Estate had planted 500 acres of maize in 1976 but had reduced this to 200 acres in 1977. Another prominent farmer, Pius Gumo who had produced 20,000 bags of maize in 1976 decided to reduce his acreage in 1977 for the same reasons, namely problems, with transportation and marketing. On the other

FIGURE 10 CONTRIBUTION OF LARGE AND SMALL SCALE FARMERS TO MPB MAIZE PURCHASES



STATISTICS FOR FIGURE 10

Year	Large Scale '000 Bags	%	Small Scale '000 Bags	%	Total '000 Bags
66/67	1661	67	847	33	2508
67/68	2138	60	1442	40	3580
68/69	1708	53	1535	47	3243
69/70	1353	63	795	37	2148
70/71	1661	62	1005	38	2666
71/72	2363	56	1847	44	4210
72/73	2549	50	2532	50	5081
73/74	1904	51	1822	49	3726

Source: Maize and Produce Board prepared by O. Hesselmark, March, 1975.

Definitions: Large Farming areas are:-

1. Trans Nzoia - all deliveries
2. Uasin Gishu - all deliveries
3. Nandi - $\frac{3}{4}$ of all deliveries
4. Bungoma - $\frac{1}{2}$ of all deliveries
5. Nakuru - $\frac{1}{2}$ of all deliveries
6. Nyandarua - $\frac{1}{2}$ of all deliveries

(The definition is broader than the usual for large scale farms. Area with predominantly cash cropping of maize is considered large scale areas.) Since those figures were prepared there has been subdivision of the large scale farms into small farms and furthermore areas of former subsistence cropping are now producing maize for marketing. An attempt has been made to redefine large and small farms as follows:

Trans Nzoia - $\frac{1}{2}$ of deliveries to Kitale Depot classified as large farms.

Uasin Gishu - $\frac{2}{3}$ of the deliveries to Eldoret and Moi's Bridge regarded as large farms.

Nakuru - $\frac{2}{3}$ of the deliveries to Nakuru and Solai defined as large farms.

With the help of Mr. Kariungi of MPB figures were worked out for 1974/75 and 75/76 as follows:-

Year	Large Scale		Small Scale		Total
	'000 Bags	%	'000 Bags	%	'000 Bags
1974/75	1461788	30	3513405	70	4975193
1975/76	2189668	36	3951793	64	6141461

hand small farms are enjoying good returns from the rather high maize prices and are increasing their production. The policy implications are considered in Chapter 7.

CHAPTER SEVEN

RECOMMENDATIONS AND CONCLUSIONS

7.1 Introduction

The purpose of this study has been to examine the decision making process in governmental intervention in food marketing with special reference to maize and sugar. The study has revealed that sugar does not pose such formidable marketing problems as maize does although when surplus sugar is generated after 1981 it may face the same problems as maize is facing at the present time. This point is worth emphasising for those who are planning sugar expansion to avoid some of the organizational pitfalls that characterise maize marketing. At the same time one has to bear in mind the significance of maize as a staple crop and therefore one which absorbs most of the governmental marketing capabilities. This narrows the field to the point where any discussion of the governmental marketing system devolves on maize. Many researchers have devoted time to it and several commissions of inquiry have investigated it. The general consensus among the economic researchers is that the market should be freed to bring greater gains to producers and consumers. This study differs from this view for reasons which have been explained and which will now be summarised.

It has been shown here that not enough research has gone into the organizational aspects of such a change. The Institute of Development Studies of the University of Nairobi is helping to improve agricultural economic analysis and policy.

However, its contribution could be still greater if its studies were more specifically focused on policy issues and practical problems. The best solution would be for the Ministry of Agriculture to indicate areas of interest. It is already pioneering this through joint projects undertaken by the F.A.O. Marketing Project in the Ministry and post-graduate students of the University of Nairobi. There could be greater gain if researchers and decision makers had a forum for free discussion to test some of the academic theories. However, it is gratifying to note that most of the present projects are of an applied nature.

In view of the evidence presented in the study, the verdict seems to favour the maintenance of the controlled marketing system for maize and sugar. No evidence was found by the author to prove that the system does not any longer meet the objectives The view here is that there is nothing wrong with the system but there may be some inadequacies of the market as well as inefficiency of the system of marketing caused by the people who operate the system. It is therefore concluded that it is not necessary to throw out the system but rather to seek constructive ways of improving the performance of the people. In this way one would come even closer to an institution which meets the objectives for which it was intended.

The dual structure in the farm size should be maintained so as to place some weight on large scale farming to ensure the production of crops like maize and dairying. Small scale farmers can be unreliable on maize production although they are progressively making a bigger contribution to marketed output. So the tendency

pointed out earlier that large scale farmers in Kitale were reducing their acreage under maize in favour of barley, wheat and dairying should be kept in constant review otherwise a shortage may occur. But at the same time the apparent monoculture of maize being followed by the small scale farmers in Kitale should be discouraged, as it is damaging to soils and will inevitably lead to a drop in yields.

Having concluded that a controlled system is still essential it remains now to look at some of the possible areas of improvement. This may not be the optimum solution but for the present, continued government intervention in the view of the researcher is the best alternative.

It should be noted that the price inflation which has started will continue and pressure on the official machinery could lead to consumer prices being set first and then working backwards to the farmer who would be the loser. It is therefore important to organize the machinery so that it can effectively make use of the environmental forces arising from the pressure. However, both the Ministry of Agriculture and the Ministry of Finance and Planning are aware of these consequences and on the whole they have avoided price hikes and adopted progressive increases. The contribution of government in infrastructure is significant and without it even the present informal market could not operate. At this point it is necessary to recall that controlled prices constitute a compromise between the farmer and consumer which the Ministry of Agriculture and the Ministry of Finance and Planning have to strike.

The cyclical four to five years recurring shortages have in the past blinded people to the brighter side of the maize marketing system. These shortages arise from weather variations which no organizational ability can change. All the management is required to do is to provide contingency arrangements to meet them. This has been done with the provision of two million bags of strategic reserve. The 1975/76 consumption rates indicated a necessity for review when monthly sales of MPB were reaching 500,000 bags but the trend of consumption in 1976/77 indicates a much lower consumption rate of about 300,000 bags per month so it still meets the six month consumption limit set for the reserve.

7.2 Recommendations on Pricing Decisions

7.2.1 Improved Hierarchy

As it has been established that controls should continue, it is necessary to find ways of strengthening the system. Figures 1 and 2 already discussed illustrate the way the present hierarchical system is organised. However, it lacks the characteristics of a systems oriented approach. One may recognize subsystems of it but they all operate individually without a sense of their contribution to the total system. The flow of information is informal and channels of communication are not streamlined. For example there is nothing that stops a farmer's group from making representation and even insisting on seeing higher levels of the hierarchy. In any case they have no other effective way of making their grievances felt. The parastatal boards feel alienated from decision centres and decisions are simply pushed on to them for implementation. Sometimes the decisions are unduly delayed.

The importance attached to price will increase and it is now necessary to institutionalize the procedure and to establish a committee for Pricing Decisions. It is accepted that rational decisions may not be possible to achieve where rival interest groups are represented. In view of this it is recommended that only officials of the Ministries of Agriculture and Finance and Planning and of the parastatal board whose crop is being discussed should be members of the committee. It is like reviving the dormant Cost and Price Committee but including a representative

from a board and legalizing the committee to give it status and authority to make recommendations to the Cabinet. Any new name suggested is important and should not narrow the field of operation like the Cost and Price Committee did.

It is recommended that an Agricultural Price Determination Committee be set up as described above. The Committee should set up four sub-committees: one for Farmers Decision Inputs, one for Processors (maize and sugar etc.) and one for Traders, and one for Consumers. The information from the various sub-committees, would then be centralised and form the basis of decision making in setting up equitable prices. All representations from the environment will go to the relevant sub-committee for proper assessment before being fed to the main committee. Officials from either the Ministry of Agriculture or the Ministry of Finance and Planning or from both should sit on the sub-committees as relevant. A similar procedure is occasionally followed now but it needs to be formalized. Observations from fieldwork indicated that whenever it has been followed, there have been fewer complaints about suggested price changes.

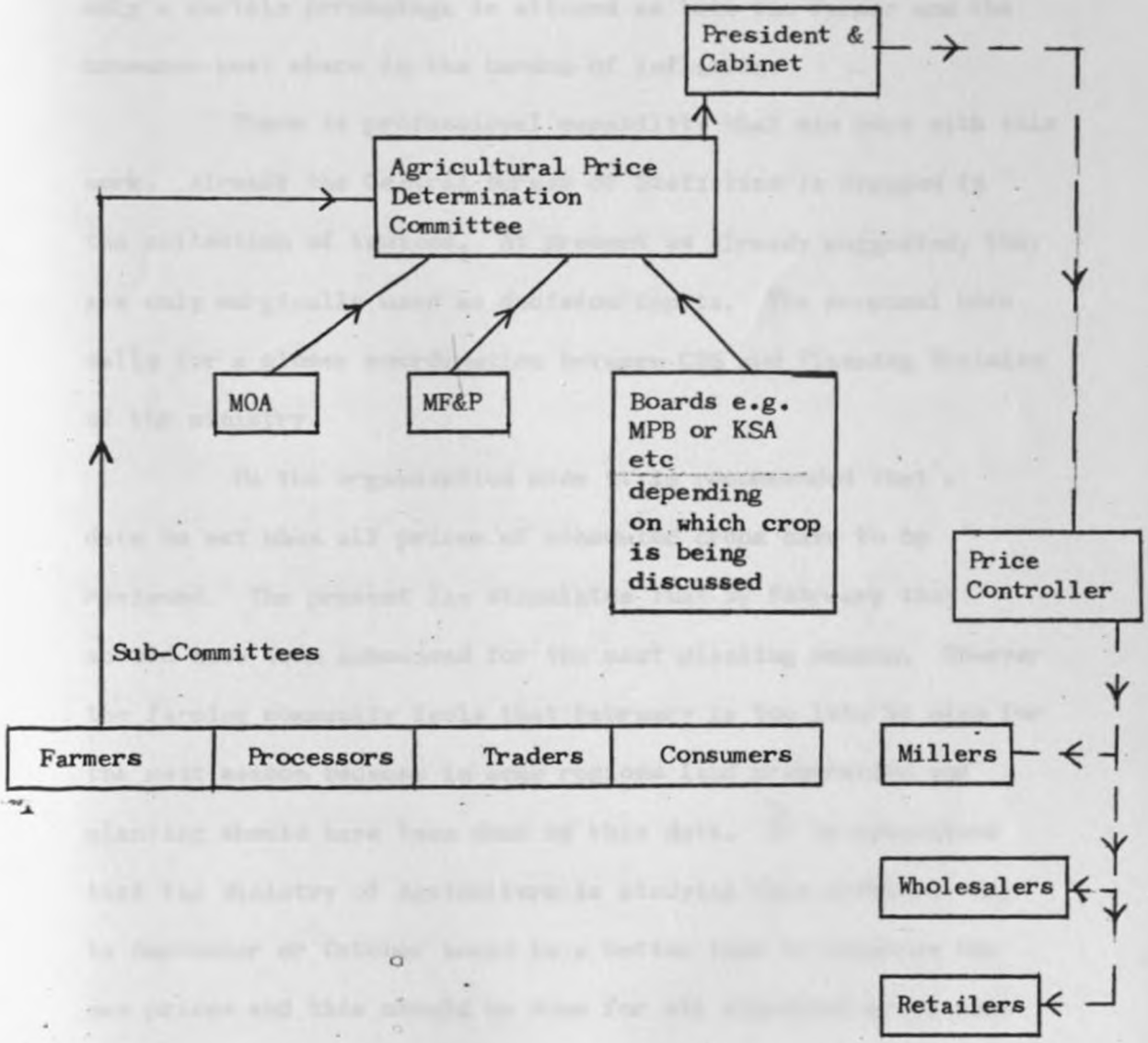
Figure 11 summarises the proposed hierarchy of pricing decisions.

7.2.2 Methods of Pricing

The pricing decisions are arrived at on the basis of historical cost of production. Many countries have found this method outmoded for the reasons that have been stated in earlier chapters. The current trend is to use indices for arriving at

Figure 11

Proposed Flow Chart for Agricultural Pricing Decisions



Key:

MOA = Ministry of Agriculture
MFP = Ministry of Finance and Planning
MPB = Maize and Produce Board
KSA = Kenya Sugar Authority

prices. In other words costs of production are not considered in the absolute sense but rather in terms of the way they have changed with regard to other costs in the country. In that way only a certain percentage is allowed as both the farmer and the consumer must share in the burden of inflation.

There is professional capability that can cope with this work. Already the Central Bureau of Statistics is engaged in the collection of indices. At present as already suggested, they are only marginally used as decision inputs. The proposal here calls for a closer coordination between CBS and Planning Division of the ministry.

On the organization side it is recommended that a date be set when all prices of scheduled crops have to be reviewed. The present law stipulates that by February they should have been announced for the next planting season. However the farming community feels that February is too late to plan for the next season because in some regions land preparation and planting should have been done by this date. It is understood that the Ministry of Agriculture is studying this problem. May be September or October would be a better time to announce the new prices and this should be done for all scheduled crops even if the price is remaining constant.

The law should make it clear that both Agriculture and Finance and Planning are equally involved. Apparently an impression has been created among pressure groups that the Ministry of Agriculture has little say in the pricing and that the Ministry of Finance and Planning is the one that matters. This has resulted

in representations by-passing Agriculture, and leading to some confusion and unnecessary conflicts.

7.2.3 Implementation

Guaranteed prices are legislated to protect the producer and the consumer. At present the consumer is safeguarded by the Price Controller and cases of overcharging on controlled goods is limited. However there is no machinery to protect the farmer who is unable to deliver his produce to, say MPB depot. It has been shown that the middlemen in fact benefit from the guaranteed prices at the expense of the farmer. The only solution to this is to organize the farmers so that they can deliver as groups where necessary to MPB depots. In this way middlemen would be cut out and the intention of the government to guarantee a price to the farmer will be met. Co-operatives are not meant to eliminate the middlemen but rather to perform their work at a lower cost with benefit to the producer and consumer. However, it must be observed that inefficient co-operatives can equally be a danger to the farmer.

7.3 Conclusions on Maize Marketing

The maintenance of competition requires that ownership should not be concentrated in a few hands. This is what would happen if the maize market was set free. A few monopolies or even one with capital to build storage would take over to everybody's disadvantage.* For this reason it is advisable that a significant proportion of the total storage of sensitive commodities like maize be held in state ownership. Therefore MPB should continue to perform these functions. To assist this, a campaign is needed among growers to encourage them to dry and clean their produce. During field work, one was constantly reminded of the lack of co-operation and consultation between the farmer and MPB field staff.

In fact a field survey in Kitale revealed a certain feeling of alienation of the farmer from MPB field staff. The farmer felt he was beset with many problems which MPB did not seem to be interested in. A closer cooperation and appreciation by both sides of the contribution made by each party would improve morale in the maize industry.

The question of storage of course has to balance optimal capacity with associated depreciation, capital on buildings and maize stocks, handling, fumigation and spoilage against imports or exports. Just now the problem is being considered against exports and it is a formidable task. The matter has become urgent in that MPB stocks are at a record, sales are low, stores are full and one million bags will be stacked outside the storage areas by the end of the financial year on 31st July, 1977 and yet a new crop is expected to arrive within a few weeks. The forecasts for the next season are indicating a good crop despite

* it is recognized that monopolies may not always be bad.

floods in places like Bunyala in Western Province which are now receiving flood relief of maize which they normally produce a surplus of. The current cash-flow of the Board represented 65% of interest on outstanding loan and therefore the £24 million overdraft with the Cereals and Sugar Finance Corporation cannot be reduced. An urgent decision is needed from the government to save the situation.

If the official view is still that of controlling the market for maize then surely they must make MPB system work. What alternatives are there to reduce the surplus? The best choice would be to sell to stockfeed at export parity price as a first priority so that the loss on maize may be a gain on beef. Stockfeed will probably take a maximum of 440,000 bags and the balance of the surplus will have to be exported, admittedly, at a loss but it will probably be a smaller loss than could occur in any case through deterioration. In any case exports yield foreign exchange.

7.3.1 Suggested Improvements to the Maize and Produce Board

All in all, it can be said that the Maize and Produce Board system works and that its performance is probably commendable in view of the constraints it faces. But there are several significant areas in which it could reduce the influence of the constraints through improvement and the adoption of strict business procedures.

The most prominent weakness in the system is marketing. Even the organisation of the staff functions does not give proper weight to marketing which after all is the business of MPB. There is a Sales Manager responsible for sales but he deals with routine clerical decisions of delivering maize to millers. It is therefore suggested that there is an urgent need to set up a Marketing Division with fully qualified staff in the principles and practice of marketing. This would assist in the distribution of maize. It is understood that additional depots are to be built in deficit areas to facilitate distribution like that at Mwingi for Ukambani. But this must go together with strengthened marketing information and promotion.

The marketing division will also liaise with millers to monitor distribution problems. It has been pointed out that the margins currently allowed to the wholesalers and retailers are not adequate. Their margin has remained constant while the rest of the links in the marketing chain have received price increases. For example, in January 1974 ex-mill price of grade 1 maizemeal in Nairobi was Shs. 23/85 per bale while wholesale price was 24/35. In January 1975 ex-mill price went to 31/05 and and wholesale 31/55. In January 1977 the price structure was 40/40 ex-mill and 40/90 wholesale. The misconception held in official circles of the Price Controller, MPB and KNTC that wholesalers acted as retailers was not doing much good to the distribution channel. It is understood that there are a few genuine wholesalers who find the business unprofitable. They cannot even cover transport costs. For example a wholesaler using

a lorry to collect 300 bales from a Nairobi mill gets a margin of 150/= at the rate of 50 cents per bale. If he used his lorry for something else he could make bigger profits. As a result some small millers are tempted to undercut the established mills by buying maize illegally at lower prices to allow wholesalers higher margins. It is understood that some of them were allowing 1/= or 1/50 per bale to the wholesaler instead of the official -/50 cents.

If the new producer prices have increased production, they have also altered consumption habits. Most consumers have changed to lower grade maize meal. This has affected the operations of large millers like Maida. In 1975 there was great demand for sifted maize flour and this encouraged Maida to expand its capacity. In 1976 they were selling 3.5 million kilos per month but then sales have remained constant in 1977 although there is a higher production capacity. This has necessitated closing down from time to time and during such closure, money is lost on overhead costs.

On the question of recurrent surpluses associated with good years, it is suggested that instead of looking to exports to get rid of the surpluses, Maize and Produce Board or Ministry of Agriculture should initiate research to diversify the uses of maize. A private company is pioneering a use for maize cobs which so far have been useless. This by-product of maize will be used to make furtural acetic and formic acids and the pulp could be used for stockfeed. A few more such useful and economical ideas on alternative uses of maize are needed.

Another area where improvements could be effected is the kind of product marketed. Maize meal seems to be the best form of eating maize and if the exports could be turned from whole maize to maize meal then there might be a better market in the export world. It is understood that the current law forbids the export of maize meal as it would be difficult to control the millers. However, MPB and the government is building a mill at Nakuru that will process 100 tons of maize a day. This could be used to experiment with the exports of maize meal. The idea of exporting processed agricultural products should be seriously considered by the government to improve profits. It is understood that Maida has received enquiries on exports and with such high stocks, this would be the time to allow millers even temporary exports of maize meal. The machinery that processes exports should be more responsive to the needs.

Marketing services will also need data to be generated on prices in the local markets so that the board can intervene effectively. MPB has a small section manned by one Economist/ Statistician and an assistant with eight enumerators. They are concentrating on yield surveys but they need to be strengthened to include a survey of maize prices in the rural markets. Alternatively MPB can make use of IRS surveys of rural market prices. Another point is that parastatal boards like the Wheat Board and MPB could pool resources together and have joint statistical services which would in turn generate the type of data on which more rational price decisions can be based.

7.4 Distribution of Maize and Sugar

It has been pointed out that the location of depots should bear transportation costs in mind and also their accessibility to supply and demand areas. KNTC depots are located in urban centres for the obvious reasons of infrastructure required for such services. However it needs more cost analysis to arrive at the best location of depots. Admittedly costs are not necessarily only financial but there are considerations of a social and political nature that have to be considered as well.

7.4.1 Distribution of Maize Meal

The new producer price of maize has created distribution problems in the industry. These problems can be viewed from two angles. On the one hand, millers are unable to distribute maize meal effectively because the wholesaler's margin is too low and it becomes uneconomical to distribute beyond certain restricted limits. During field work, it was found that government officials held that millers margins were low and therefore they had refused to expand their capacity. However, research among the millers revealed that the real problem was the wholesale margin.

In describing the pricing system, it was indicated that wholesalers and retailers were not represented as groups to make their case to the decision makers. Their margin was negotiated by the millers when ex-mill prices were set. There was also the misconception in official circles that the wholesaler

and the retailer was the same person. This was found to be inaccurate in that during the shortages of 1970/71 when special permits were needed to move maize meal from millers a few retailers obtained licences as wholesalers. But there are genuine wholesalers in addition. The culprits should be weeded out so that the industry can function properly with the wholesaler getting a fair margin. At present most of the trading margin goes to the retailer who receives Shs. 2/50 per bale compared to -/50 cents received by the wholesaler.

The second change in the industry is the consumption pattern. The price has not affected consumption very much but it has affected the consumption behaviour. There is a definite shift to lower grades of maize meal and also to other foods like rice because the price differential is small. Furthermore people are using the hammer mill to process their maize and not buying sifted maize meal. It is understood that Gailey and Roberts have reported an increase in the sale of hammer mills*. This may be a good tendency. Harper (1974) in the Institute for Development Studies, Nairobi Working Paper No. 170 on "Inappropriate Technology" recommended that hammer mills be encouraged instead of sifted maize meal technology. But at the same time the fact that the introduction of sifted maize meal has increased maize consumption cannot be denied.

* according to Maida Ltd.

7.5 Conclusions on Sugar

It has been stated that the price of sugar should be in constant review and be tied to government objectives for the development of the industry. The price delay in 1972 reduced cane in Nyanza where factories sometimes operate at 33% below installed capacity and thereby wasting resources lying idle. Compare Muhoroni which was installed in 1966 with a capacity of 42,000 tons and was extended to 55,000 tons but in 1976 it produced 26,000 tons of sugar. To alleviate this, nucleus estates are used as buffer stock but this is not a good policy as it concentrates benefits in a few hands. The Mumias system is the better approach where outgrowers are assisted by the Company to deliver the required cane.

The sugar industry has made great strides in the last decade since independence. Sugar started with two factories at Ramisi and Miwani in 1924. For forty years little development took place but in the last ten years three additional factories have been completed and two more will be ready before 1980/81 when Kenya expects to become self-sufficient in Sugar. After 1985 a surplus will be generated.

7.5.1 Rate of Expansion

In 1965 C.R. Frank Jr., used regression analysis that revealed that only time series affected the growth in sugar consumption. That was correct at that time, because retail sugar prices remained constant over that period. It would appear

that on that basis KSA has continued to use a growth path in consumption of 7.5%. However Aldington as quoted previously has carried out multiple regression that has shown that consumption is now strongly affected by prices and disposable income. For his regression and correlation analysis a growth rate of 4.7% is estimated. And it would appear that the current consumption levels bear relation to his findings. According to KSA, 1975 consumption should have been 250,000 tons but only 195,000 tons was consumed and for 1976 KSA forecast 240,000 tons but only 180,000 tons was consumed.

Therefore in the circumances it was not necessary to schedule South Nyanza and Nzoia until 1986. But the investment has been undertaken and the most economical use will have to be found for the surplus.

Sugar factories are expensive investments. For example South Nyanza factory will cost Shs. 550 million with a capacity of 60,000 - 90,000 tons. Nzoia will cost Shs. 520 million with a capacity of 70,000 tons per year. The difficulty with plantation crops involving bulk transport like sugar cane is that they are difficult to organize for smallholders. This is why the Sugar Belt has had endless problems and Mumias only escaped through management foresight. One alternative would be to use the Mumias model and assist the grower. What might be a better alternative, taking into consideration the investment in large factories, would be to pioneer the "mini" sugar plants to be dispersed in villages where sugar cane is grown. Mangal Singh Engineering is looking into the feasibility of getting assistance from India. They

estimate that a mini plant producing either 110 bags, 65 bags or 40 bags a day would cost 1 million to 2 million shillings. May be it is worthwhile that the government looks into this possibility. While this is being written, it is understood that Ramisi is embarking on an expansion project for which World Bank assistance is being sought. At this stage it should be recommended that feasibility studies which are carried out when decisions have been made do not serve any purpose but waste resources. Feasibility studies should be more impartial to give proper priority first to rehabilitation and then to new expansions. Greater use should be made of people on the local scene who know the problem rather than bringing people from outside with no experience of Kenya. However, on this point, it is understood that when, say. the World Bank does a feasibility study, it is then much easier for the government to get financial assistance to fund the project. The World Bank has its own rationale in that decision.

7.5.2 By-Products of Cane Sugar

In the allocation of sugar monies between outgrowers and factory, one must take into consideration the net value of by-products and add this to the net income from sugar. Molasses is the main by-product. At present it has good export market mainly for feed but it could be more profitably developed for local purposes of stockfeed or fermented and distilled for the production of potable spirit or industrial alcohol. A team from Brazil is in Kenya to look at this latter possibility.

A small efficient distillery is operating at Miwani and just now Miwani wants to expand. However, there is need to plan so as to effect economies of scale by expanding the Miwani establishment to process the by-products from the Miwani itself, Chemelil, Muhoroni and Mumias. Secondly absolute alcohol lends itself to blending in any proportions with petrol to yield a very satisfactory motor spirit. "This was marketed for many years in Queensland, usually as a blend of 25% alcohol, 75% petrol."[48]

Finally as an experiment, it will be necessary to assess the value of molasses as a means of improving the soils of the sugar areas. "The material found great favour in Queensland cane areas prior to the development of an export market. It was usually applied to ratoon fields undiluted at the rate of 5-10 tons per acre."[49]

Jaggery is prohibited within a radius of 15 miles of a sugar mill. But there are substantial areas outside these limits where cane production represents an important factor in the farm economy, provided it can be processed into products like jaggery. Jaggery goes into illicit brew of spirits and therefore it would be better if small plants for a type of mill white sugar were developed to serve these areas. Alternatively open pan manufacture called "khandsari" from an Indian process could be developed. One such plant exists at Kakamega.[50]

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48 Kerr, H.W. Report on Kenya Sugar Industry, Government Printer, Nairobi, 1967 p. 21.

49 ibid. Kerr p. 21.

50 op.cit. Kerr p. 22.

On the production side the sugar research station at Kibos should be revitalised and be made to open sub-stations in all the major sugar growing areas. Its main task should be to develop better breeds of sugar cane and agricultural techniques that can improve yields. This is particularly necessary for the Nyanza Sugar Belt and Ramisi which need urgent rehabilitation.

7.5.3 Some Comparisons between Sugar and Maize

The policy decision remaining on sugar is whether it is necessary to expand production to meet consumption rates generated by reasonably low prices or whether to increase prices so as to depress the consumption and to release resources for other crops and other investments. Sugar is of doubtful nutritive value and its consumption can profitably be discouraged through higher prices. Moreover in Nyanza and Western Provinces most of the sugar cane land is suitable for other food crops and at present it competes with maize. An overall food policy could probably justify reduction of sugar to allow an expansion of other crops needed for their nutritive value. In this connection the Ministry of Health need to work closely with the Ministry of Agriculture to draw food balance sheets and nutrition requirements.

Both crops appear to have unsuitable export markets and therefore when a surplus is generated it is likely to be disposed of at a loss in the export market. The sugar problem has not arisen yet but will do so after 1985 and therefore research should find alternative uses in the domestic market.

7.5.4 National Food Policy

It is helpful if agencies and policies for agricultural production and marketing can be directly linked under the control of the Ministry of Agriculture. But more important is the task of setting up a national food policy under the Ministry of Agriculture. Before any national food policy can be formulated it is necessary to collect data on the supply and consumption of essential foods from which crop models can be built for compiling food balance sheets. There is always a temptation to ignore consumer requirements and to rely on farm income requirements in determining agricultural policy. However the requirement for food should dominate any national food policy. For example a small scale farmer at Kitale was found to have used 10,000/= from GMR to produce 417 bags of maize which he sold to an agent at 70/= per bag making a total of shs. 29,190/=. Admittedly, he incurred additional expense in weeding but still this is a very high return. The food balance sheets can be evaluated in terms of nutrient value, retail value or value at farm gate. Such balance sheets are important for assessing the needs for imports and also how people of the nation are fed. A nutrition policy would reveal which crops to push. The Ministry of Agriculture's Commodity Analysis and Planning Section is to be commended and encouraged in the work they are pioneering in this field.

Such policy will develop methods of pricing in terms of relative importance of crops like maize, wheat, barley and

dairy products which are substitutes at production level and to some extent at consumption level. The best relative mix of maize, dairy products, poultry, sugar cane etc. is also important. For example sugar now has a guaranteed buyer and its gross margin analysis shows it to be superior to all other crops like hybrid maize and Mexican 142 beans which themselves have a high margin. The nearest rival to sugar is groundnut and sunflower/maize rotation. This brings home the point that in effect sugar is being encouraged at the expense of other more nutritive foods and therefore overall food policy is important.

Nevertheless there is need to allocate more manpower and financial resources to formulate these policies. At the present there is a shortage of professional staff and this means that short time horizon work absorbs most of the time and policy formulation gets pushed aside because of the pressure of operational duties.

7.6 Recommendations on Integrated Marketing Organisation

One of the tasks of this study has been to evaluate the best way of co-ordinating marketing efforts of food crops. This co-ordination is important as stimulation of more and better produce for sale is the main objective of any viable development programme. In the process of this co-ordination ministries should not interfere in the day to day operations of the boards. Rather ministerial control should be limited to policy and greater effort put in to developing coherent policies for the boards.

One weakness in the system is that too few civil servants are spread thinly on too many boards which means that they do not have enough time with each board to make an effective contribution. The Ministry of Agriculture should delegate to the boards distribution decisions and give greater freedom and latitude.

The need for a joint executive marketing organization within the Ministry of Agriculture cannot be overstressed. Its functions would be to advise on crops to be brought under control, to ensure balance between production and available markets and to formulate a common policy on external marketing matters. But rather than create another bureaucracy it is recommended here that there are adequate institutions to handle these matters if their functions can be clearly defined. The boards should handle distribution with all its needs of markets.

The proposed Agricultural Price Determination Committee will advise on pricing policies. The Ministry of Agriculture with its proposed food policy will monitor the crops that need bringing under control.

If control is to continue then the marketing capability of the Ministry of Agriculture has to be strengthened. It is recommended that the present FAO Project be established as an integrated service of the Ministry and be given all responsibility of marketing, including liaison with boards. The inevitable overlap with the Commodity Analysis Section over pricing decisions should be apportioned on the basis of comparative advantage to avoid duplication and wastage of resources.

7.6.1 Legal Requirements

In the process of all this reorganisation it will be necessary to streamline the requirements of the various Acts of Parliament that govern marketing of food crops. Some of the Acts overlap and cause confusion. This is particularly relevant to the Agriculture Act (Cap. 318), the Agricultural Produce Marketing Act (Cap. 320) and to some extent the Maize and Produce Board Act (Cap. 338). They repeat the same requirements in many sections. The law should also specify when prices are to be announced.

More important to the economy is a proper legal control of prices of all commodities. This will be the only way of keeping food prices at reasonable levels, otherwise overcharging on agricultural inputs will automatically require price increases to the farmer. KNFU was quoted in the "Daily Nation" of 29th April 1977 making this point which all nationals of this country are anxious about.

"A tractor machinery part invoiced for 367/60 by a Nairobi importer was going for 57/40 at another supplier, a tractor machinery part imported by a Nairobi firm invoiced at 710/= (actual air landed price 380/=), a motor machinery part imported by a Nairobi motor dealer and invoiced at 731/= (actual landed price 270/=)."[51]

Such "profit margins" as quoted above are too high and the Price Controller should do something, otherwise inputs to farmers go up artificially and is reflected in producer prices which affect the ordinary consumer. It is essential to have a proper price administration for all commodities. It might help to publish a price list of all commodities that consumers could buy. The large variation in prices of items of the same value is worrying. Priorities are also a bit misplaced when village shopkeepers are fined for overcharging by a few cents on bread while in Nairobi traders get away with exorbitant prices. It is understood that CBS enumerators for cost of living indices came across such price variations and reported them to the Price Controller but there seems little follow up. As suggested above it would be useful if prices were listed for the general public.

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51 Daily Nation 29th April 1977.

7.7 Summary of Recommendations

At this stage it is worthwhile to restate the task of this study. The governmental food marketing machinery faces many constraints in meeting the conflicting demands of the producer segment and the consumer segment of the community. This analysis has attempted to highlight the constraints and to demonstrate that despite the constraints, the system works remarkably well. However there are weaknesses in the operation of the system that need to be improved if the system is to continue to meet increasing demands on it. Some of these improvements are summarized below and they assume a condition of controlled marketing as at present:

1. Pricing Committee

It has been shown that pricing decisions are important in the marketing system. It is therefore necessary to have an institutionalized system with a proper Committee at the technical level to advise the political level.

2. Consolidating the Hierarchy

The proposed organization for decision making has shortened the hierarchical levels. It is recommended that the Ministry of Agriculture be given due authority in the exercise of producer pricing policies so that instituions that are supposed to work under it do not get disillusioned and thereby start by-passing it.

3. Methods of Pricing

The present method of using historical costs of production should be modified and be analysed in terms of indices of price changes in inputs.

4. Implementation of Guaranteed Prices

It is unfortunate that the government in guaranteeing a price to the farmer does not reach all the farmers and in some cases the middlemen benefit from the guaranteed prices at the expense of the farmer. This is a difficult problem that can only be solved by eliminating the agents. If co-operatives improve, they will solve the problem, otherwise MPB has to educate the small farmers to organize themselves to deliver produce to the depots.

5. Maize Marketing Board

This board is beset with many problems beyond its control and there is need to review several aspects.

a) The government should streamline the policy guidelines for MPB and where a decision has to be taken by a ministry on disposal of maize surplus this should be done without undue delay that jeopardize MPB operations. Priority in such cases should be given to selling maize as stock feed at export parity price.

b) MPB itself need to strengthen its marketing operations to improve distribution and to find other forms of maize product that can have a better local and export markets.

c) The system of exporting through tender should be abolished so that all the benefits can accrue to MPB and the government. MPB should be able to get information on the world prices and to decide where and when to export to. At present MPB does all the donkey work of moving and loading the export maize on the ship at Mombasa, it is therefore not clear why tenders are necessary that bring in middlemen who are allowed a margin. In the MPB annual report for 1974/75 the auditors commented that they were unable to satisfy themselves that the fair market price had been obtained by the Board for exported maize. So the tenders do not help in any case.

d) The criticism that MPB collects maize in central areas and fails to distribute it to the deficit areas where prices may be above the controlled price is not borne out. It has been shown that in 1977 the prices in the informal channel are not very different from MPB prices.

e) The Ministry of Co-operatives has a big task of making cooperatives viable. Co-operatives are not meant to eliminate the middleman but to perform his work at a lower cost. If marketing co-operatives became viable in maize marketing, they could give the farmer a price close to the guaranteed price. However at present there are certain districts where the co-operatives do

not have the experience and although MPB tried to channel their agents through the co-operative, the latter did not have the capability and on occasion was offering lower prices to the farmer than the agent apart from the fact that the agent pays cash whereas the co-operative payments are made afterwards.

f) The study found that storage was a big problem for MPB and that additional storage was either under construction or was planned. The existing storage capacity is shown in the table accompanying map 1. To facilitate a more effective use of storage, it is recommended that greater use be made of the driers at Webuye and Bungoma and that serious consideration be given to providing a drier at Kitale.

A drier with a capacity of 10 tonnes per hour like those at Webuye and Bungoma were each installed at a total cost of Shs. 4,122,500, the machinery cost Shs. 3,229,500 and building cost Shs. 893,000. The machinery was given in form of a loan to MPB by the Danish Government through the Kenya Government. MPB charges the farmer for the drying facility at Shs. 3/= per bag for maize with a moisture content of 13.5%-14% and Shs. 4/= per bag for moisture content above 14%. At present farmers complain that the charges are too high and very few farmers use the facility. Only 5% of the maize intake at Webuye and Bungoma use the drying facility which means that the capacity is wasted.

There is a case here for MPB to educate the farmer on the economics of using the drier. This will bring in more farmers to use the drier and the charges could even be reduced if sufficient amounts of maize passed through the drier. A feasibility study is needed before such a heavy investment in a drier is undertaken at Kitale. It could be a worthwhile investment as it will ensure that the maize is dried to required specification before it is stored and thus reduce possible deterioration of the grain. It would also remove the hold up of maize at the farm which is currently causing great frustration to the farmer and has led to allegations of corruption at the depots. It has been pointed out in connection with the sugar industry that some feasibility studies prejudge decisions and merely confirm what the decision makers wish to see. This would appear to apply to the feasibility study that led to the location of the only two maize drying plants at Webuye and Bungoma. Any feasibility made in connection with the drier which is suggested for Kitale should sample the response that would be received from farmers to such a project. Only if the response is large would it be worthwhile to install a drier at Kitale. But more important is the education of farmers on the economics of using the drying facilities.

g) The use of KFA agency to run MPB depots in the former "white highlands" is a legacy of the past and should be

reviewed. Already MPB has taken over depots at Lugari, Turbo, Kipkelion and Nyahururu. Co-ordination becomes difficult in a sensitive area like Kitale where farmers have to be given a schedule of when to deliver their maize. Ideally, permits for maize delivery should be issued only to the extent of the facility available to deal with the intake. In practice more permits are issued than the facility can handle and this leads to malpractices. Having delegated the operation to KFA, MPB cannot control them. It is therefore recommended that for better control and organization, MPB should take over the running of all the depots.

6. Distribution

a) The margins for wholesalers need careful review to promote distribution. In this connection it is recommended that people appointed to the position of Price Controller and Assistant Price Controllers should be qualified in marketing and have experience of costing and pricing in the processing industry.

b) A more widespread of sugar agents is needed to reach remote villages. KNTC should give loans and credits to such traders.

c) Transport costs need to be taken seriously and quantitative methods worked out to provide an optimal distribution network.

7. Sugar Expansion

a) Regression methods should be used to forecast consumption accurately and to schedule factories in the best interest of resource allocation.

b) Greater consideration should be given to small sugar plants for villages where sugar is grown.

c) Greater share of the processed sugar value should be given to growers.

8. National Food Policy

There should be a body charged with the responsibility of formulating a national food policy that considers food requirements against agricultural production.

9. Integrated Marketing Organization

To avoid another bureaucracy outside government ministries it is recommended that the Ministry of Agriculture be given marketing capability to perform this function.

10. Legal Requirements

All the acts dealing with marketing of food crops and products should be reviewed and if possible amalgamated and specify dates of price reviews.

11. General Price Administration

Greater control need to be exercised by the Price Controller to ensure that traders do not increase prices arbitrarily and that there are no price variations between similar commodities.

7.8 Conclusion

In conclusion it can be said that the producer price increase to 80/= per bag which was effected in September 1976 has substantially changed the maize industry in Kenya. It has brought many operational problems to MPB and it is quite clear from the trend of purchases during the year 1976/77 that most of the maize is coming to MPB. There have been purchases throughout the year and in places like Machakos MPB is purchasing for the first time in three years. The prospects for 1977/78 crop are good with a bumper crop being expected. The crop in South Nyanza is going to be ready for delivery in a few weeks time. It appears that the 4-5 year cycle of good and bad years has delayed. This has accentuated the effects of the price increase. In the circumstances it would be better to wait for two or three years until these effects have run their course and equilibrium restored before any major policy decisions on the maize industry, like setting the market free, are reviewed. Detailed background work for this decision should be processed for inclusion in the Development Plan 1982-86.

It should also be noted that in the last three years the international grain market has been very erractic. Prices have gone up and down. Just now the prices are low and it is understood that South Africa has just sold its maize at $91 per tonne which is the lowest amount they have ever sold for. This means that Kenya can only expect $85 per tonne cof Mombasa. Nevertheless it will be necessary to export some maize. It is only a matter of time. If there was good storage capacity available then MPB could hold the maize until the market improves.

But already 500,000 bags are stacked outside and the new crop is ready, therefore the surplus has to be moved to make room for the new crop. If some surplus is sold for animal feed at export parity, that will absorb a maximum of 440,000 bags and another 2,200,000 bags still have to be exported. The export earns foreign exchange which is valuable and therefore the loss incurred is reduced on the account. The decision facing the Ministers for Agriculture and Finance and Planning is one of uncertainty. Therefore expected values from each outcome should be weighed and just now it is obvious that expected value from exporting is greater than the expected value from holding the stocks or suspending the purchasing which would be illegal and could have serious political repercussions. As stated above it is only a matter of time and the longer the decision to export is delayed the more operational difficulties it will create for MPB. The Kenya Railways has offered wagons to move any amount of maize that MPB wishes to move and therefore this would have been a good time for them to move maize to Mombasa for export.

It has been stated that sugar does not have the same marketing problems but soon it may face the same situation. In planning this industry the decision makers should avoid the pitfalls that plague the maize industry. Fortunately sugar has more alternative uses although the industrial use at present is still limited and absorbs only 18,000 tonnes per year.

For both maize and sugar, producer and consumer prices are an important instrument to the decision maker. The pricing tool should be used intelligently to promote these crops in the

context of overall national food policy. The Ministry of Agriculture and the parastatal boards should have strong marketing Departments to promote the marketing and distribution of food commodities.

7.9 Suggestions for Further Research

This study has only aimed at making an overview of the decision making process of the governmental food marketing policies. For a greater understanding of the deeper organizational problems it is necessary to study each subsystem in detail to recommend managerial improvements in their organizational set up and techniques of arriving at decisions. The best approach would be that of a 'participant observer' who will spend all the time with the decision makers to assess how they actually arrive at decisions. Such a study could investigate the performance of the hierarchical model in terms of management style. Whether, for example, decentralized and democratic management would achieve better results than authoritarian administration. It could also assess the requirement for increased management, organization and methods and organisational behaviour staff to assist the economists. The establishment of such a cadre of staff could help decision makers to be broad minded and to restore the balance between management and economic view points. It was obvious during field study that management staff, in say the parastatal boards, viewed officials from the ministries as "those economists". Some of the sub-systems which could be studied separately and in greater depth include, the Maize Marketing Board, the Ministry of Agriculture (its role), the KNTC, the Kenya Sugar Authority etc. In setting up each of these organisations the government aims to achieve some objective. It would therefore be of great interest to examine each of these sub-systems in detail to find out if they

were fulfilling the functions for which they were created. It is only then that an overall clearer picture will emerge which not only shows the complexity of decision making in governmental institutions but which will also show the main links in the whole chain of what are interrelated and indivisible operations.

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APPENDIX 1

Kilimo House,

10th February 1977

Ministry of Agriculture,
Land and Farm Management Division
(F.M.R.O.)

Re: The competitive position of the major Agricultural Enterprises - February 1977

Please find enclosed calculations showing the competitive position of major agricultural enterprises at current (February 1977) prices and costs on large and medium size as well as commercial small-scale farms. The following calculations have been included:-

1. Large and medium size commercial farms:
   a) the variable costs of using tractors and machinery.
   b) Gross Margin from Commercial Maize.
   c) Gross Margin from What.
   d) Gross Margin from Sunflower.

2. Small commercial (family) farms:
   a) Cash flow of a coffee plantation.
   b) Cash flow of a tea plantation.
   c) Cash flow from pyrethrum.
   d) Cash flow from a dairy enterprise.
   e) Gross Margin from Hybrid-Maize.
   f) Gross Margin from cotton - given separately for 11 districts (the major contton growing areas).
   g) A short description of the techniques applied in cotton production in above (f) 11 districts.

   A commentary on each enterprise has also been included.

3. The calculations are very detailed and based largely on the results of practical farming. It is therefore advisable to study the results carefully and make the best possible use of them in project planning, extension work and investments.

4. The competitive position of cotton is very difficult and it is strongly advisable to study the findings carefully.

5. The farm management officers are requested to file the calculations and descriptions of production under the respective headings of the District Farm Management Guidelines.

6. The results of the calculations may hold true for the coming long and short rainy seasons as no dramatic change in price costs are expected.

7. Farm Management Guidelines for 1977 are currently being produced in each district and should be available at L&FMD (HQ) towards the middle of April, giving specific basic information about major enterprises of the respective districts.

H. SCHMIDT
(F.M.R.O.)

February 1977 — Agro-Economic Zone II

Unit 1 ha. — (Tea, Maize, Dairy)

Gross Margin from Maize

(Small Scale) (in Shs.)

Item	Unit	
Output: Yield	bags	42
Gross Output a)	Shs.	3623
Variable Inputs:		
Field preparation b)	Shs.	500
Seed c)	Shs.	80
Fertiliser d)	Shs.	897
Insecticides e)	Shs.	40
Gunnies f)	Shs.	281
Transport g)	Shs.	86
Tools h)	Shs.	28
Subtotal Var. Costs	Shs.	1912
Interest i)	Shs.	143
Gross Margin (incl. interest)	Shs.	1711
Gross Margin (excl. interest)	Shs.	1568
Manhours (mh) required j)		713
GM/ha	Shs.	2.20

C.III

February 1977

Ministry of Agriculture,
L & F.M.D. (F.M.R.O.),

Agro-Economic Zone Maize - Dairy
(Large and medium size commercial farms)

Gross Margin from Commercial Maize

(Large Scale) (Kshs./ha)

Production Level	I	II	III
Output:			
Yield bags/ha	30	45	60
Gross Output a)	2588	3881	5175
Variable Inputs:			
Seed b)	80	80	80
Fertiliser c)	588	922	1384
Plant Protection d)	57	64	71
Tractor & Machinery e) (var. cost)	815	829	870
Wages f)	233	284	336
Gunnies g)	206	310	413
Insurance h)	13	13	13
Transport i)	124	186	256
Subtotal Variable Inputs	2116	2688	3423
Gross Margin (incl. interest)	472	1193	1752
Interest j)	163	201	254
Gross Margin (exclud. interest)	309	992	1498
Fixed Costs for crib estimated	12	18	24
Gross Margin adjusted	297	974	1474

Note: Overhead Costs (fixed costs) approx. Shs. 270/= per hectare (1972).

APPENDIX 2

MPB REGISTERED MILLERS 1974/75

	Name and Address of Miller	Cert. No.	Storage Capacity Bags	Milling Capacity Bags per Month
1.	Maida Ltd, NAIROBI.	001	15,000	35,000
2.	Kenya Flour Mills (1970) Ltd. NAIROBI.	002	3,000	200
3.	K.F.A. (Coop) Ltd., KITALE	007	15,000	18,000
4.	Kenya Grain Mills, NAKURU.	008	2,000	19,440
5.	Bukhungu Industries Co. KAKAMEGA.	0025	5,000	6,000
6.	United Flour Mills, NAIROBI.	0027	7,000	6,000
7.	Simba Posho Mills, NAKURU	0032	750	6,000
8.	Kenya Oatmeal Ltd.	0038	3,000	12,000
9.	Rongai Steam Roller Mills Ltd. RONGAI.	0041	9,000	5,000
10.	Thika Flour Mills, THIKA.	0043	700	1,200
11.	Unga Ltd., ELDORET	0048	12,000	35,000
12.	Building & Trading Co. Ltd., ELDORET.	0050	2,000	1,000
13.	Haji Ali Ahamed & Sons, ISIOLO.	0052	1,000	7,200
14.	R.L. Shah & Co., MURANGA.	0063	5,000	1,200
15.	Kamba Posho Mill, KANGUNDO.	0072	1,000	3,000
16.	Maize Ltd., ELDORET.	0085	25,000	50,000
17.	A & J A. Dykes, RUMURUTI.	0086	200	1,000
18.	Luanda Flour Mills, MASENO.	0090	1,000	3,000
19.	Laikipia Wholesale Co. Ltd., NYAHURURU.	0093	200	1,800
20.	National Unga Industries, NAIROBI.	112	5,000	4,000
21.	Simiyu's Posho Mills, KITALE.	122	500	3,600
22.	Kibos Industries Ltd., KISUMU.	147	20,000	28,000
23.	Kitale Industries, KITALE.	150	20,000	6,000
24.	M/S Mount Kenya Millers, NANYUKI.	160	4,000	3,000
25.	Food Grinding Store, ELDORET.	176	250	1,440

	Name and Address of Miller	Cert. No.	Storage Capacity Bags	Milling Capacity Bags per Month
26.	Nairobi Flour Mills Ltd, NAIROBI.	176	40,000	45,000
27.	Busienei Posho Mill, KITALE.	186	800	347
28.	Jambo Flour Millers Ltd., NAIROBI.	203	20,000	15,000
29.	Ugali Products (1973) Ltd., NAIROBI.	211	10,000	24,000
30.	Michael Musembi, KANGUNDO.	214	na	na
31.	Lukorito Millers, KITALE.	217	600	1,500
32.	M/S Atta (1974) Ltd., MOMBASA.	222	25,000	37,000
33.	Ruona Posho Mill, THIKA.	224	1,000	3,600
34.	Nyange Posho Mill, KITALE.	225	na	na
35.	Haji Issa Adam & Sons, NAROK.	227	600	na
36.	Geytex Ltd., NAIROBI.	228	na	na
37.	Kathuli Posho Mills, MACHAKOS.	229	6,500	na
38.	M/S George N.M. Matu, ELBURGON.	230	500	3,000
39.	Mr. Evanson Mwirigi, SOUTH KINANGOP.	231	800	1,500
40.	M/S Kibuye Posho Mills, KISUMU.	232	2,000	na
41.	M/S Nachami Stores, ISIOLO.	233	2,000	200
42.	Ogondo Posho Mill, KORU.	205		
43.	Nathuri Flour Mill, NAIROBI.	234		
44.	Nyanza Millers Ltd., KISUMU.	226	5,000	9,000
45.	M/S Mombasa Soaps Oil Manufactures Ltd., MOMBASA.	235	20,000	6,000
46.	Njuguna & Mbugua Miller, MARAGUA.	236	100	7,200
47.	Nyaralego Posho Mill, KAPENGURIA.	237	500	1,500
48.	Rurago Farmers Traders Young Industries, MARAGUA.	238	na	na
49.	Meru Millers Ltd., MERU.	239	na	na
50.	Mr. Mohammed Sumba, KITALE.	240	na	na
51.	Chem-Chem General Trader, RUMURUTI.	241	300	600
52.	Sabatia Millers, NAKURU.	242	4,000	6,000
53.	Massi North-End Posho Mill, MASSII.	243	na	na

REGISTERED PROVENDER (ANIMAL FEED) MILLERS 1974/75

	Name and Address of Miller	Cert. No.	Storage Capacity Bags	Milling Capacity Bags per Month
1.	A.B.C. Foods, NAKURU	0087	25,000	11,100
2.	Lea Bros & Blakeman (E.A.) Ltd., NAIROBI.	0094	2,000	9,800
3.	Maida Ltd., NAIROBI.	0098	22,200	22,200
4.	Belfast Millers, NAIROBI.	115	10,000	11,520
5.	Unga Ltd. Feeds Division, NAKURU.	120	10,000	76,000
6.	Kanio Poultry Co., NAIROBI.	143	500	1,000
7.	Merchants Manufacturers (K), NAIROBI.	145	8,000	5,000
8.	Kibos Industries Ltd., KISUMU.	180	4,000	9,000
9.	Kitale Industries Ltd., KITALE.	181	15,000	3,000
10.	Kihara Posho Mill, KIAMBU.	206	500	na
11.	M/S Muus Kenya Ltd., THIKA.	210	7,800	13,200
12.	Atta (1974) Ltd., MOMBASA.	219	25,000	24,975

Note: na = Information not available.

Source: MPB Records 1975/76

APPENDIX 3

K.N.T.C. Active Sugar Agents

	Number by Districts
Nairobi	130
Mombasa	38
Kilifi	11
Kwale	4
Taita Taveta	10
Tana River	6
Lamu	6
Machakos	62
Embu	15
Kitui	25
Meru	33
Isiolo	5
Marsabit	5
Kiambu	70
Muranga	28
Nyeri	40
Kirinyaga	22
Nyandarua	20
Siaya	12
Uasin Gishu	23
Trans Nzoia	7
Nakuru	37
Nandi	8
Kericho	18
Baringo	3
Turkana	1
Samburu	7
Laikipia	9
Narok	3
Kajiado	14
Kisumu	42
Elgeyo Marakwet	1
South Nyanza	18
Kisii	24
Kakamega	53
Bungoma	10
Busia	5
Garissa	8
Wajir	5
Mandera	3
West Pokot	3
TOTAL	844

Source: KNTC Records, 1977

APPENDIX 4

MAIZE AND PRODUCE BOARD MONTHLY SALES OF MAIZE 1976/77

Month	Bags
August	387,823
September	541,783
October	519,724
November	438,094
December	500,507
January	429,751
February	374,353
March	306,473
April	214,228
May	143,215
June	290,326
July	250,000
Total Sales	4396,277
Total Purchases	6000,000
Add Beginning Stocks	2613,132
	8614,132
Less Sales	4396,277
Closing Stocks	4217,855

Source: MPB Records 1976/77

APPENDIX 5

MAIZE

A Sample of Purchases and Sales in Bags

	Kitui		Nairobi		Kitale	
	Purchases	Sales	Purchases	Sales	Purchases	Sales
1976						
January	-	2831	-	87833	173532	13265
February	-	3204	-	104847	252342	14232
March	-	8094	-	147568	252732	600
April	-	8788	-	125492	173791	10174
May	-	7195	-	135410	61969	20890
June	-	13494	-	185606	44075	30150
July	-	13591	-	134431	14765	24507
August	-	12743	-	164737	17434	14142
September	-	28247	-	150627	7133	34189
October	-	26354	-	241727	2025	8405
November	-	44945	-	175614	25979	638
December	-	15690	-	152552	63981	741
TOTAL		185176		1806444	1089,758	171933
1975						
January	-	1298	-	96020	120996	27215
February	267	109	-	59064	173914	12565
March	28	54	-	63809	187701	9102
April	127	341	-	65131	140942	35119
May	-	4387	-	50720	36399	36850
June	-	5103	-	41390	6063	20991
July	-	5586	-	51586	6018	38190
August	-	7345	-	59870	1347	7267
September	-	5386	-	65717	2520	24414
October	-	2719	-	69557	300	39996
November	-	4410	-	77848	7684	27984
December	-	5113	-	98762	41082	28138
TOTAL	422	41851	-	799474	724966	307831

Note: 70% of sales at Kitale should be accounted for at Nairobi as most of it is maize sold at Kitale but delivered to the mills at Nairobi.
Sales at Kitui are not to ignore figures from Kibwezi and Thika Sales which may be more than reflected at Kitui Depot.

Source: MPB Records, 1976/77.

Annex1 14/57/51 13/07/77 . ICL 1900 STATISTICAL ANALYSIS XDS3/24

REGRESSION ANALYSIS CROS MAIZE CUT OFF PARAMETER .100000E- 5

DEPENDENT VARIABLE PURCH DEGREES OF FREEDOM 17

INDEPENDENT VARIABLES AT SIGNIFICANT LEVEL 20.00 %

CONST PRICE

VARIABLES IN THE REGRESSION SET

VAR NAME	REGRESSION COEFF	STANDARD ERROR	CONFIDENCE INTERVAL	T STAT	PART CORR	MULTIPLE CORRELATION	F S S
PRICE	82.0264317	.704827E 1	,939534E 1	11.64	0.94		,214880E 9

VARIABLES NOT IN THE REGRESSION SET

VAR NAME	T STAT	PART CORR	MULTIPLE CORRELATION	F S S
CONST	0.00	-0.00	0.943	.239635E 8
SALES	1.67	0.39	0.951	.203969E 8
TIME	0.72	0.18	0.944	.232110E 8

E.S.S.	.239635E 8
RESIDUAL ERROR	.118727E 4
MULT CORR	0.943

REGR,MAIZE,CROS

Annex 2

15/59/11 13/07/77 ICL 1900 STATISTICAL ANALYSIS XDS3/24

REGRESSION ANALYSIS CROS MAIZE CUT OFF PARAMETER .100000E- 5

DEPENDENT VARIABLE SALES DEGREES OF FREEDOM 16

INDEPENDENT VARIABLES AT SIGNIFICANT LEVEL 20.00 %

CONST TIME

VARIABLES IN THE REGRESSION SET

VAR NAME	REGRESSION COEFF	STANDARD ERROR	CONFIDENCE INTERVAL	T STAT	PART CORR	MULTIPLE CORRELATION		F S S
CONST	- 9079.0161585	.229249E 4	.306506E 4	3.96	-0.70	0.911	0.456	.176030E 8
TIME	165.9442723	.338629E 2	.452747E 2	4.90	0.77	0.886	0.000	.222311E 8

VARIABLES NOT IN THE REGRESSION SET

VAR NAME	T STAT	PART CORR	MULTIPLE CORRELATION		F S S
PURCH	0.28	0.07	0.956	0.776	.884366E 7
PRICE	3.21	0.64	0.974	0.873	.527324E 7

E.S.S.	.888919E 7	
RESIDUAL ERROR	.745369E 3	
MULT CORR	0.956	0.775

REGR,MAIZE,CROS

Annex 3

Basic Statistics for Sugar

No.	Year	£ mill Monetary GDP at factor cost	£ mill Direct taxes, adjusted years	£ mill Disposable Income	1957/8=100 Retail Price Index	£ mill Deflated Disposable Income	Shs./Kg. Retail Price Sugar
		1	2	3	4	5	6
1	1954	128.8	10.4	118.4	90	131.6	1.29
2	1955	154.2	11.3	142.9	95	1150.4	1.34
3	1956	166.3	12.2	154.1	97	158.9	1.23
4	1957	176.6	13.5	163.1	100	163.1	1.43
5	1958	178.0	14.1	163.9	100	163.1	1.28
6	1959	185.3	13.5	171.8	101	170.1	1.30
7	1960	200.7	12.8	187.9	103	182.4	1.30
8	1961	202.4	12.5	189.9	105	180.9	1.36
9	1962	207.1	12.3	194.8	108	180.4	1.36
10	1963	223.2	12.9	210.3	108	194.7	1.43
11	1964	242.5	13.7	228.8	108	211.9	1.48
12	1965	250.0	15.4	234.6	114	205.8	1.48
13	1966	283.5	18.5	246.0	117	226.5	1.54
14	1967	299.5	22.3	277.2	119	232.9	1.54
15	1968	333.8	25.1	308.7	120	257.3	1.54
16	1969	361.6	29.2	332.4	120	277.0	1.55
17	1970	399.3	36.9	362.4	122	297.0	1.55
18	1971	444.1	44.2	399.9	131	305.3	1.65
19	1972	519.7	51.3	468.4	135	347.0	1.85
20	1973	592.7	56.4	536.3	155	346.0	1.85
21	1974	731.9	67.7	664.2	180	369.0	2.40
22	1975	821.2	80.9	740.3	221	335.0	3.22
23	1976	n.a	n.a	n.a	250(E)	n.a	4.50

For notes see next page.

	Kg/caput			'000 metric tons	
Best Estimate		95% Confidence Limits			
Projection (1)	Projection (2)	Projection (3) L.Y. 2.7%	Projection (4) U.Y. 3.5%	Projection (3)	Projection (4)
6.	7.	8.	9.	10	11
-	-	-	-	-	-
195	195	14.1	14.1	195	195
209	210	14.5	14.8	208	212
225	227	15.0	15.6	221	230
241	244	15.4	16.3	234	229
258	263	15.9	17.1	251	270
276	282	16.4	17.9	267	292
295	303	16.8	18.7	284	316
315	326	17.3	19.5	302	341
336	349	17.8	20.4	321	368
359	375	18.3	21.3	341	397
383	402	18.8	22.1	362	427
408	430	19.3	23.0	384	459
435	460	19.8	23.9	408	494
463	492	20.3	24.9	432	530
493	527	20.8	25.8	459	570

Notes:

Col. 6&7 Projections 1 & 2. Using these alternative past rates. Col. 4 & 5 per capita consumption and Col. 6 & 7 total consumption.

Col. 8&9 Projections 3 & 4 applying confidence limits to alternative income growth rates (see text.)

Col. 10&11 Note the projections are based on $C_t = C_{76} + 0.36(Y_t - Y_{76}) + 0.30T$ (T = 1 for '77 and T = 14 for 1990) The confidence limits for the coefficients are $Y = 0.36 \pm 0.09$; $T = 0.30 \pm 0.04$.

Notes to Table

Col. 1 Monetary GDR at factor cost. This is in current prices. Source: Statistical Abstracts, Various years.

Col. 2 Direct taxes, adjusted year. The year is adjusted from financial (July/June) to a Calender year basis, Source: Statistical Abstracts.

Col. 3 Disposable Income, Col. 1 - Col. 2.

Col.44 Retail Price Index. To 1963 wage earners Index of consumer prices. Base 1957/58 Base revised to July 1964. Lower income Index from 1966 with base Aug. 1971. Source: Statistical Abstracts, various years.

Col. 5 Deflated disposable income Col. 3 - Col. 4.

Col. 6 Retail price of sugar. Source: Statistical Abstracts, various years.

Col. 7 Deflated retail price, Col. 6 - Col. 4.

Col. 8 Total consumption sugar: Source: KSA and Ministry of Commerce and Industry, Trade Section.

Col. 9 Population, Source: Statistical Abstracts.

Col.10 Consumption per caput Col. 8 - Col. 9.
Col.11 Deflated disposable income pre caput Col. 5 - Col. 9.

Col.12 Index of Ratio, 1957/58 = 100.

Col.13 Ratio of Retail price of sugar to disposable income per caput (underflated) Col. 6 x 100 ÷ (Col. 3 - Col. 9).

Source: Compiled by T. Aldington, 1977 unpublished.

Annex 4

Cost Matrix in Shs. per Bag

	Destination																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	13.0	12.0	13.50	11.50	14.40	14.25	5.90	13.70	14.30	19.75	16.65	23.80	17.85	16.30	17.75	13.0	14.25	0
2	16.95	15.95	17.45	15.45	18.35	18.20	9.85	17.65	18.25	23.70	20.60	27.75	21.80	20.25	21.70	16.95	18.20	3.95
3	10.75	9.95	11.30	9.20	12.80	12.30	14.25	5.90	3.45	5.0	3.45	16.60	10.50	9.50	15.80	7.65	8.40	16.0
4	10.50	9.70	10.90	9.20	12.60	12.00	13.70	5.90	3.45	5.0	3.45	16.60	10.50	9.50	15.50	7.30	8.05	15.75
5	10.90	10.20	11.50	9.50	12.80	12.30	14.25	6.55	3.45	5.0	3.45	16.60	10.75	9.70	15.80	7.65	8.65	16.30
6	14.75	14.15	15.25	13.55	16.85	16.30	18.00	11.0	12.45	15.90	14.05	3.10	6.88	7.50	19.70	13.65	12.75	20.35

Key:

Source		Destination			
1	KFA (Imported)	1	Muranga	7	Voi	13	Kitale
2	Ramisi	2	Thika	8	Nakuru	14	Eldoret
3	Chemelil	3	Karatina	9	Kericho	15	Meru
4	Muhoroni	4	Nairobi	10	Kisii	16	Naivasha
5	Miwani	5	Machakos	11	Kisumu	17	Nyahururu
6	Mumias	6	Nanyuki	12	Kakamega	18	Mombasa

Annex 5

Computer Print out Attached

Objective Function

Minimum Cost of transport Shs. 16,099,900

Actual Cost of transport according to C & I allocation is Shs. 22,358,900

So there is a saving of Shs. 6,259,000

PROBLEM LP MATRIX SOLUTION DATE: 27/06/77

DUMP:DUMP 2 RIGHT HAND SIDE R
OBJECTIVE COST

COLUMN INFORMATION

	NAME		VALUE	OBJECTIVE	REDUCED COST
	VAR0101	+	0	13.0000	0
B	VAR0102	+	176.0000	12.0000	0
	VAR0103	+	0	14.0000	1.0000
	VAR0104	+	0	12.0000	1.0000
B	VAR0105	+	793.0000	14.0000	0
	VAR0106	+	0	14.0000	0
B	VAR0107	+	296.0000	6.0000	0
	VAR0108	+	0	14.0000	6.0000
	VAR0109	+	0	14.0000	9.0000
	VAR0110	+	0	20.0000	13.0000
	VAR0111	+	0	17.0000	12.0000
	VAR0112	+	0	24.0000	23.0000
	VAR0113	+	0	18.0000	13.0000
	VAR0114	+	0	16.0000	10.0000
B	VAR0115	+	614.0000	18.0000	0
	VAR0116	+	0	13.0000	4.0000
	VAR0117	+	0	14.0000	4.0000
B	VAR0118	+	1542.0000	0	0
	VAR0201	+	0	17.0000	0
	VAR0202	+	0	16.0000	0
	VAR0203	+	0	17.0000	0
B	VAR0204	+	104.0000	15.0000	0
	VAR0205	+	0	18.0000	0
	VAR0206	+	0	18.0000	0
	VAR0207	+	0	10.0000	0
	VAR0208	+	0	18.0000	6.0000
	VAR0209	+	0	18.0000	9.0000
	VAR0210	+	0	24.0000	13.0000
	VAR0211	+	0	21.0000	12.0000
	VAR0212	+	0	28.0000	23.0000
	VAR0213	+	0	22.0000	13.0000
	VAR0214	+	0	20.0000	10.0000
	VAR0215	+	0	22.0000	0
	VAR0216	+	0	17.0000	4.0000
	VAR0217	+	0	18.0000	4.0000
	VAR0218	+	0	4.0000	0
	VAR0301	+	0	11.0000	0
	VAR0302	+	0	10.0000	0
B	VAR0303	+	3.0000	11.0000	0
B	VAR0304	+	1332.0000	9.0000	0
	VAR0305	+	0	13.0000	1.0000
	VAR0306	+	0	12.0000	0
	VAR0307	+	0	14.0000	10.0000
B	VAR0308	+	911.0000	6.0000	0
B	VAR0309	+	752.0000	3.0000	0
	VAR0310	+	0	5.0000	0
B	VAR0311	+	806.0000	3.0000	0
	VAR0312	+	0	17.0000	18.0000
	VAR0313	+	0	11.0000	8.0000
	VAR0314	+	0	10.0000	6.0000

PROBLEM LP MATRIX SOLUTION

DUMP;DUMP 2 RIGHT HAND SIDE R
OBJECTIVE COST

COLUMN INFORMATION

	NAME		VALUE	OBJECTIVE	REDUCED COST
	VAR0315	+	0	16.0000	0
	VAR0316	+	0	8.0000	1.0000
B	VAR0317	+	316.0000	8.0000	0
	VAR0318	+	0	16.0000	18.0000
	VAR0401	+	0	11.0000	0
	VAR0402	+	0	10.0000	0
	VAR0403	+	0	11.0000	0
B	VAR0404	+	2412.0000	9.0000	0
	VAR0405	+	0	13.0000	1.0000
	VAR0406	+	0	12.0000	0
	VAR0407	+	0	14.0000	10.0000
	VAR0408	+	0	6.0000	0
	VAR0409	+	0	3.0000	0
	VAR0410	+	0	5.0000	0
	VAR0411	+	0	3.0000	0
	VAR0412	+	0	17.0000	18.0000
	VAR0413	+	0	11.0000	8.0000
	VAR0414	+	0	10.0000	6.0000
	VAR0415	+	0	16.0000	0
B	VAR0416	+	266.0000	7.0000	0
	VAR0417	+	0	8.0000	0
	VAR0418	+	0	16.0000	18.0000
B	VAR0501	+	742.0000	11.0000	0
	VAR0502	+	0	10.0000	0
	VAR0503	+	0	12.0000	1.0000
	VAR0504	+	0	10.0000	1.0000
	VAR0505	+	0	13.0000	1.0000
	VAR0506	+	0	12.0000	0
	VAR0507	+	0	14.0000	10.0000
	VAR0508	+	0	7.0000	1.0000
	VAR0509	+	0	3.0000	0
B	VAR0510	+	653.0000	5.0000	0
B	VAR0511	+	1285.0000	3.0000	0
	VAR0512	+	0	17.0000	18.0000
	VAR0513	+	0	11.0000	8.0000
	VAR0514	+	0	10.0000	6.0000
	VAR0515	+	0	16.0000	0
	VAR0516	+	0	8.0000	1.0000
	VAR0517	+	0	9.0000	1.0000
	VAR0518	+	0	16.0000	18.0000
	VAR0601	+	0	15.0000	0
B	VAR0602	+	1291.0000	14.0000	0
B	VAR0603	+	1411.0000	15.0000	0
	VAR0604	+	0	14.0000	1.0000
	VAR0605	+	0	17.0000	1.0000
B	VAR0606	+	1026.0000	16.0000	0
	VAR0607	+	0	18.0000	10.0000
	VAR0608	+	0	11.0000	1.0000
	VAR0609	+	0	12.0000	5.0000
	VAR0610	+	0	16.0000	7.0000

PROBLEM LP MATRIX SOLUTION

DUMP;DUMP 2 RIGHT HAND SIDE R
OBJECTIVE COST

COLUMN INFORMATION

	NAME		VALUE	OBJECTIVE	REDUCED COST
	VAR0611	+	0	14,0000	7,0000
B	VAR0612	+	578,0000	3,0000	0
B	VAR0613	+	605,0000	7,0000	0
B	VAR0614	+	1029,0000	8,0000	0
	VAR0615	+	0	20,0000	0
	VAR0616	+	0	14,0000	3,0000
	VAR0617	+	0	13,0000	1,0000
	VAR0618	+	0	20,0000	18,0000
OBJECTIVE			160999,0000		

PROBLEM LP MATRIX SOLUTION DATE

DUMP DUMP 2 RIGHT HAND SIDE R
OBJECTIVE COST

ROW INFORMATION

	NAME		SLACK	R.H.S.	PRICE
#	COST	Z	160999.0000	0	
	SUPPLY01	+	0	3421.0000	4.0000
B	SUPPLY02	+	637.0000	741.0000	0
	SUPPLY03	+	0	4120.0000	6.0000
	SUPPLY04	+	0	2678.0000	6.0000
	SUPPLY05	+	0	2680.0000	6.0000
	SUPPLY06	+	0	5940.0000	2.0000
	DEMAND01		0	742.0000	-17.0000
	DEMAND02		0	1467.0000	-16.0000
	DEMAND03		0	1414.0000	-17.0000
	DEMAND04		0	3848.0000	-15.0000
	DEMAND05		0	793.0000	-18.0000
	DEMAND06		0	1026.0000	-18.0000
	DEMAND07		0	296.0000	-10.0000
	DEMAND08		0	911.0000	-12.0000
	DEMAND09		0	752.0000	-9.0000
	DEMAND10		0	653.0000	-11.0000
	DEMAND11		0	2091.0000	-9.0000
	DEMAND12		0	578.0000	-5.0000
	DEMAND13		0	605.0000	-9.0000
	DEMAND14		0	1029.0000	-10.0000
	DEMAND15		0	614.0000	-22.0000
	DEMAND16		0	266.0000	-13.0000
	DEMAND17		0	316.0000	-14.0000
	DEMAND18		0	1542.0000	-4.0000

Annex 6

Notes on Questionnaire.

The nature of the problem studied did not lend itself to the normal sampling techniques. In the circumstances an attempt was made to interview the total population of policy makers (relevant to the study) in the governmental food marketing machinery. However, it was not possible to interview some of the members like the ministers, permanent secretaries and their deputies. A total number of 55 people were involved in decision making process and of these, 50 were interviewed which constituted 91% of the total population.

Information was not collected from any individual at one sitting and there were many visits to the same persons. Occasionally an interview would be interrupted because of the pressure of work the government officials had and so it had to be continued on another day. Another reason that necessitated repeated visits to the same person was the need to countercheck information obtained from peer or superiors or from another organization.

In the process of interviewing, observations were made on how the officials executed their duties and whether what was stated as the procedure was actually taking place.

The interviews were not structured in the normal sense of providing a standard questionnaire. However, a broad outline

of questions was used to elicit information relevant to the purposes of the study. The format of these questions are listed below.

A. General Questions

1. Name, designation and level in the hierarchy of posts.
2. The tasks attached to the post.
3. Does the organization have an organization chart.
4. The main functions of the organization.
5. The type of decisions handled by the individual.
6. A description of some types of problem situations.
7. When confronted with a problem how is information generated. Request to indicate both internal and external sources of information.
8. The techniques used to analyse the data so generated.
9. How a specific course of action is arrived at.
10. A description of the relationship with peers and superiors.
11. When confronted with a problem who would the interviewee discuss it with.
12. Would the suggested policy options (of the interviewee) usually be accepted by the final decision makers? If so would they usually be implemented? Would there be any controls in implementation?
13. A description of the relationship between the organization and other organizations that handle the same crop.
14. Any constraints limiting the decision making that arise from within and outside the organization?
15. Does the organization have training programmes? If so,

do they include management training?

B. Specific Questions for MPB and KNTC

16. Specify some of the problems you encounter in the course of your duties?
17. What is your response to the criticisms of your organization like not serving all the segments of the community etc.?
18. What is your response to the suggested improvements : like setting the maize market free etc.?
19. Probe how these responses tally with suggested improvements.
20. When your organization makes a profit, what do you do with the surplus?