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DEVELOPMENT OF URBANIZATION IN KENYA:
A SPATIAL ANALYSIS AND IMPLICATION
FOR REGIONAL DEVELOPMENT STRATEGY

By ROBERT A. OBUDHO

A thesis submitted to
The Graduate School
of
Rutgers University
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

Written under the direction of
Professor George W. Carey
of the Department of Geography
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ABSTRACT OF THE THESIS

Development of Urbanization in Kenya:-

A Spatial Analysis and Implication

for Regional Development Strategy

by ROBERT A. OBUDHO, Ph.D.

Thesis director: Professor George W. Carey

All countries of the world can be conveniently classified into industrial countries and developing countries because of the international dualism in science and technology which characterizes most of the economic landscape. Intra-polarization (dualism within a country) of development is also a phenomenon where the spatial system has been dichotomized between growth centers and the lagging regions. This dichotomy has been prevalent among the central places of the African countries where it has been portrayed in the form of modern urban centers versus traditional periodic markets. Until recently these two sub-systems of central places have been relating, but not interacting, with each other.

This study has analyzed the problem of dualism within the urban system using central-place theory and has also shown how dualism can be reduced by well-organized spatial and regional planning. In order to study the evolution, problems, and prospects of dualism of development, we used Kenya as a case study.

Except for some traditional periodic markets, most

of the central places in Kenya were introduced during the colonial period. Because of the colonial heritage in which a dual economic system was encouraged as a means of exploiting the country, the spatial system was divided between the developed modern urban place and the underdeveloped traditional market place. The central places of these two sub-systems were spatially organized according to the Christallian hierarchical administrative principle. During the national era these two sub-systems have slowly started to consolidate into one due to the removal of the socio-cultural, economic, and political barriers which were imposed by the colonial authorities. As the urbanization process continued in Kenya, the periodic market changed to a daily market system which later moved in closer accord with the central places of the urban-place sub-system. We have therefore concluded that periodic markets, daily markets, and trading posts form three stages in the urbanization process of Kenya where the central places of the market-place sub-system still play an important part in the lives of the inhabitants.

Since the central places of the market-place sub-system play a significant role in bringing social change to the rural dwellers of Kenya, we feel that any spatial and regional planning can be done within the market-place sub-system. The central places of the market-place sub-system are the interface between the rural and urban systems.

Since Kenya is an agricultural country, developing the

linkage between the rural and urban areas is a very important and meaningful planning strategy. It is hoped this approach to spatial and regional planning will help in reorienting the central places of Kenya from mere export enclaves to more generative areas. It is also hoped that such a development strategy will expedite the urbanization process of the country and, at the same time, help in the improvement of the badly needed infrastructure services in the rural areas. Taking advantage of and building upon this existing structure of "grassroot" level centers would help to induce development in the hinterland, increase local participation, ease the pains of transition, and reduce the gap between the rural hinterland and the export enclaves.

ACKNOWLEDGMENTS

In the course of conducting research and writing this dissertation, I became indebted to so many individuals and institutions that it would be impossible to thank all of them in this limited space. Because of this, specific acknowledgments have been made appropriately throughout the text.

The data presented in this study have been derived from the unpublished public records of the Kenya National Archives and also from published documents such as the Population Census, Statistical Abstracts, and the Census of Industrial Manufacturing, to mention only a few. The data have been supplemented by the author's memories of his childhood experiences in Kenya, particularly in the Luoland areas where periodic markets pervade the whole life style of his residents. I have brought the culture, tradition, and institutions to bear upon the analysis of the urban geographic landscape of the country.

The ideas contained in this dissertation were crystallized during the author's period of graduate studies at Rutgers University under the able, patient, and diligent supervision of Professor George W. Carey, Acting Dean, Livingston College, and Chairman, Division of Urban Studies

and Community Development. His faith in me and the high standards he maintained are two intangibles for which I am forever indebted. Particular gratitude is owed Professor Salah S. El-Shakhs, Professor Helen I. Safa, and Professor Guido G. Weigend, Associate Dean, Rutgers College, for making valuable criticism on the various stages of this thesis. I am also indebted to them for their assistance, encouragement, and for establishing a working relationship which made the study a fruitful experience.

I would also like to thank Professor Michael Greenberg, Acting Chairman, Division of Urban Studies and Community Development, for his guidance with the statistical part of the study, particularly his assistance in the intricacies of component factor analysis. Further acknowledgments must also be extended to Professor Edward Soja, School of Architecture, University of California at Los Angeles, and Professor Allen Howard of Rutgers University for their valuable comments on the various parts of the thesis.

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The author would also like to thank Mr. Robert E. Campbell, General Controller and Assistant Treasurer, Johnson & Johnson, for the generous financial support which enabled me to conduct, write, and type the thesis. I also appreciate the payment of computer expenses by the Rutgers University Computer Center.

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At the same time that I register my thanks to these individuals, I would like to absolve them of all responsibility for the ideas, opinions, errors, and shortcomings in the presentation of this study. They do not necessarily endorse or accept any conclusions I have made in this thesis; these are entirely my own.

TABLE OF CONTENTS

	Page
ABSTRACT OF THE THESIS	ii
ACKNOWLEDGMENTS	v
LIST OF TABLES	xii
LIST OF FIGURES	xv
ABBREVIATIONS USED IN THE TEXT AND FOOTNOTES	xvii
 Chapter	
I. INTRODUCTION	1
Purpose and Origin of the Study	1
Limitations and Scope	6
Hypothesis and Analytical Framework	7
General Usefulness, Thrust, and Importance	9
Organization of the Study	10
II. CENTRAL-PLACE THEORY, CONCEPTS, AND GENERALIZATION	13
Urban-Place Sub-System	13
Previous Studies in Africa	20
Periodic Market Sub-System	23
III. DEVELOPMENT AND HIERARCHY OF COLONIAL CENTRAL PLACES	32
Introduction	32
Geographical Setting	33
Pre-Colonial Urbanization	35

TABLE OF CONTENTS (continued)

Chapter	Page
Colonial Urbanization: Change in Time and Space	41
Non-African Settlement	41
Characteristics of Colonial Towns	50
The Hierarchical Organization of Urban Centers	57
National Urbanization	57
Hierarchy of Urban Centers	60
IV. SPATIAL DIMENSION AND FACTOR STRUCTURE OF THE URBAN-PLACE SUB-SYSTEM	67
Introduction	67
The Urban Regions	68
Location of Modern Urban Utilities	68
Physical Structure of Urban Centers	73
Primacy	75
Formal Education	84
Demographic Characteristics	90
Age-Sex Ratios	95
Ethnic Mixture	97
Factor Structure of Kenya's Urban-Place Sub-System	104
Variables	106
Analysis of Factor Scores	111
Factor Patterns and Factor Scores--An Interpretation	114
Implications of the Model Used	142
Characteristics of Post-Colonial Urbanization	147

TABLE OF CONTENTS (continued)

Chapter	Page
V. TEMPORAL PERIODICITY AND LOCATIONAL SPACING OF PERIODIC AND DAILY MARKETS	152
Introduction	152
The Development of Periodic Markets	154
Structure and Function of Periodic Markets	162
Functions	163
Periodic Markets	169
Daily Markets	172
Market Ring--A Case Study of Western Region, Waware Sublocation	174
Hierarchy of Periodic and Daily Markets	179
Summary and Future Prospects of the Market-Place Sub-System	198
VI. THE EMERGING FUSION OF PERIODIC MARKET-PLACE AND URBAN-PLACE SUB-SYSTEMS	201
Locational Expansion	206
Diffusion of Trading Functions	209
Changes in the Structure of Urban-Place and Market-Place Sub-Systems	218
VII. TOWARD A REGIONAL DEVELOPMENT STRATEGY	220
Problems of the Present Structure	220
Important Urban Policy Issues	221
Urban and Regional Planning Tradition	223
Problems of the Present Development Strategy	231
A Strategy for Development Planning	233
Organization and Implementation of Development Strategy	250

TABLE OF CONTENTS (continued)

	Page
SELECTED BIBLIOGRAPHY	254
APPENDIXES	
I. Population Growth of Kenya Towns, 1948-1962	279
II. Main Urban Centers of Kenya, 1962 vs. 1969	280
III. Category, Variety, and Level of Services . .	282
IV. Kenya Towns: The Urban Sex Ratios by Regions	285
V. Ethnic Classification in Kenya	287
VI. Kenya Urban Centers (1969) Data Matrix Used in This Study	289
VII. The Variables, Their Sources, and Reliability	293
VIII. Kenya Urban Centers: Correlation Matrix . .	300
IX. Kenya Urban Centers (1969) Factor Analysis of Twenty-Eight Variables: Unrotated Factor Matrix	301
X. Kenya Urban Centers (1969) Matrix of Factor Score Coefficients	303
XI. Kenya Urban Centers (1969) Factor Analysis of Twenty-Eight Variables: Rotated Matrix Factor	305
XII. Kenya Urban Centers: Factor Scores	307
XIII. Central Places in Kenya by Province and District	309
VITA	327

LIST OF TABLES

Table	Page
3:1 Kenya: Percentage of Ethnic and Racial Composition for Selected Urban Centers, 1969	47
3:2 Kenya: Percentage of Exports of Principal Commodities in 1962-1970	53
3:3 Kenya: Net Imports by Principal Country of Origin, 1967-1970	54
3:4 Kenya Urban Population by Race, 1962	58
3:5 Kenya Urban Population, 1948, 1962, and 1969	61
3:6 The Hierarchy of Urban Centers in Kenya, 1973	65
4:1 Kenya Urban Centers with Electric Power Installation in 1969	71
4:2 Kenya Urban Centers: Analysis of Urban Centers by Size, Groups, and Number	76
4:3 Kenya Urban Centers: Analysis of Urban Centers by Size and Population	77
4:4 Kenya Employment in Industrial Manufacturing by Province, 1967	79
4:5 Kenya: Primate Urban Centers in Relation to Second, Third, and Fourth Urban Centers of Their Provinces and Urban Geographic Regions, 1969	81
4:6 Kenya Urban Centers: Formal Education as Percentage of Total Urban Population	87
4:7 Kenya Urban Centers: Males as Percentage of Total Population	91
4:8 Kenya Urban Centers: Adult Males and Females as a Percentage of Total Male and Female Population	93

LIST OF TABLES (continued)

Table	Page
4:9 Kenya Urban Centers: Sex Ratio by Age Groups	96
4:10 Kenya Urban Centers: Ethnic and Racial Composition	102
4:11 Analytical Scheme	107
4:12 Variables Used in This Study	109
4:13 Kenya Urban Centers: Percentage of Total Variances Explained by Each Component	112
4:14 Percentage of Variance Communality of Each of the Twenty-Eight Variables Accounted for by All Seven Components	113
4:15 Kenya Urban Centers (1969) Rotated Factor Loadings--Varimax Rotation	115
4:16 Factor I--Primacy Functional Size of Centers in the Urban Hierarchy	117
4:17 Kenya Urban Centers with Extreme Factor Scores on Component I	117
4:18 Factor II--Socioeconomic Status of Urban Community	121
4:19 Kenya Urban Centers with Extreme Factor Scores on Component II	123
4:20 Factor III--Demographic Structure	126
4:21 Kenya Urban Centers (1969) with Extreme Factor Scores on Component III	127
4:22 Factor IV--Household Structure	127
4:23 Kenya Urban Centers (1969) with Extreme Factor Scores on Component IV	130
4:24 Factor V--Ethnicity-Cum-Racial Preference in Urban Residence	130
4:25 Kenya Urban Centers (1969) with Extreme Factor Scores on Component V	133
4:26 Factor VI--Nilotes/Labor Migration	133

LIST OF TABLES (continued)

Table	Page
4:27 Kenya Urban Centers (1969) with Extreme Factor Scores on Component VI	138
4:28 Factor VII--Western Bantu	138
4:29 Kenya Urban Centers (1969) with Extreme Factor Scores on Component VII	140
4:30 Kenya Urban Centers: Major Dimensions of Variation (Percentage of Variance Explained by Each Factor)	140
5:1 Geographical Distribution of African District Council (ADC) Periodic Markets in Western Region as of December 31, 1954	160
5:2 The Distribution of Periodic Markets in Central Kavirondo, Western Region, 1959	161
5:3 Hierarchy of Central Places in Market-Place Sub-System, Kenya	175
5:4 Number of Official Market Meetings on Each Day of the Week in Kenya by District	189
6:1 Dual Hierarchy of Central Places in Kenya	203
6:2 Examples of Central-Place Hierarchies in Kenya	214
7:1 Kenya: Number of Central Places in Each Hierarchy by District	235

LIST OF FIGURES

Figure	Page
1:1 The Theoretical Framework of Colonial Urbanization	3
2:1 The System of Central Places After the Marketing, Administrative, and Transportation Principles	16
3:1 Kenya: Geographical Position	34
3:2 Kenya: The Spread of Colonial Towns	37
4:1 Kenya: Urban Geographic Regions	69
4:2 Kenya: Distribution of Ethnic Groups	99
4:3 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) I	119
4:4 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) II	124
4:5 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) III	128
4:6 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) IV	131
4:7 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) V	134
4:8 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) VI	137
4:9 Kenya Urban Centers: Spatial Distribution of Scores of Factor (Component) VII	141
5:1 The Idealized Market Rings Centered on Sare, Kenya	178
6:1 Idealized Relationship Between Market-Place and Urban-Place Sub-Systems in a Developing Dual Economy	213

LIST OF FIGURES (continued)

Figure	Page
7:1 Idealized Multi-Directional Flow of Diffusion of Innovations Among Central Places in a Developing Dual Economy	246

ABBREVIATIONS USED IN THE TEXT AND FOOTNOTES

ADC	African District Council
AR(s)	Annual Report(s)
BEA	British East Africa (now the Republic of Kenya)
DC	District Commissioner
DO	District Officer (an Assistant to the DC)
HMSO	His (Her) Majesty's Stationery Office
IBEAC	Imperial British East Africa Company
IBRD	International Bank of Reconstruction and Development (World Bank)
KNA	Kenya National Archives
LCCA	Local County Council Authorities
PC	Provincial Commissioner
PEAS	Program of East African Studies (of Syracuse University)
PMA	Periodic Market Approach
SMSAs	Standard Metropolitan Statistical Areas
SRDP	Special Rural Development Programme

CHAPTER I

INTRODUCTION

Purpose and Origin of the Study

As a formal field of inquiry, the serious study of urbanization in Africa is a little more than three decades old. During this time, particularly in the post-1960's, many scholars produced a prolific number of studies dealing mainly with the social survey of major urban centers--particularly the effects of urbanizations among Africans--and the relationship between urbanization and economic development. Most of these studies have been concerned mainly with the urbanization process of major urban centers, particularly the capital cities or the port towns. G. T. Trewartha and W. Zelinsky, in their study of population patterns in Africa in the 1950's, estimated that only 8.5 million people lived in urban centers with 5,000 or more inhabitants and consequently concluded that in their general survey "the relative insignificance of city dwellers does not entitle them to detailed discussion."¹ Although the situation has changed within the last twenty years with

¹G. T. Trewartha and W. Zelinsky, "Population Patterns in Tropical Africa," Annals of the Association of American Geographers, XLIV (1954), 144.

regard to the pace and scale of African urbanization, and with regard to the recognition of its importance of field of research and academic interest, very few scholars have attempted to view or test the urbanization theories within the African context.¹ It is important that the process of the urbanization in Africa be studied within the light of Western theories as well as the indigenous historical process that has transformed the country over the centuries.

Because most of the urban centers in Africa were introduced at the turn of this century, the structured relationship between the urban system and the rural sector is still weakly developed. Africa's economic landscape is still divided between the export enclaves and the underdeveloped hinterlands because the spatial systems were built up by the colonial governments for the express purpose of "extraction" of raw materials from the rural areas.

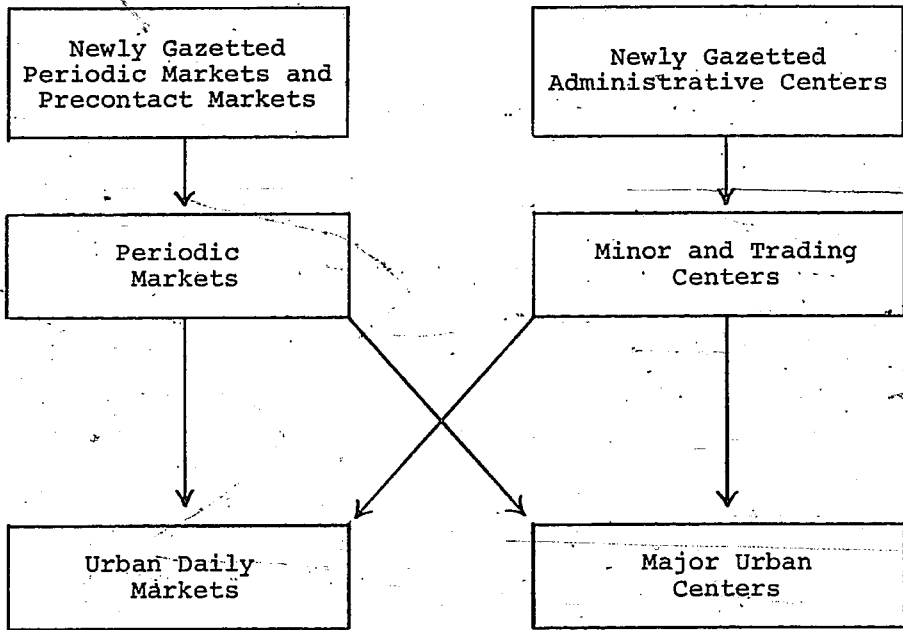
The theoretical conceptual framework for the urbanization process in Africa and the developing countries can be diagrammatically presented as shown in Figure 1:1. The duality of central places has been variously recognized in passing by a number of scholars. Ukwu recognized this duality in a recent study of markets in Iboland, Nigeria:

Market places exist both in towns and in the rural areas. For analytical reasons we may regard the

¹The application of urbanization theories have been discussed at length in Salah El-Shakhs and Robert Obudho, eds., Urbanization, National Development and Regional Planning in Africa (New York: Praeger, 1974).

Market-Place Sub-System

Urban-Place Sub-System



← The Chain of the Urbanization Process

Fig. 1:1--The theoretical framework of colonial urbanization.

exchange systems as made up of two sub-systems: the central place sub-system and the market sub-system. For each of these there is a certain hierarchical structure depending on the type and variety of goods and services obtainable at the various centers, and on the size of the service area. The two sub-systems are functionally integrated. Some goods tend to remain in one sub-system or the other moves up and down the hierarchy in their circulation, while others use both channels simultaneously or at different stages.¹

This polarization has also been recognized by Sunkel in his recent study of development and underdevelopment in Latin America in which he concluded that

the evolution of this global system of underdevelopment-development has over a period of time given rise to two great polarizations which have found their main expression--in geographical terms. First, a polarization of the world between countries with the developed, industrialized, advanced "central northern" ones on one side, and the underdeveloped, poor dependent and "peripheral southern" ones on the other side. Second, a polarization within countries, between advanced and modern groups, regions and activities and backward, primitive,

¹ U. I. Ukwu, "Markets in Iboland," in Markets in West Africa: Studies of Markets and Trade Among the Yoruba and Ibo, ed. by B. W. Hodder and U. I. Ukwu (Ibadan: Ibadan University Press, 1969), p. 154. Deshler also noted the existence of two types of central places co-existing in the African economic space when he said: "The view of existing spatial systems is confused because in most cases several co-existing systems have developed from differing bases, and more often not functionally integrated. Traditional systems were supplemented during the colonial era by a hierarchy of new administrative centers. In many cases these were first towns on previously rural subsistence landscapes. These new towns had little commercial function; the local population continued to use periodic markets. The system did not really function; the local population continued to use periodic markets. The system did not really integrate. In other cases where the transition from subsistence to cash economy had been rapid, sets of central places in which to carry out market and service functions have emerged. These functions may be grafted onto towns which were previously administrative centers." See Walter Deshler, "The Joint Committee on African Studies of the Social Science Council," Comparative Urban Research, I, No. 1 (Spring, 1972), 51.

marginal and dependent groups, regions and activities.¹

In this study we will be concerned with the internal polarization of development. But it should be emphasized that polarization is replicated at local, national, and international levels and as a matter of fact the three types depend on one another. According to Ginsburg,

Most poor countries share, whatever their background, a remarkably widespread cultural, and economic dualism. This dualism varies from country to country to be sure but it can be associated for the most part with a recent, or even more distant, colonial heritage, whereby one group of people has achieved not only relative wealth but also control over economy, society and policy.²

The phenomenon of dualism expresses itself in a variety of ways and, for the sake of this thesis, we will only concern ourselves with dualism in the urbanization process with particular references to Kenya using the concepts of central-place theory.

Empirical testing of the central-place theory has been applied to the urban-place sub-system and the market-place sub-system both spatially and hierarchically in most of the inhabited world. Empirical application of the theory to the urban-place sub-system has not been linked with its application to the market-place sub-system. This study

¹Oswaldo Sunkel, "Transnational Capitalism and National Disintegration in Latin America" (unpublished paper, University of Chile, Faculty of Economics, August, 1970), p. 7.

²Norton Ginsburg, "From Colonialism to National Development: Geographical Perspectives on Patterns and Policies," Annals of the Association of American Geographers, LXIII, No. 1 (March, 1973), 7.

will examine both sub-systems simultaneously, thus extending the utilization of the theory. Particular attention will be focused on the functional and developmental linkages of these two sub-systems and the changes taking place within the context of central-place theory as applied to Kenya.

Limitations and Scope

This study differs from other studies on the central-place theory in that we have attempted to apply the theory on the two sub-systems within a national state in order to portray the hierarchical orientations of central places in a dual economy. Because of the lack of socioeconomic and demographic data on the urban centers in Kenya, the study was only limited to the forty-seven urban centers within the urban-place sub-system. Within the market-place sub-system, it was not possible to apply any analysis because of the lack of up-to-date and reliable data on consumer and travel behavior among periodic and daily markets.

The thesis has examined the structure and spatial organization of central places within the urban-place and market-place sub-systems and how the two sub-systems are linking up in the development process. In order to quicken the urbanization process of the country, it has been proposed that the planning be emphasized at the periodic market level because the central places of the market place are a vital interface between the rural-urban systems.

Hypothesis and Analytical Framework

A multi-faceted hypothesis may be advanced concerning the spatial hierarchy of central places in Kenya and African countries. As the country's income and demand increases and as the mechanized communication pattern becomes widespread, the dual central-place sub-systems tend to merge and fuse into one system such that:

1. Smaller central places such as periodic markets, daily markets, and the small administrative towns form three stages of the development process. As the urbanization process continues, the larger and better located periodic markets shift to daily regime and the location of these markets moves into closer accord with the central places of the urban-place sub-system.

2. There is an upward shift in the central-place hierarchy--the lower order centers of the market-place sub-system lose their economic, social, and cultural functions, and their population to the larger centers of the urban-place sub-system that can perform those functions more efficiently.

This hypothesis will be examined in the light of data available on Kenya's urbanization, although the primary purpose of the thesis is to introduce the notion of the linkages of the central places in a developing country and to suggest policies for development planning in order to hasten and guide the urbanization process.

The data used in this study are derived from unpublished government documents of the Kenya Government for the period 1900-1962.¹ The information between 1963 and 1973 was based on unclassified public records and other published records available on periodic markets and the urbanization process in Kenya. The analysis of the hierarchy of urban centers in the region was based on the recent detailed study of central places in Kenya between 1966 and 1973 by the Department of Urban, Physical, and Rural Planning of the Ministry of Lands and Settlement, Republic of Kenya. This hierarchy has been revised to reflect the latest Kenya population census of 1969. Component factor analysis was used to determine the regional dimension as well as the hierarchical orientation of Kenya urban centers and their intercorrelations within the urban-place sub-system. It reduces a wide array of descriptive measures of individual urban centers to a series of representative dimensions that elucidate the underlying structure of urban-place systems. The study of periodic markets was based on the frequency of meeting and the functional attributes devised by the Department of Urban and Rural Physical Planning. The

¹ These documents were microfilmed at the Syracuse University Library, with the help and permission of the Kenya National Archives. Programme of Eastern African Studies (PEAS), Syracuse University, A Bibliography on Kenya by Fred E. Burke et al. (Syracuse, N. Y.: PEAS, 1967); Guide to Kenya National Archives' Collection by N. Fetha (Syracuse, N. Y.: PEAS, 1968); Guide to Kenya National Archives' Collection by R. G. Gregory, R. M. Maxon, and L. D. Spencer (Syracuse, N. Y.: PEAS, 1969).

classification of the central places within the market-place sub-system according to function is very important for understanding the relationship among markets and their spatial organization.

General Usefulness, Thrust, and Importance

The study of the spatial and hierarchical organization of central places within the urban-place and market-place sub-systems is very important in understanding the problems associated with the application of urban and regional planning in a developing country such as Kenya. Unless one understands how a country is spatially inter-linked, one cannot attempt to solve the obstacles of development with ease. Most of the recent attempts of the regional and spatial planning in Africa have not succeeded because of the lack of having a clear conception of the nature of urbanization as a process. In addition to understanding the process of development and spatial linkages of the central places of African countries, it is important to stress that these countries are over 90 percent rural. Consequently, it is important to understand the central places of the market-place sub-system which are the interface between rural areas and the urban-place sub-systems. Using the Periodic Market Approach (PMA) to regional and spatial planning we have proposed in this study, it is possible for the African countries to coordinate rural development and agricultural development since the latter is

vital in the development of the former. It is important that in spatial and regional planning we use the small central places because they perform the important service and economic function for the rural inhabitants. At the same time these central places would provide an opportunity of linking the urban system and the rural system. These central places are at the bottom end of the urban-place sub-system; at the same time they are a part of the hierarchical organization of the market-place sub-system. Any planning using the central places of the market-place sub-system "would therefore affect both systems to various degrees and is less likely to add to the rural-urban gap than the regional and spatial planning strategies dealing exclusively with either system."¹

Organization of the Study

This dissertation is divided into seven chapters. The first chapter is the introduction and it examines the problem in context. This is accomplished by the definition of the purpose and origin of the study; stating of the limitation and scope of the study; developing the hypothesis and analytical framework of the study; and outlining the general usefulness, thrust, and importance of the study.

Chapter II provides the concepts and generalization of the central-place theory and how the theory has been

¹S. M. Kimani and D. R. F. Taylor, Growth Centers and Rural Development in Kenya (Thika, Kenya: Maxim Printer, 1973), p. 12.

empirically tested within the urban sub-system as well as market-place sub-systems within the inhabited world. This has been approached from the historical point of view--discussing the development of concepts of the years. The chapter is concluded by studies that have linked central-place theory and the efficiency of periodism of market places.

Chapter III discusses the urbanization process of the administrative colonial towns and trading centers in Kenya indicating changes and regional variation of their urban economic base during pre-colonial, colonial, and national periods. This has been approached from the historical point of view by indicating the lack of integration of central places due to one-sided colonial policy of only encouraging the development of the urban-place sub-system at the expense of the traditional central place and the rural areas.

Chapter IV discusses the theoretical framework of the urban-place sub-system. The chapter is introduced with the discussion of the present characteristics of the urbanization, thus showing the unbalanced nature of urbanization in Kenya. The rest of the chapter deals with the statistical procedure and the results of the component analysis of the twenty-eight variables and forty-seven central places (cases) of the urban-place sub-system.

Chapter V contains the analysis of the development, structure, temporal efficiency, and locational spacing of

periodic and daily markets within the market-place sub-system. It also deals with the future prospects of the market-place sub-systems.

Chapter VI is the synthesis of the first five chapters. This chapter discusses the emerging fusion of the market-place sub-system and the urban-place sub-system and their resultant orientation, especially the locational expansion, diffusion of trading function, and the future prospects of the merged urban and market-place sub-systems.

Finally, Chapter VII discusses the problems of the present structure, important urban and regional issues involved, urban and regional tradition, a development strategy, organization and implementation of the strategy in Kenya, and policies for development planning strategy which can be used in expediting and guiding the emerging fusion of these two sub-systems in their urbanization process. It is emphasized in this final chapter that the future development of Kenya's rural hinterland depends on the careful planning of the central places of the market-place sub-system--incorporating and building the traditional spatial systems rather than following an artificial network of imposed central places of the urban-place sub-system.

CHAPTER II

CENTRAL-PLACE THEORY, CONCEPTS,
AND GENERALIZATION

The purpose of this chapter is to review the literature on the central-place theory, focusing upon the empirical application of the theory to the urban-place sub-system as well as the periodic market-place sub-system. This review is intended to serve as the background and general context into which the present study falls.

Urban-Place Sub-System

Central-place theory, originally developed by Christaller,¹ and its associated body of analytical techniques constituted the most developed locational model in geography.² The theory has been the subject of much

¹Walter Christaller, Central Places in Southern Germany, translated from Die zentralen Orte in Suddeutschland: Eine okonomischgeographische Untersuchung uber die Gesetzmassigkeit der Verbreitung und Entwicklung der Siedlungen mit stadtischen Funktionen (Jena: Gustav Fischer Verlag, 1933).

²For a complete and up-to-date bibliography on central-place theory, see Brian J. L. Berry and Allen Pred, Central Place Studies: A Bibliography of Theory and Application with Supplement (Philadelphia: Regional Science Research Institute, 1965); and Howard F. Andrews, Working Notes and Bibliography on Central Place Studies, 1965-1969 (Monticello, Ill.: Council of Planning Librarians Exchange, Bibliography No. 209, August, 1971).

analysis and empirical testing in the last two decades.

The basic features of the theory have been outlined by

Berry and Pred:

(a) The basic function of a city is to be a central place providing goods and services for the surrounding tributary area. . . . (b) The centrality of a city is a summary measure of the degree to which it is a service center. . . . (c) Higher order places offer more goods, have more establishments and business types, larger populations, do greater volumes of business, and are more widely spaced than lower order places. . . . (d) Low order places provide only low order goods to low order tributary areas; these low order goods are generally necessities requiring frequent purchasing with little consumer travel. . . .¹

Although Christaller has been accorded the credit for developing the central-place theory, some of his conclusions were anticipated by Galpin, who said that the service area surrounding a rural center is bounded by a circle which would overlap with the circular boundaries of six adjacent service areas.² In its simplest form, Christaller's scheme proposed that the spatial arrangement of towns required an optimal distribution of single goods to a dispersed population and were arranged into a hierarchy comprising a discrete group of centers.³ Towns with the

¹Berry and Pred, Central Place Studies, pp. 3-4.

²C. J. Galpin, The Social Anatomy of Agricultural Community, Research Bulletin 34 (Agricultural Experimental Station of the University of Wisconsin, May, 1915).

³Brian J. L. Berry, H. Gardiner Barnum, and Robert J. Tennant, "Retail Location and Consumer Behavior," Papers and Proceedings of the Regional Science Association, IX (1962), 65-106; and Brian J. L. Berry and H. G. Barnum, "Aggregate Relations and Elemental Components of Central Place Systems," Journal of Regional Science, IV (1962), 35-68.

highest order of specialization would be equally spaced and surrounded by hexagonally shaped hinterlands. The high order centers would be surrounded by six lower-order centers which would be less specialized and would also be situated at an equal distance from other centers of the same order. Such cities would have smaller hexagonal service areas for their own specialized services. This procedure would be continued until the smallest centers were located next to one another.

The hierarchy of settlements can be organized in various ways, each with its own geometrical arrangement of central places and trade area boundaries. The first geometrical organization is based on the marketing principle or $K=3$, the hierarchy and nesting pattern in this case results in the maximum number of central places (Figure 2:1). The supply of goods and services from a central place has to be as near as possible to the consumer in accordance with the notion of movement-minimization. According to $K=3$, the progression of centers by size class runs 1, 2, 6, 18, 54 . . . and the progression of market areas of each level is 1, 3, 9, 27, 81. The alternative was the transport principle or $K=4$ in which ". . . as many important places as possible lie on one traffic route between larger towns, the route being established as cheaply as possible,"¹ with the result that the progression

¹Berry and Pred, Central Place Studies, p. 16.

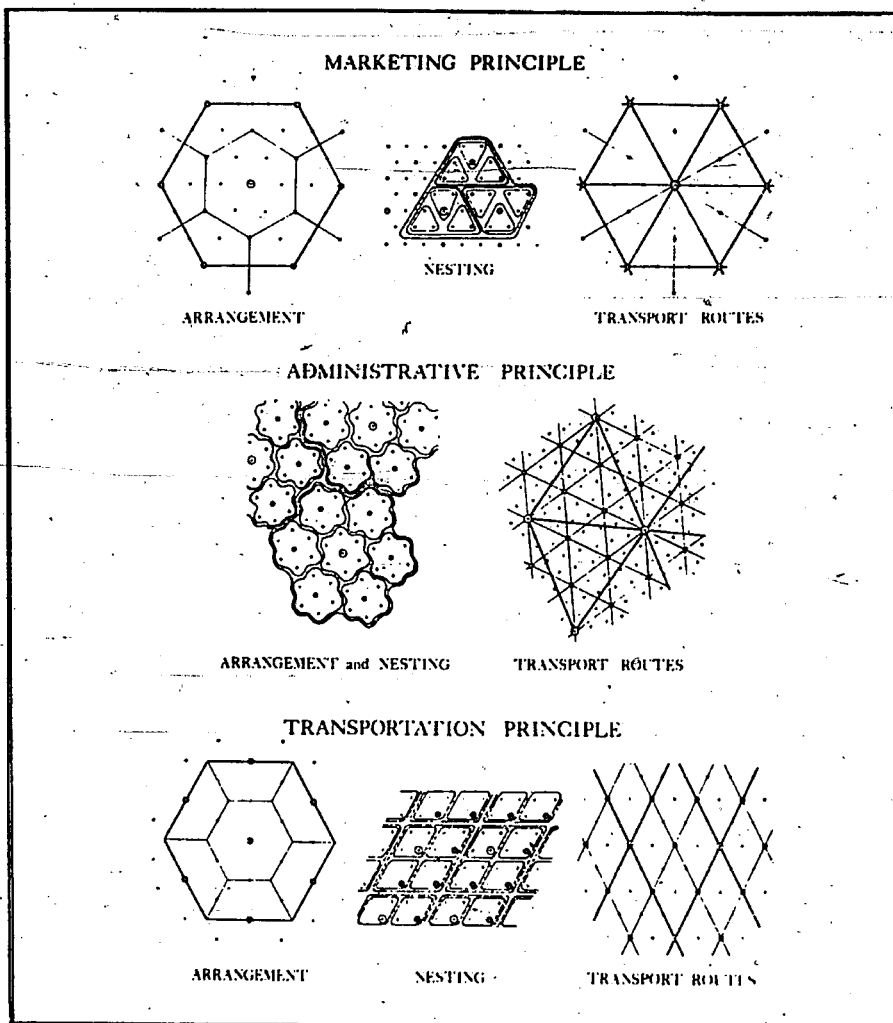


Fig. 2:1--The system of central places after the marketing, administrative, and transportation principles.

Source: Brian J. L. Berry and Allan Pred, Central Place Studies: A Bibliography of Theory and Applications with Supplement (Philadelphia: Regional Science Research Institute, 1965), p. 17.

of numbers of centers by level is 1, 3, 12, 48, 172 . . . , and of market areas is 1, 4, 16, 64, 236. . . .

Another variation of hierarchy was the principle of separation or $K=7$ ". . . in which connections are made between a given order of central place and all six of the nearest immediately lower order places."¹ In addition to the original three Christaller formulations of $K=3$, $K=4$, and $K=7$, several other modified hexagon arrangements have been offered by Hagget² and Losch.³ These variations include $K=9$, $K=12$, $K=13$, $K=16$, $K=19$, $K=21$, and $K=25$.

Following Christaller's classical central-place theory, Losch developed a contrasting picture of the location of centers. While Christaller built his hierarchies from the highest-order center to the lowest-order center, Losch built his hierarchy from the lowest centers or the "most local" goods to the "most national" commodities.⁴ Losch allowed various hexagonal systems to co-exist with the result that the arrangement did not produce a tiered

¹B. J. Garner, "Models of Urban Geography and Settlement Location," in Models in Geography, ed. by Richard J. Chorley and Peter Hagget (London: Methuen, 1968), p. 309.

²Peter Hagget, Locational Analysis in Human Geography (London: Methuen, 1965), p. 119.

³A. Losch, Die Räumliche Ordnung der Wirtschaft, translated by W. H. Woglom and W. F. Stolper as The Economics of Location (New Haven, Conn.: Yale University Press, 1954), p. 118.

⁴For a comparison of the Losch and Christaller studies, see Brian J. L. Berry, Geography of Market Centers and Retail Distribution (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1967), p. 73.

system of urban centers as postulated by Christaller, but led more or less to a continuum of various sized towns and cities such that "once network 3 ($K=7$) is selected, the choice as to the position of the remaining networks that can be rotated is no longer free, provided that the separation into sectors with many or few towns is to be carried through."¹ Losch's hierarchy was far less rigid than Christaller's because the latter assumed the hierarchical ratio between central places of order n and the number of order $(n+1)$ was fixed while in the former's case the number varied. In Losch's case all centers of the same population size need not contain the same function nor need the higher-order centers contain all the functions of the lower-order central places.² The Loschian "economic landscape" is centered in a metropolis, consisting of six sectors with many production sites and six sectors with only a few production sites. It is also important to note that the Loschian "economic landscape [is] more relevant to secondary production at its later market-oriented stages, and Christaller's hierarchies [are] most appropriate in the analysis of retail and service business in the tertiary sector."³ The basic features of Losch's model are (a)

¹Losch, The Economics of Location, p. 126.

²Hagget, Locational Analysis in Human Geography, pp. 121-25. For a criticism of Losch's Central Place System, see John R. Tarrant, "Comments on the Losch's Central Place System," Geographical Analysis (April, 1973), pp. 113-21.

³Berry, Geography of Market Centers and Retail Distribution, pp. 59-60.

concentration of settlement into sector separated by interstitial areas with less dense settlement, (b) settlement increases in size with distance from metropolitan center, and (c) small centers are located halfway between two larger ones.¹ Finally, unlike Christaller, Losch assumed the hierarchy of central places based on a variable k rather than a fixed k .

A further modification of the theory was made by Berry and Garrison² who developed two of its original concepts: threshold or minimum range of a good, which was defined as ". . . the minimum amount of consumption of this central good needed to pay for the production or offering of the central good,"³ and the maximum range of a good, which refers to ". . . the farthest distance the dispersed population is willing to go, in order to buy a good offered at a place."⁴ As a result of these two modifications of central-place theory, the hierarchy of central places has been tested empirically in the periodic market-place and the urban-place sub-systems. The model has also been very useful in studying the hierarchy of shopping centers, an

¹Losch, The Economics of Location, p. 127.

²Brian J. L. Berry and William L. Garrison, "Recent Developments in Central-Place Theory," Papers and Proceedings of the Regional Science Association, IV (1958), 107-20.

³Christaller, Central Places of Southern Germany, p. 54.

⁴Ibid., p. 22.

equivalent of central places within urban centers.¹ These hierarchies have been based on functions performed rather than the composition of market area sizes and configurations.

Despite many varied circumstances such as irregular terrain, variable population density, and political boundaries, the hierarchical relationship of central places has been empirically identified all over the world.² The relationship between population and functional size of settlement has been found to be linear and very close.³ In addition to these analytical studies, attempts have also been made to revise central-place theory to conform with the present economical and environmental changes of the time.⁴

Previous Studies in Africa

The first empirical testing of central-place theory in Africa⁵ within the urban-place sub-system was carried

¹Berry and Garrison, "Recent Development of Central Place Theory," pp. 107-20.

²Berry and Pred, Central Place Studies.

³Cf. Brian J. L. Berry and Harold M. Mayer, "Comparative Studies of Central Place Systems," Final Report to the Office of Naval Research 2121-18, Project NR 389-126, 1962.

⁴Gerald Rushton, "Postulates of Central Place Theory and the Properties of Central Place Systems," Geographical Analysis (April, 1971), pp. 141-50.

⁵For a general review of central-place studies in Africa up to 1970, see Robert A. Obudho, "The Central Places in Nyanza Province, Kenya: A Tentative Study of Urban Hierarchy in a Developing Country," African Urban Notes, V, No. 4 (Winter, 1970), 71-88.

out by Carol in the Karoo of the Republic of South Africa in which he identified seven hierarchies of towns ranging from a farmstead unit at one end of the scale to a trade area of a large center at the other extreme of the hierarchy.¹ In addition to the above study, the theory has been empirically tested in Swaziland,² Lesotho and Transkei,³ the Republic of South Africa,⁴ and in Rhodesia.⁵

In Western Africa, the first empirical study was carried out by Grove and Huszar⁶ in Ghana as early as 1964. The only other significant empirical testing of central-place theory in that region was done by Abiodun⁷ in the Western Region of Nigeria. By using component analysis,

¹Hans Carol, "Das agrargeographische Betrachtungssystem, Ein Beitrag zur landschafts-kundlichen Methodik dargelegt am Beispiel der Karoo in Sudafrica," Geographica Helvetica, VII (1952), 17-67.

²T. J. D. Fair et al., Development of Swaziland (Witwatersrand: Witwatersrand University Press, 1969).

³R. J. Davies and G. P. Cook, "Reappraisal of the South African Urban Hierarchy," South African Geographical Journal, L (1968), 116-32.

⁴R. J. Davies, "The South African Urban Hierarchy," South African Geographical Journal, LXIX (1967), 9-19.

⁵Wolf Roder, "The Genesis of the Central Place System: A Rhodesian Example," The Professional Geographer, XXI, No. 5 (September, 1969), 333-36.

⁶D. W. Grove and L. Huszar, The Towns of Ghana (Accra: Ghana Universities Press, 1964).

⁷Josephine Olu Abiodun, "Urban Hierarchy in a Developing Country," Economic Geography, XLIII, No. 4 (October, 1967), 347-67; and also Josephine Olu Abiodun, "Central Place Study in Abeokuta Province, Southwestern Nigeria," Journal of Regional Science, VIII, No. 1 (1968), 56-76.

she identified the functional distance, interaction, and magnitude among the urban centers within the region.

East Africa, like Southern and Western Africa, has been the subject of a number of central-place studies, particularly in the late 1960's and early 1970's. Splansky, in his study of central places in the Ankole District of Uganda, identified the following hierarchies: District Center, Sub-District Center, Major Central Place, Minor Central Place, and Emerging Central Place.¹ Other studies have been carried out in various parts of Uganda with similar results.² The other central-place studies in East Africa were done in Kenya by Taylor³ and the Ministry of

¹J. B. Splansky, "Some Geographic Characteristics of Permanent Retail Institutions in Ankole," East African Geographical Review, VII (April, 1969), 61-78.

²See M. Ponzio and P. Kamalamo, "The Application of the Central-Place Theory in Mengo and Busoga" (Conference papers of East African Institute of Social Research, No. 1139, Kampala, Uganda, 1966); D. C. Funnell, "The Application of Central Place Theory to Problems of Urban and Regional Planning in Developing Countries," in Perspectives on Urban Planning for Uganda, ed. by Michael Safier and B. W. Langlands (Kampala: Department of Geography, Occasional Paper No. 10, Makerere University College, 1969); and G. Kade, "Die Stellung der Zentralen Orte in der Kulturlandschaftlichen Entwicklung Bugandas," Frankfurter Wirtschafts- und Sozial Geographische Schriften (Heft 6, 1969).

³D. R. F. Taylor, "New Central Places in East Africa," African Urban Notes, III, No. 4 (December, 1968), 15-29; D. R. F. Taylor, "Emerging Central Places in the Coast Province, Kenya" (unpublished paper presented at a conference on Spatial Aspects of Emerging African Urban Systems, sponsored by the Joint Committee on African Studies of the American Council of Learned Societies and the Social Science Research Council, November 12-14, 1970); D. R. F. Taylor, "Development of Central Places in the Coast Province of Kenya" (Ottawa: Carleton University, Department of Geography, 1972); and D. R. F. Taylor, "The

Lands and Settlements.¹ While Taylor's studies have been concentrated mainly in Central Province and Coastal Province, the Kenya Government study has also identified the spatial and hierarchical orders of all central places in the country (Appendix XIII and Table 7:3).

Periodic Market Sub-System

In undeveloped countries, the majority of consumers are not supplied with goods and services from a central place. Central-place functions are performed by mobile agents who move from place to place thus giving rise to the periodic market. Before we analyze the spatial distribution of daily and periodic markets, it is important to define the term market since it means different things and ideas to different people. The sense in which market is used here is restricted to an institutionalized activity in

Internal Trade of Fort Hall, Kenya District, Kenya," Canadian Journal of African Studies, I, No. 2 (1967), 111-22.

¹Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printer, 1969). For details, see the Provincial Regional Physical Development Plans: Republic of Kenya, Central Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1967); Eastern Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1970); Nyanza Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1970); Western Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1970); Coast Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1971); and Rift Valley Province Regional Physical Development Plan (Nairobi: Town Planning Department Ministry of Lands and Settlement, 1971).

which "an authorized public concourse of buyers and sellers of commodities meeting at a place more or less strictly limited or defined at an appointed time."¹ This definition excludes the theoretical concept of markets, that is, "the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equalize easily and quickly."² The markets discussed will include market halls, covered markets, uncovered markets, and street markets. These periodic markets³ have emerged as a very important feature of central-place systems in the developing countries.

In studying the process of urbanization in developing countries, it is important to trace the development of traditional markets because the

knowledge about the location and rate of market-place expansion--the spatial and temporal elements of the diffusion process--is theoretically of considerable diagnostic utility because new markets follow, rather than precede, other progressive developments in local economies. While their introduction in an area does not assure their viability, it may be one of the few

¹Peter Scott, Geography of Retailing (Chicago: Aldine Publishing Company, 1970), p. 127.

²A. Marshall, Principles of Economics (London: Macmillan, 1930), pp. 324-25.

³Periodic market according to Eighmy is a ". . . specific gathering [place] where attendance is heavy for one day in the market week, falling off precipitously, frequently to zero, on other days." Thomas H. Eighmy, "Rural Periodic Markets and the Extension of an Urban System: A Western Nigeria Example," Economic Geography, XLVIII, No. 3 (July, 1972), 302. The periodic market takes place according to an established spatial and temporal schedule such as two, four, eight, or sixteen.

tangible signs of commercial growth generated by the formation of opportunities in non-agricultural employment, new sources of farm income, and improved transport facilities and accessibility. Thus it is to be expected that studies of market diffusion will reveal distinct stages of development within which there are periodic lags and spatial gaps.¹

Traditional markets in their modernization process have provided a base from which diffusion and expansion of urban life have transformed the rural areas.² Conversely, periodic and daily markets also fostered improved spatial integration between rural and urban areas. Even in East Africa where most of the market systems were imposed during the colonial period, the periodic markets have been one of the major links in the urbanization process.³

The study of periodic markets and traveling merchants has been done in Western Europe since the beginning of the ninth century. Within Europe, traditional markets

¹Charles M. Good, Market Development in Traditional Marketless Societies: A Perspective on East Africa (Athens: Ohio University Papers in International Studies, Africa Series, No. 12, 1971), p. 19. See also G. W. Skinner, "Marketing and Social Structures in Rural China," Part I, Journal of Asian Studies, XXIV, No. 1 (November, 1964); and G. W. Skinner, "Marketing and Social Structure in Rural China," Part II, Journal of Asian Studies, XXIV, No. 2 (February, 1965), 195-228.

²Good, Market Development in Traditional Marketless Societies, p. 3; and Charles M. Good, Rural Markets and Trade in East Africa: A Study of Functions and Development of Exchange Institutions in Ankole, Uganda (Chicago: Department of Geography, University of Chicago, Research Paper No. 128, 1970), p. 127.

³Robert A. Obudho, "Urbanization and Regional Planning in Western Kenya," in Urbanization, National Development and Regional Planning in Africa, ed. by Salah El-Shakhs and Robert Obudho (New York: Praeger Publishers, 1974), pp. 161-76.

grew in countries where climate, tradition, the degree of urbanization, and the standard of living favored their presence. The traditional markets were also common in the other developing countries of Asia and South and Central America.¹

The political independence of most of the African countries in the early 1960's has helped to increase the interest in African markets both within and outside of Africa. Most of the studies done prior to the 1960's were mainly ethnographical surveys of existing literature on markets in Africa.² But post-1960 studies have concentrated on the function, form interaction, and processes of daily and periodic markets and their relationship to one another within the tenets of central-place theory.³ Most of these researches on periodic markets were concentrated more in West and North Africa than in East Africa. This lack of interest in comparative study of traditional markets in East Africa has led Hill to describe it as "one of the greatest geographical

¹Robert H. T. Smith, Periodic Markets in Africa, Asia and Latin America (Monticello, Ill.: Council of Planning Librarian Exchange Bibliography No. 318, September, 1972), pp. 21-23.

²For examples of such studies, see Northcote W. Thomas, "The Week in West Africa," Journal of the Royal Anthropological Institute of Great Britain and Ireland, LIV (1924), 183-209; and Willy Fröhlich, "Das Afrikanische Marktwesen," Zeitschrift für Ethnologie, LXXII (1940), 234-328.

³Smith, Periodic Markets in Africa, Asia and Latin America, pp. 5-16.

dichotomies of Africa."¹ Hill's statement is correct concerning the neglect of the study of markets but not concerning the presence of traditional markets and fairs in Eastern Africa. There is a mass of evidence to prove that they existed in one form or another. Hodder's² recent review of standard ethnographic references proved the presence of traditional markets in East Africa prior to the arrival of non-African immigrants. The existence of traditional markets among the Kamba, Nyika, Masai, and Kikuyu of Kenya have been well analyzed by Lamphear.³ Taylor's recent studies summarized the existence of periodic markets in East Africa which we will quote in extenso.

The spatial structure required to organize this trade was of two complementary types: internal tribal trading organization and long distance trade caravans. Many of Kenya's tribes have a tradition of tribal markets. This is certainly true of the Nyika peoples like the Digo, who had developed a local marketing system, for exchange of goods on a four day cycle. Other tribes in the interior such as the Kikuyu also had such systems. An analysis of the Kikuyu local markets has revealed a highly organized spatial system. . . . At least three types of markets appear to have emerged: small markets dealing with exchange with one zone; larger markets dealing with exchange between zones, high and middle and middle-low Kikuyu; and the largest

¹Hill, "Markets in Africa," p. 447; and Roland Oliver and John Fage, A Short History of Africa (London: Penguin African Library, 1962), pp. 108-10.

²B. W. Hodder, "Some Comments on the Origins of Traditional Markets in Africa, South of the Sahara," Transactions and Papers, Institute of British Geographers, No. 36 (1965), pp. 100-5.

³John Lamphear, "The Kamba and the Northern Mrima Coast," in Pre-Colonial African Trade, ed. by R. Gray and D. Birmingham (London: Oxford University Press), pp. 75-102.

markets of all, dealing with exchange between all three zones. . . . Evidence on the historical evolution of such traditional markets is scarce, but they certainly existed in the nineteenth century prior to the colonial period. The markets usually had no permanent structures [and] they had social as well as economic functions.¹

The relationship between these pre-colonial fairs and traditional markets has been very instrumental in the early urbanization of the East Coast of Africa. The East African studies, unlike West African, have been concerned mainly with proving the existence of periodic markets than the empirical testing of the central-place theory. Most of the studies only mentioned central-place theory in passing without applying its ramification in their study.

Despite the lack of interest in the study of periodic and daily markets in Eastern Africa within the context of central-place theory, geographers have applied the theory empirically within the market-place sub-system in other parts of the world with some success. Skinner linked the study of periodic markets with the central-place theory in his research on marketing in rural China in which he recognized four hierarchies of markets: Minor Market, Standard

¹D. R. F. Taylor, "The Role of the Small Urban Place in Development: A Case Study from Kenya," African Urban Notes, VI, No. 3 (Fall, 1972), 11-12. For other studies with similar conclusions, see Vance Q. Alvis and Peter Temu, Marketing Selected Staple Foodstuffs in Kenya (Morgantown: Department of Agricultural Economics and Office of International Programs, University of West Virginia, 1968); and Charles M. Good, "Periodic Markets: A Problem in Locational Analysis," Professional Geographer, XXIV, No. 3 (August, 1972), 210-16.

Market, Intermediate Market, and Central Market. These market centers, according to Skinner, had four major functions: (a) the distribution of local products, (b) the exchange of a rural surplus for urban goods, (c) dissemination of foreign imports, and (d) the performance of socio-cultural activities.¹ Similar studies have also been done in Latin America and West Africa with the same conclusions.² Stine drew on some concepts of central-place theory to explain the existence of periodic markets in Korea.³ He based his arguments mainly on the relative magnitude of the minimum or threshold and maximum range (of goods or services). Good also had the same conclusion when he said:

. . . a firm offering a good at a permanent site . . . requires that the maximum range equal or exceed the minimum range. Failing this, the establishment will: (a) die out, (b) become periodic but remain spatially fixed or (c) become spatially mobile and move among

¹Skinner, "Marketing and Social Structure in Rural China," p. 9. In Morocco, Mikesell recognized two types of markets: (a) local suq and regional suq while Mintz defined four major classes of markets: (a) Strategic Markets, (b) "Captured" Market, (c) Local Markets, and (d) Mixed Markets. Sidney W. Mintz, "A Tentative Typology of Eight Haitian Market Places," Revista de Ciencias Sociales, IV (January, 1960), 15-57.

²Wayne McKim, "The Periodic Market System in Northeastern Ghana," Economic Geography, LXVIII, No. 3 (July, 1972), 337-44.

³James H. Stine, "Temporal Aspects of Tertiary Production Elements in Korea," in Urban Systems and Economic Development, ed. by F. R. Pitts (Eugene, Ore.: University of Oregon School of Business Administration, June, 1962), p. 74.

a given series of locations [market sites] according to pre-established temporal pattern.¹

Since this relationship of periodic markets and the central-place theory was drawn, a number of studies of the same nature have been undertaken in various parts of the world to support the hypothesis. Smith² and Fagerland³ have developed a procedure for testing the spatial efficiency of a set of periodic markets. The rationale behind this approach was in the proposition that "proximity in space implies separation in time."⁴ At least one of the advantages of this approach is that it makes no assumption about the existence of market range as has been done by Hodder and Ukwu.⁵ In the case of Kenya, a recent study by Wood concluded that ". . . in general despite its piece meal development, the rural markets system in Kenya is

¹Good, "Periodic Markets: A Problem in Locational Analysis," p. 210.

²Robert H. T. Smith, "West African Market Places: Temporal Periodicity and Locational Spacing," in The Development of Indigenous Trade and Markets in West Africa, ed. by Claude Meillassoux (London: Oxford University Press, 1971), pp. 325-26.

³Vernon G. Fagerland and R. H. T. Smith, "A Preliminary Map of Market Periodicities in Ghana," Journal of Developing Areas, IV, No. 3 (April, 1970), 333-48; and R. J. Bromley, "Markets in Developing Countries," Geography, VI (1971), 124-32.

⁴Fagerland and Smith, "A Preliminary Map of Market Periodicities in Ghana," p. 343.

⁵B. W. Hodder and U. I. Ukwu, Markets in West Africa: Studies of Markets and Trade Among the Yoruba and Ibo (Ibadan: Ibadan University Press, 1969).

temporally efficient."¹

In summarizing all studies done on periodic markets of West Africa, Smith concluded that "periodic market systems are differently sequenced in space and time and can be viewed as a special case of central place system."² It is this relationship between the market-place sub-system and the urban sub-system in the developing countries that will be the main focus in this dissertation. We have used central-place theory to explain and predict the actual pattern of central places in the developing countries and to show how this development process can be used in suggesting policies for regional development and strategy.

¹Leslie Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," East African Geographical Review, No. 11 (June, 1973), pp. 65-69.

²Robert H. T. Smith, "A Note on Periodic Markets in West Africa," African Urban Notes, V, No. 2 (1970), 34.

CHAPTER III
DEVELOPMENT AND HIERARCHY OF
COLONIAL CENTRAL PLACES

Introduction

In this chapter we will discuss the development and hierarchy of central places in Kenya during the pre-colonial and colonial era. In order to comprehend the development of duality of urbanization (the periodic market-place and the urban-place sub-systems), we will discuss the external forces that fostered the initial development of the system. The artificial networks of hierarchy of central places which were imposed in Kenya during the turn of this century have been instrumental in the disorganized state of the space economy. Any study of urbanization of the country without putting historical development into the perspective cannot result in proper understanding of the spatial and internal organization of the central places. As will be shown in Chapter VI, which discusses the modern spatial structure of urban centers in Kenya, there is a close link among the central places of the urban-place sub-system because they were geared by the colonial government to act as export enclaves for the bulking of the raw materials for export. These administrative

central places have not integrated with the hinterlands from which they have "extracted" nearly all the raw materials.

Geographical Setting

The Republic of Kenya lies astride the equator on the East Coast of Africa flanked by Ethiopia, Tanzania, Uganda, Somali, and Sudan. It has a total area of 224,960 square miles of which 5,171 square miles is water surface and 219,789 square miles is land surface. The country is the result of a series of international boundary decisions involving the metropolitan powers of Britain, Germany, France, and Italy in the last decades of the nineteenth and early part of the twentieth centuries.¹ The country is divided into seven administrative provinces and the Nairobi Extra-Provincial District. The provinces include Coast, Northeastern, Eastern, Central, Rift Valley, Nyanza, Western, and Nairobi (Figure 3:1). Kenya is predominantly a dry country where three-quarters of the land does not regularly receive enough rainfall to support non-irrigated farming. Only in the southwestern quadrant, along the narrow Coastal Plain, and in a few isolated highland enclaves, are there the combination of reliable rainfall and fertile soils to sustain a dense population. Much of the country, especially in the North and East, is arid and semi-arid.

¹Simeon H. Ominde, Land and Population Movements in Kenya (Evanston, Ill.: Northwestern University Press, 1968), pp. 1-14.

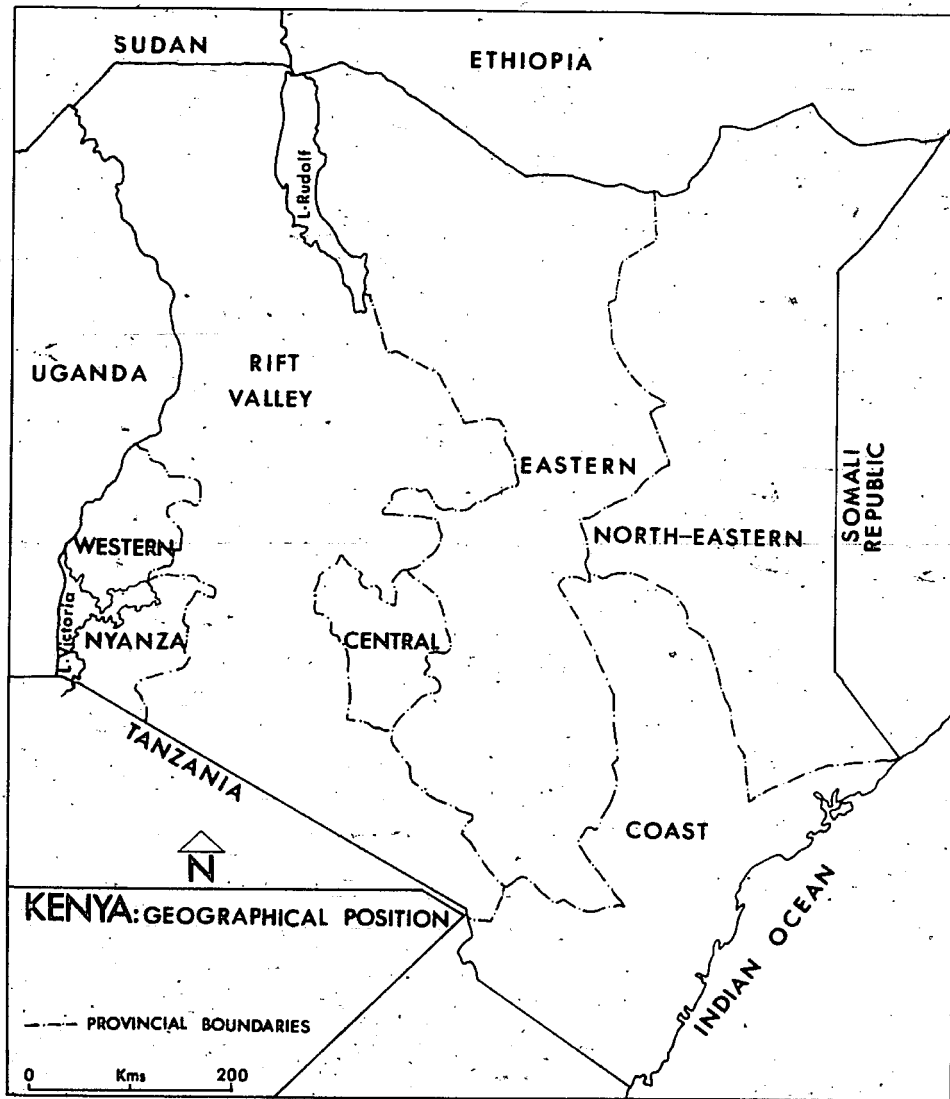


Fig. 3:1--Kenya: Geographical position.

Source: Republic of Kenya, National Atlas of Kenya (Nairobi: Survey of Kenya, 1970).

Pre-Colonial Urbanization

Except for the Coastal Strip, there were a few compact settlements in Kenya that could be described as urban centers prior to colonial inception. Although towns did not exist, there were central places whose importance varied, depending upon the ethnic group that owned a particular central place. These central places were the areas of initial cultural contacts between the Africans and the non-African immigrants during the subsequent stages of colonization. These inland central places existed because coastal towns required an organized hinterland. It is these ethnic central places that developed into caravan towns which later played a very important role in the expansion of the inland trade: The expansion of the caravan trade was necessary because of the demand for raw materials in Europe and the expanding demands of the islands and coastal plantations for slave labor. To use Berg's words, it was ". . . a radical break in tradition and it marked new departure in the relationship between the coast and the hinterland."¹ The initial impetus for the caravan trade really came from the coastal ethnic groups, especially the Nyika. Later the Kamba took over the trade while the Nyika remained as middlemen "channeling Kamba caravans into market centers such as Kwa Jomvu

¹F. J. Berg, "The Coast from the Portuguese Invasion to the Rise of the Zanzibar Sultanate," in Zamani: A Survey of East African History, ed. by Bethwel A. Ogot and J. A. Kieran (Nairobi: East African Publishing House, 1968), p. 119.

and Shongi.¹ Despite these initial attempts, the ties between the coastal and inland trade were reinforced by the Arab caravan traders as has been acknowledged by Taylor:

Much of the long distance trade was cut off in the latter half of the nineteenth century by the raiding of tribes such as Masai, the Shambala and . . . Galla. As far as the coastal cities were concerned, it was at this time that direct Arab trading caravans were found necessary to obtain the trade goods formerly supplied by the Kamba and the Nyika.²

As the caravan trade developed, a series of caravan towns emerged along the routes as places of resting and procuring fresh supplies. The European involvement in the caravan trade increased the tempo of the building of the caravan towns between the coast and the interior parts of Kenya. Within the space of a year, well-fortified boma³ were established at Ndi, Witu, Kiambu, Olu, Mumoni, Bura, Kikumbuliu, Ngong, Taveta, and Mumias⁴ (Figure 3:2). The purpose of these caravan bomas, according to Mungeam, was

. . . to establish some sort of understanding with the surrounding tribes in order to keep the road open and secure food for the caravans before they set out across the sparsely populated country between the fertile highlands and the lake.⁵

¹Lamphear, "The Kamba and Northern Mrima Coast," p. 80.

²Taylor, "The Role of the Smaller Urban Place in Development," p. 12.

³Boma, originally a fort or stockade and now an administrative center or town.

⁴G. H. Mungeam, British Rule in Kenya: The Establishment of the Administration in the East Africa Protectorate, 1895-1912 (Oxford: Oxford Clarendon Press, 1966), pp. 1-20.

⁵Ibid., pp. 10-11.

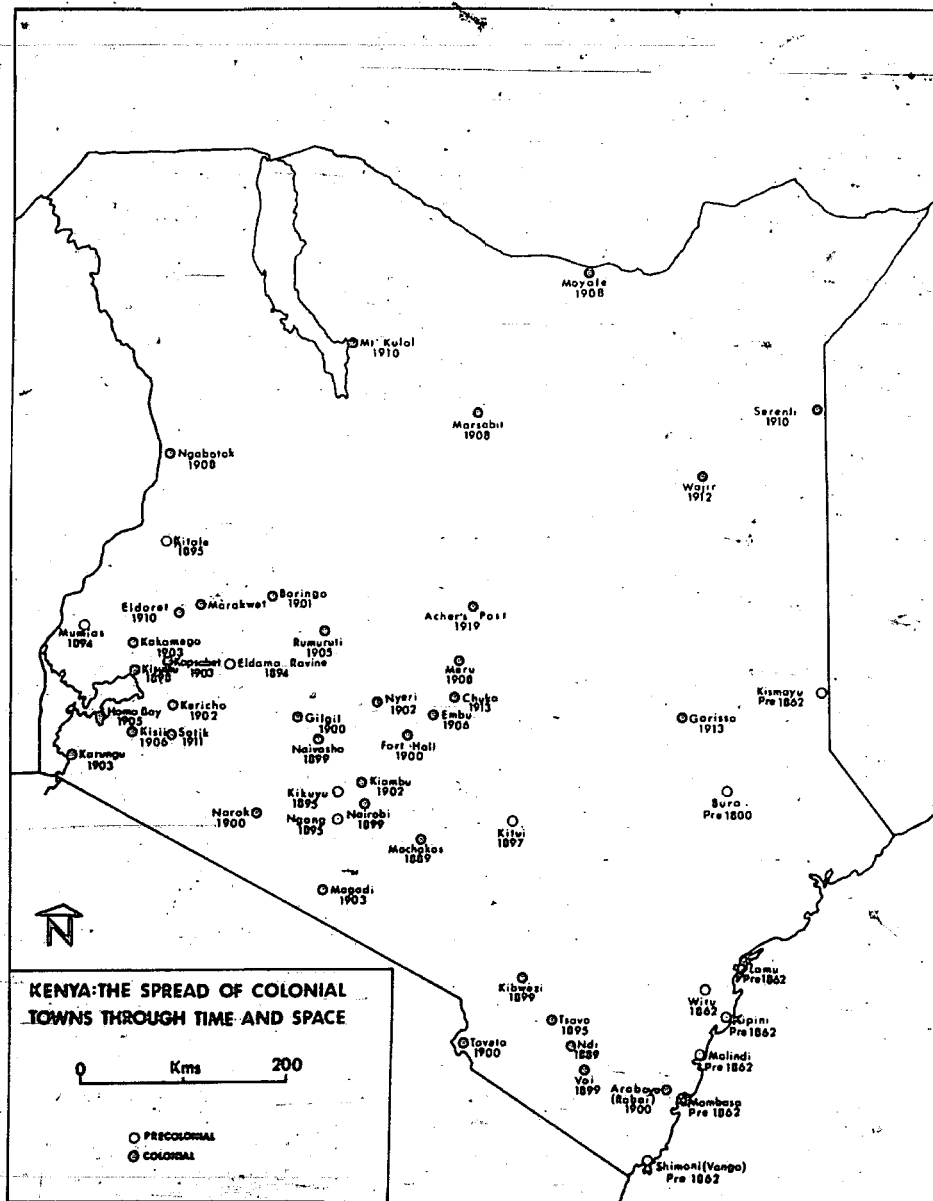


Fig. 3:2--Kenya: The spread of colonial towns.

Source: Based on data gathered from Kenya National Archives Records, 1895 to 1925.

The last caravan town to be established during the final stage of the pre-colonial era was a stockade built at Kitale in the early 1890's.¹ Until this time the caravan towns were either founded or annexed by the Imperial British East Africa Company (IBEAC) which dissolved at the beginning of 1895.

At the end of the pre-colonial era, there were few caravan towns and traditional centers scattered throughout Kenya. The majority of the pre-colonial towns were concentrated in Kenya's Coastal strip with only half a dozen in the Mombasa-Uganda route. These nodal points were very important for the dissemination of ideas. To some extent, then, it is these pre-colonial central places that acted as nodes from which the colonial authorities secured a strong foothold in various parts of the country. The importance of these central places will be appreciated later when we consider the impact of urbanization during the colonial period. It is important to add that during the pre-colonial era, because of the undeveloped nature of the traditional centers, only horizontal organization of the centers in a Christallian sense was possible.

The pre-colonial central places were mainly periodic markets where the traditional chiefs gathered from time to time to carry out the administrative functions of their respective Kingdoms. Only the non-indigenes, such as

¹Richard Meinertzhagen, Kenya Diary 1902-1906 (Edinburgh: Oliver and Boyd, 1964), pp. 199-201.

the Swahili, Arab, and Indian traders, resided in these central places. In this sense some of the pre-colonial central places could be called multi-racial and ethnic societies. This was particularly true of the central places in the Coastal Region. But the majority of them were dominated by the African population with the indigenous ethnic groups accounting for over 90 percent of the population. The extended family was common among the African population of these centers. Like Sjoberg's pre-industrial cities, the elites controlled these central places, but their influence varied from region to region. The inland central places were ruled by the ethnic chiefs (then the traditional elites) while the Coastal ones were controlled by the exogenous elites, mainly the traditional Arab and Swahili merchants. According to Chittick:

The inhabitants can be considered as falling into three classes in most important settlements. The ruling elite class was mixed Arab and African ancestry . . . well read in faith of Islam. Such would probably be also the landowners, the skilled artisans and most of them were religious functionaries, and merchants. Inferior to them . . . were the Africans . . . who performed the menial tasks and tilled the fields. Apart from both there were the transient or recently settled Arabs, still incompletely assimilated into the society.¹

Chittick says further that of all the occupations performed by these three classes of people, only the rulers cum-merchants played a very important social function.²

¹Neville Chittick, "The Coast Before the Arrival of the Portuguese," in Zamani: A Survey of East African History, ed. by Bethwel A. Ogot and J. A. Kieran (Nairobi: East African Publishing House, 1968), pp. 113-14.

²Ibid.

Because of the close association of these central places, the general layout of the houses was almost identical as has been well summarized by Chittick:

The houses were built very close to one another, often sharing a party wall and sometimes linked together, suggesting a family relationship between occupiers. The blocks of buildings were separated by very narrow lanes, though often there were gardens behind. They were one story. . . . Roofs were flat, built of stone laid on mangrove poles which were usually squared; the weight of this massive roof and the strength of the timbers restricted the width of these rooms. . . . The houses followed a fairly uniform plan. They were entered by a doorway leading to a sunken courtyard. Facing onto this was usually a reception room, or verandah with the main living room behind, and bedrooms to the rear of this; such a basic arrangement was often much elaborated by the addition of other rooms. The main entrance into the courtyard of the larger houses was impressive. . . . At least one latrine . . . was included in each house. . . . There were usually no windows except in the facade facing the courtyard so the inner rooms must have been dark but their ceilings and thick walls would have been cool. The walls were plastered. . . .¹

During the pre-colonial era, the central places were not only weakly organized, but were also ethnic oriented. It is colonial urbanization that changed the spatial organization of the central places as will be analyzed in the next chapter. The hierarchical organization of these pre-colonial settlements only existed on the ethnic or sub-ethnic level in the inland areas, while in the coastal part of Kenya some form of hierarchy could be identified.

¹Chittick, "The Coast Before the Arrival of the Portuguese," pp. 114-15.

Colonial Urbanization: Change in
Time and Space

It was during the colonial period that the spatial organization of the central places in Kenya was developed and consolidated both in time and space. With the transfer of IBEC activities to the Colonial Office, some caravan towns were developed as administrative centers where the "pacification" and the colonization process could be consolidated. These centers acted as supply and resting points, and as the political as well as the socio-cultural centers for their respective regions. In order to improve communication between the coast and interior parts of the new territory, railways, roads, and other associated infrastructures were built between 1895 and 1902. These communication patterns signaled a growth stage in which "the development of a penetration line [set] in motion a series of spatial process and readjustments as the comparative locational advantages of all centers [shifted]."¹ The new communication patterns helped in the growth of new administrative bomas. These colonial bomas were designed primarily to administer or facilitate export of raw materials and the import and sale of manufactured goods.

Non-African Settlement

By the end of 1902, the British Government was committed to the policy of non-African settlement in the East

¹Edward J. Taaffe, Richard Morrill, and Peter R. Gould, "Transport Expansion in Underdeveloped Countries," Geographical Review, III, No. 4 (October, 1963), 506.

African Protectorate (EAP, now Kenya)--a move that increased the process of unbalanced urbanization in the country. The first land to be alienated for European settlement was demarcated in the buffer zone between Masailand and Kikuyu-Kamba region and in areas around Fort Hall.¹ With the settlement schemes concentrated mainly in the Kenya Highlands, more towns were founded in this area than any other part of Kenya. The actual settlement took place between 1902 and 1945 when over 300,000 settlers, mainly from the United Kingdom, came to Kenya. The Asian and Arab communities also played a role in the urban development by carrying out commerce. Their contribution was attributed to the fact that

as willing purchasers of [African] products, they created and continuously widened those markets upon which development was fundamentally dependent. As sellers of trade goods, they both satisfied existing needs and created new incentives for further production and their transaction injected a stream of cash crops into the economy.²

The majority of the Asians and Arabs operated the dukas (shops) which played a strong part in modernization at the local level. According to Good, in East Africa

dukas are the most numerous places for regular trade. . . . [There are] hundreds of these small rectangular pole-frame structures--with mud and plaster walls supporting a corrugated iron roof. . . . The typical duka

¹W. T. W. Morgan, "The White Highlands of Kenya," Geographical Journal, CXXIX (1963), 149-55.

²C. Ehrlich, "The Uganda Economy, 1903-1945," in History of East Africa, ed. by Vincent Harlow and E. M. Chilner, II (Oxford: Clarendon Press, 1965), 405.

deals mainly in very small quantities of basic provisions such as sugar, paraffin, salt, matches and soap. Most carry a variety of sundries ranging from soft drinks, biscuits, aluminum, and enamelware and cigarettes . . . to patent medicine, tinned milk, tea and plastic jewelry. The more prosperous shopkeepers may add any foodstuffs, textiles and clothing to their general lines of trade, so that their shop becomes a general store in addition to a center for meeting friends and disseminating news. Many shops will employ a tailor to operate a sewing machine on the premises, so that a customer who purchases pieces of goods may arrange to have a shirt, pair of shorts or a dress made to order.¹

For many years during the colonial period, the Arabs and Asians were restricted to major urban centers and they were only allowed to own land in the area along the railway between Kisumu and Fort Ternan (Figure 3:2). The Asian and Arab dukas in Kenya have been "responsible for stimulating the wants of the indigenous people in the remotest areas, by opening to them a shop window on the modern world and for collecting for sale elsewhere whatever small surpluses are available for disposal."²

The process of urbanization in Kenya can be directly attributed to non-African settlers. This is particularly true in the Central Highland regions which account for over 80 percent of Kenya's urban centers. An accurate analysis of urban development in Kenya was attempted after the 1948 population census, which was the first country-wide census of its kind in Kenya. According to this census, an urban center was defined as any compact and gazetted settlement

¹Good, Rural Markets and Trade in East Africa, pp. 39-40.

²East African Royal Commission Report, p. 65.

with a population of 2,000 and above inhabitants.¹ Centers were divided into three hierarchical categories: municipalities, grade A townships, and grade B townships. Below these were trading centers. On this basis there were only 17 urban centers in Kenya by 1948. Of the non-African population of 154,846, in 1948, 73 percent resided in the 50 gazetted municipalities, townships, and trading centers (Appendix I).

The colonial period introduced a new type of economic, social, and political development in Kenya. The economy of the country was dominated by non-African settlers who were concentrated mainly in the Central Highlands and/or in the gazetted administrative bomas (Figure 3:2). Colonialization imposed a deliberately segregated economic, political, and socio-cultural climate in which the Europeans dominated the country, the Indians and the Asians were the "middlemen," and the Africans were overworked in low-paying jobs in urban areas or otherwise restricted to their respective ethnic areas. Until political independence in 1962, the urban centers were regarded rather as bases for administrative and commercial activities than as centers for permanent African settlement and participation.

These policies divided Kenya sharply into growth nodes and lagging areas.

¹J. G. Blacker, "Population Growth and Urbanization in Kenya," in United Nations Mission to Kenya on Housing, ed. by L. H. Bloomberg and C. Abrams (Nairobi: Government Printer, 1965), p. 59.

The majority of Kenya urban centers are concentrated in an hour-glass shaped region with a northwest to south-east axis and distinctively broader at both extremities. In the northwest region is the broadest where the urban centers of Western Region merge into the Western Central Highlands. At the opposite end is the region between the present town of Gilgil and Thomson's Falls.¹

The Central Highlands Region has a high urban concentration, enjoys the highest rainfall, and has the most fertile land in the country. The resource allocation and transport concentration are the highest in Kenya. There is a wide hiatus between the traditional central places and the colonial centers. This internal polarization can be considered the main effect of urbanization in Kenya. The fertile lands in Kenya Highland and the urban enclaves stretching from Mombasa on the Coast to Kisumu in Lake Victoria were built as the core region of the country where maximum investment was concentrated. This core region was used by the colonists for ". . . production and export of a few raw materials for processing in the factories of the developed industrial countries; and the import of manufactured consumer goods with a significant share of foreign exchange earned."² The unbalanced development restricted the overall urbanization of the country and as a result the majority of Africans have not benefited from the process.

¹Ominde, Land and Population Movements in Kenya, p. 63.

²Ann Seidman, "Comparative Development Strategies in East Africa," East African Journal (April, 1970), p. 14; and Ann Seidman, Comparative Development Strategies in East Africa (Nairobi: East African Publishing House, 1972).

In addition to the polarized nature of urbanization, the colonization also produced peculiar urbanization traits which are worth contrasting with those of the pre-colonial era. The colonial central places were more racially and ethnically heterogeneous than the pre-colonial settlements. But it was common to find the "indigenes," the Africans from surrounding locations, accounting for the majority of the population (Tables 3:1, 4:10, 4:24, 4:25, 4:26, and 4:27).

Like Sjöberg's pre-industrial cities in which the urban dwellers were stratified according to social ranks, such that priests, rulers, and educators were the elite who dominated the functions of the city,¹ the colonial towns in Kenya were dominated by the expatriate elite. The African elites consisted of two groups, namely the intelligentsia and the traditional elites. The former have received a formal education from the colonial towns or from abroad while the latter have risen to power through the traditional ethnic political process. Both of these groups were closely related to the colonial elites who were mainly administrators and businessmen. Secondly, there were middle men who consisted of Asians, Goans, and Arab immigrants who did not come from the colonial country, but occupied a very important commercial role in the country. The third and last group consisted of the mass of the uneducated

¹ Gëdion Sjöberg, The Pre-Industrial City: Past and Present (Glencoe, Ill.: The Free Press, 1960).

TABLE 3:1
KENYA: PERCENTAGE OF ETHNIC AND RACIAL COMPOSITION
FOR SELECTED URBAN CENTERS, 1969

Ethnic and racial groups	Kisumu	Kakamega	Kapsabet	Nairobi	Mombasa	Nakuru
Central Bantu	5.67	9.34	17.62	51.01	19.08	43.84
Western Bantu	21.34	58.22	27.85	13.53	6.40	19.25
Coastal Bantu	0.67	1.11	0.30	1.17	34.51	0.80
Nilotic Luo.	44.06	13.89	10.31	12.34	8.93	17.56
Nilo-Hamitic (K.S.)	1.32	2.66	35.42	1.07	0.42	3.84
Other Nilo-Hamitic	0.09	1.14	1.70	0.42	0.17	2.06
Western Hamitic	0.02	0.14	-	0.23	0.12	0.06
Eastern Hamitic	0.07	0.35	0.36	0.29	0.24	0.36
Total Kenya African	74.24	86.85	93.56	80.06	69.87	87.77
Non-Kenya African	2.78	3.17	1.91	2.62	5.88	1.70
European	1.84	0.80	1.31	3.77	1.99	1.45
Asian	20.27	8.31	3.13	13.19	15.81	8.63
Arab	0.80	0.85	0.09	0.21	6.41	0.41
Others	0.07	-	-	0.15	0.04	0.03
Total non-African	22.98	9.95	4.53	17.32	24.25	10.61
Total	100.00	100.00	100.00	100.00	100.00	100.00

(continued)

TABLE B:1 (continued)

Ethnic and racial groups	Thika	Nanyuki	Kitale	Malindi	Isiolo	Marsabit
Central Bantu	73.98	73.33	17.76	6.16	24.23	4.60
Western Bantu	<u>5.62</u>	<u>4.47</u>	<u>45.37</u>	2.25	1.81	0.37
Coastal Bantu	0.64	0.74	0.20	<u>55.34</u>	0.29	0.05
Nilotic Luo	8.00	4.53	10.15	<u>1.73</u>	1.15	0.30
Nilo-Hamitic (K.S.)	0.30	3.87	4.19	0.53	0.55	0.23
Other Nilo-Hamitic	0.26	3.55	4.73	0.14	<u>28.46</u>	3.36
Western Hamitic	0.05	0.81	0.03	0.70	<u>22.94</u>	<u>82.88</u>
Eastern Hamitic	0.86	0.23	0.50	0.24	16.01	<u>3.12</u>
Total Kenya African	89.71	91.53	82.93	67.09	95.44	94.91
Non-Kenya African	0.43	2.72	4.91	3.10	2.13	3.19
European	1.16	1.38	1.43	7.69	0.27	0.23
Asian	8.20	4.09	10.72	7.56	1.99	0.67
Arab	0.46	0.25	0.02	14.54	0.17	1.00
Others	0.04	0.02	-	0.02	-	-
Total non-African	9.86	5.75	12.17	29.81	2.43	1.90
Total	100.00	100.00	100.00	100.00	100.00	100.00

Notes:

The underlined percentages indicate the ethnic group which dominates the urban center.

K.S. = Kalenjin speaking.

Source: Based on data from 1969 Kenya Population Census.

Africans who migrated to the urban centers to perform the semi-skilled or unskilled tasks. This classification agrees with Horvath's description in which he recognized the (a) exogenous colonial elite, (b) the intervening group, and (c) the indigenes.¹ All the urban population of expatriate colonial cities were recent migrants from the surrounding countryside, the neighboring territories, and other foreign lands.

The colonizers developed three types of central places in Kenya between 1900 and 1960: towns or bomas (the present urban centers with 2,000 and above population), the trading center, and the market of the three, only the boma and trading center were really established by the colonials since some form of periodic markets existed in various parts of the country in one form or another prior to the colonization of the country. Since the boma and the periodic markets will be discussed in the subsequent chapters of this thesis, it is important that we analyze the role of the trading centers, one of the examples of rapid economic and social change in Kenya. They are the most obvious features of the cultural landscapes in the country. In the urbanization process in the country, trading centers provide a very important linkage between the rural areas (periodic markets) and the modern urban-based sectors. Despite the fact that

¹R. J. Horvath, "In Search of a Theory of Urbanization: Notes on the Colonial City," East Lakes Geographer, V (December, 1969), 69-81.

the trading centers are commercially the most viable, they are the untidiest and least planned central place in Kenya. This lack of planned development is due to several reasons of which the following are the most important. First, land where trading centers were built belong to individual Africans, and since the Indians were the only people who initially developed the trading centers, most of the land they had was on annual lease. Because their claim to the land was not permanent, they only constructed temporary structures, most of which have existed to this day. Second, the colonial government did not control and regulate the planning and building of trading centers. This uncontrolled development has therefore remained the characteristic feature of these centers up to the present time. And finally, the trading centers, like the periodic markets, have been distributive, collecting, and bulking centers whose future existence has not been seen as secure by either Africans or non-Africans, hence the lack of permanent investing. But during the post-colonial era, these conditions have been improved; since the urbanization has continued, some of the trading centers have been officially declared urban centers with the result that they formed a physical planning urban entity for sectorial as well as regional planning.

Characteristics of Colonial Towns

Colonial towns were multi-centers. The main administrative boma contained the offices and residential

quarters of the government officers. A second important center was the bazaar, a form of Sub-Central Business District which contained all types of stores. This second center was dominated by the Arabs, Indians, and Goans.

The African and non-African residential locations were separate and segregated on a racial and economic basis. The African residential location or rural-like compounds had a higher density than the non-African areas. Because of the great influx of migrants to the cities after independence, shanty towns were common.

Colonial administrative centers were encircled by a peripheral region where most of the recent African migrants built their settlements. In these peri-urban dormitories, the poor Africans who have been displaced from rural and urban centers live in transition between the agricultural and industrial-urban way of life.

In studying the urbanization process of Kenya, it should be recognized that the colonial administrators established ports, administrative stations, and other minor central places as a force in consolidating their economic interests in the country. The relationship of these colonial central places with their hinterland was restricted to very specialized trading functions. The patterns of areal organization in the hinterland remained largely unaffected. In the words of Hoselitz, they were parasitic¹ because they

¹Bert F. Hoselitz, "Generative and Parasitic Cities," Economic Development and Cultural Changes, III, No. 3 (April, 1955), 278-94.

did not contribute to the economic development of their hinterland. Economically, the colonial urban centers were only entrepôts. The economy of a colonial settlement in Kenya even after independence was and still is dangerously linked to the industrial markets and will remain so for many years to come because, as shown in Table 3:3, the country is still a major importer of manufactured goods and an exporter of raw materials mainly to continental Europe and North America. By the end of the colonial era, Kenya was a full-fledged member of the poor countries exporting the raw materials such as coffee, tea, sisal, and pyrethrum, among others (Table 3:2).

Primacy,¹ according to its original author, Jafferson, is present when the largest city in a country or region has several times the population of the second or third city in rank. Primacy also exists when a stratum of small central places is dominated by one, two, or three very large cities and there are fewer cities of intermediate sizes than would be expected from Zipf's rank size rule theory. Primacy is one of the most important characteristics of a colonial urbanization (Table 4:5). During the colonial and post-colonial era, Nairobi has dominated the country's terms of population and in the provision of social urban amenities (Table 4:16). Nairobi, according

¹Mark Jafferson, "The Law of the Primate City," Geographical Review, XXIX (1939), 227-32; and Salah El-Shakhs, "Development, Primacy and Systems of Cities," The Journal of Developing Areas, VII, No. 1 (October, 1972), 11-36.

TABLE 3:2
KENYA: PERCENTAGE OF EXPORTS OF PRINCIPAL COMMODITIES IN 1962-1970

Commodity	1962	1963	1964	1965	1966	1967	1968	1969	1970
Coffee	27.9	25.1	32.7	29.9	32.3	29.3	22.2	26.6	31.1
Tea	13.7	12.9	12.9	12.9	15.0	13.8	17.4	17.8	17.7
Petroleum products	-	0.1	4.6	9.9	10.1	13.8	10.8	12.0	11.4
Sisal fibre and tow	11.4	17.2	12.8	8.2	5.8	3.9	3.2	2.7	2.6
Meat and meat preparations	7.3	5.9	4.6	5.2	5.2	5.3	5.2	4.1	4.0
Pyrethrum extract and flowers	8.4	6.9	5.2	4.7	4.9	5.4	5.3	4.4	3.0
Hides, skins, and furskins	3.6	2.7	2.7	3.7	4.4	3.3	2.9	3.0	2.3
Cement, building	1.2	1.1	1.7	2.0	1.5	1.9	2.0	2.3	2.3
Copper and alloys	1.3	0.8	0.9	1.9	0.7	-	-	-	-
Wattle bark and extract	2.3	1.9	2.3	1.8	2.7	1.7	2.1	1.9	1.6
Sodium carbonate	3.3	2.8	1.5	1.7	1.9	1.9	2.0	1.4	2.3
Pineapples	1.8	1.9	1.9	1.6	0.9	1.0	0.8	1.1	0.9
Cotton	1.1	1.0	1.4	1.6	1.5	1.2	0.7	1.2	1.7
Wool	1.4	1.3	1.1	1.2	1.0	0.9	1.0	0.9	0.5
Cashew nuts	0.2	0.5	0.6	1.2	0.8	0.1	1.1	1.1	2.2
Beans, peas, and lentils	0.5	1.8	1.1	1.0	1.0	0.6	1.4	0.8	0.7
Oil seeds, oilnuts, and oil kernels	0.9	1.5	1.0	1.0	0.9	0.7	1.1	0.5	0.7
Scrap metal	-	0.6	1.0	0.9	0.8	0.7	0.5	0.6	0.7
Butter and ghee	2.4	1.9	1.6	0.6	0.7	0.5	0.6	0.4	0.3
Maize, unmilled	2.7	3.6	-	-	-	2.6	8.3	4.4	-
Other	9.5	7.9	8.5	9.1	8.0	10.5	11.4	12.8	14.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Republic of Kenya, Kenya Statistical Digest 1971 (Nairobi: Government Printer, 1971), p. 49.

TABLE 3:3

KENYA: NET IMPORTS BY PRINCIPAL COUNTRY OF ORIGIN, 1967-1970

Year	United Kingdom	Japan	West Germany	United States	India	Netherlands	France	Italy	Other
Food and live animals	1967 1,067	2	40	590	82	114	53	147	2,458
	1968 1,089	15	145	3,334	118	171	22	76	2,898
	1969 929	12	87	1,955	68	172	36	112	1,619
	1970 1,024	26	114	1,035	49	213	294	88	2,709
Beverages and tobacco	1967 362	-	22	62	3	22	140	30	30
	1968 482	1	38	54	4	32	229	66	70
	1969 424	1	30	48	4	25	220	35	98
	1970 408	-	33	97	4	17	210	30	101
Crude materials	1967 302	248	125	119	74	64	26	369	1,628
	1968 333	473	149	130	70	103	26	350	968
	1969 352	470	158	146	75	112	33	455	1,232
	1970 379	313	114	160	95	125	16	358	1,252
Mineral fuels, lubricants	1967 446	1	80	14	-	81	24	267	11,042
	1968 418	1	125	273	3	112	12	312	11,938
	1969 142	-	153	96	2	124	12	166	12,305
	1970 308	1	179	366	6	85	17	304	13,909
Animal and vegetable oils	1967 71	-	30	4	2	103	3	6	648
	1968 77	-	11	80	9	110	1	9	887
	1969 73	-	49	44	5	400	2	6	1,622
	1970 49	-	103	151	3	136	13	5	1,496
Chemicals	1967 2,872	71	1,253	858	56	1,062	356	393	1,154
	1968 3,807	195	1,728	1,278	76	1,542	567	441	1,612
	1969 4,063	253	2,020	1,185	59	1,755	493	566	1,541
	1970 3,987	518	2,754	1,754	145	2,084	709	1,167	1,698

(continued)

TABLE 3:3 (continued)

	Year	United Kingdom	Japan	West Germany	United States	India	Nether-lands	France	Italy	Other
Manufactured goods	1967	5,964	1,728	3,154	1,794	1,863	812	1,096	664	8,603
	1968	7,824	3,905	2,199	1,758	1,726	704	1,082	872	8,235
	1969	7,186	4,932	2,155	1,406	1,789	807	820	986	9,809
	1970	8,882	8,402	2,288	1,763	1,757	677	811	951	10,043
Machinery and transport equipment	1967	21,003	3,490	5,334	3,735	570	350	2,008	1,794	11,201
	1968	18,389	2,609	4,088	3,465	553	431	1,913	2,409	3,210
	1969	20,020	2,776	4,262	5,047	543	594	2,057	2,303	3,007
	1970	23,412	4,481	4,889	5,791	494	437	2,837	2,970	3,259
Miscellaneous manufactures	1967	2,446	278	489	587	528	218	143	211	1,892
	1968	3,176	769	564	549	311	235	251	306	2,583
	1969	3,102	899	659	569	412	301	208	267	2,137
	1970	3,452	1,455	721	789	551	326	231	312	3,491
Miscellaneous transactions	1967	455	8	31	1	-	-	2	-	4,059
	1968	515	-	65	1	-	-	-	-	4,626
	1969	162	-	1	-	-	-	-	-	3,173
	1970	174	-	2	-	-	-	-	-	4,620
Total net imports	1967	34,989	5,827	10,560	7,764	3,178	2,825	3,850	3,879	33,724
	1968	36,110	7,968	9,112	7,922	2,870	3,440	4,103	4,841	38,398
	1969	36,453	9,343	9,574	8,736	2,957	4,290	3,881	4,896	36,820
	1970	41,459	15,196	11,196	11,906	3,104	4,100	5,138	6,185	45,782

Source: Republic of Kenya, Kenya Statistical Digest 1971 (Nairobi: Government Printer, 1971), p. 64.

to Soja, is the national nuclei or core area and in his own words "it is clearly the most modernized part of Kenya and the hub of the nation--an easily identifiable hub core area . . . [it has] dominance in the network of communication and transport--as well as in the overall social, economic, and political organization of Kenya."¹ In the Western Region, Kisumu, with a population of 32,431, dominated the region. The next largest urban center, Kericho, had only 10,144 persons according to the 1969 census. Kakamega enjoys such a primacy in the Western Province, as does Kisii town in Abagusii District, Homa Bay in South Nyanza District, Bungoma in Elgon Nyanza District, Kericho town in Kericho District, and Kapsabet in Nandi District. Primacy is a very important aspect of colonial urbanization. It should be remembered that the majority of the colonial towns in Kenya developed because of the rich agricultural hinterland. Most of the towns in Central Highlands, Western, and Coastal Regions developed because of the large cultivation of cash crops such as coffee, tea, sugar cane, sisal, pyrethrum, and cotton, to mention only a few. In addition to these crops, the discovery of gold in Kenya during the 1914 and 1953 period also helped in the urban economic expansion.

¹Edward W. Soja, The Geography of Modernization in Kenya: A Spatial Analysis of Social, Economic, and Political Change (Syracuse: Syracuse University Press, 1968), p. 197.

The Hierarchical Organization
of Urban Centers

National Urbanization

The second national census taken in 1962 showed Kenya with 34 towns with a total population of 670,945 or 7.80 percent of the country. This was a 100 percent increase in number of towns from 1948, when there were only 17 towns (Appendix I). As shown in Table 3-4, the non-Africans were concentrated in urban areas while the Africans were concentrated in the rural areas. This rural nature of the African population was preserved by colonial law which restricted African residence in urban areas. The report of the East Africa Royal Commission summarized the situation:

For many years the Africans were regarded as temporary inhabitants of the towns in which they worked as unskilled laborers. . . . The theory of indirect rule as well as personal inclination of many administrators led to a concentration on the development of rural tribal societies rather than the training of an educated urban elite, and also the view that towns were not suitable for a permanent African society. . . . The towns, have, therefore, been regarded rather as bases for administrative and commercial activities than as centers of civilizing influence, still less permanent African population.¹

In spite of the restrictions of the Africans to rural areas, rural to urban migration increased for several reasons. According to McKee,² rural-urban migration in Kenya has

¹East Africa Royal Commission Report, pp. 220-1.

²S. Ian D. McKee, "Planning and Urbanization in Kenya," Journal of Royal Town Planning Institute, LIX, No. 19 (July-August, 1973), 321.

TABLE 3:4
KENYA URBAN POPULATION BY RACE, 1962

	Urban		Rural		Total number
	Number	Percentage	Number	Percentage	
African	441,739	5.3	7,924,203	94.7	8,365,942
Asian	164,992	93.4	11,621	6.6	176,613
European	34,865	62.5	20,894	37.5	55,759
Arabs	26,030	76.5	8,018	23.5	34,048
Others	3,319	85.1	582	14.9	3,091
Total non-Africans	229,206	84.8	41,115	15.2	270,321
Total	670,945	7.8	7,965,318	92.2	8,636,263

Source: Republic of Kenya, Statistics Division, Ministry of Economic Planning and Development, Kenya Population Census 1962 (Nairobi: Government Printer, 1966).

been caused by a variety of complex problems: (a) shortage of land with agricultural potential, (b) rural unemployment and under-employment, (c) reaction against constraints by tribal customs, (d) the desire for better social and cultural facilities, and (e) the lure of the city, industrial wages, and the good life. Most of the Africans who migrated to urban areas in Kenya created outlying squatter rings in the peri-urban areas of the urban centers.

The increase of the urban population from 285,545 in 1948 to 671,024 in 1962 represented a growth of 135.00 percent with an average rate of increase of 6.30 per annum over the 15 years.¹ The rapid increase in the urbanization of all except three urban centers should be viewed with caution. The urban centers in 1948 had a small population base because the number of Africans to migrate to the urban areas was restricted.

The third Kenya population census in 1969 showed an increase in urban centers with 2,000 or more inhabitants from 34 in 1962 to 47, with a 1,079,908 or 9.87 percent of the total population. The urban increase of population during the two censual periods was 60.96 percent (Appendix II). The Kenyan urban population by 1969, according to Laurenti, "... included almost 14 percent of the national labor force, 88 percent of the non-African population and a

¹Republic of Kenya, "Population Growth in Kenya 1948-1962: Some Thoughts on the Provisional Results of the 1962 Census," Kenya Statistical Digest, I, No. 1 (September, 1963), 3-5.

large proportion of the country's trained and educated manpower."¹ The high increase of Kenya towns is caused by the high rate of natural increase, rural to urban migration, and the increase of township boundaries. The three census periods, 1948, 1962, and 1969, summarized the trend of urbanization in the country (Table 3:5).

Hierarchy of Urban Centers

Centrality of towns and trading centers has been measured in a variety of ways. The centrality index includes population size and central functions such as administration, cultural, health and social services, organizations of economic and social services, finance, trade, service industries, labor, and traffic movements. These functions can further be categorized into attributes (functions of which only one or no unit may be present in a town; for example, administrative function) and variates (functions of which one or more units may occur in a town; for example, economic and social services).²

The Department of Urban and Rural Physical Planning of the Ministry of Lands and Settlement identified the sizes, spacings, and functional structures of all service

¹Ford Foundation, International Urbanization Survey, in Urbanization in Kenya, ed. by Luigi Laurenti and John Gerhart (New York: Ford Foundation, 1973), p. 17.

²R. J. Davies, "The South African Urban Hierarchy," South African Geographical Journal, XLIX (1967), 9-19; and R. J. Davies and G. P. Cook, "Reappraisal of the South African Urban Hierarchy," South African Geographical Journal, L (1968), 116-32.

TABLE 3:5
KENYA URBAN POPULATION,
1948, 1962, AND 1969

Census	1948	1962	1969
Urban population	285,545	670,934	1,079,903
Urban population as percent of total population	5.20	7.8	10.0
Intercensal period	1948-1962		1962-1969
Urban population increase	385,389		408,974
Growth in urban population, percent per annum	6.20		7.20
Total population increase	3,230,297		2,306,442
Growth in total population, percent per annum	3.10		3.40

Source: Based on 1948, 1962, and 1969 Kenya Population Census.

centers in Kenya using the techniques of central-place theory.¹ In the study of the hierarchy of central places, the following attributes and variates were combined and in most cases modified to each local situation. The data were collected under five categories of service: (a) administrative and protection; (b) social services, (c) communication and transportation, (d) commerce, and (e) industry and electricity.² These services were further subdivided into twenty-one specific categories and each was weighted accordingly (see Appendix III). The centrality index of each central place in Kenya was then determined by the weighted points.³ According to Ligale,

the number of points accumulated in each center were totalled and it was assumed that the more points a center had, the greater was its centrality and the wider sphere of influence. The maximum number of points a center could obtain was 51 and 8 points was taken as the minimum necessary for a group of services to qualify as a center since any smaller concentration would not create a significant center of gravity within the surrounding area. Out of a total of 250 places which possessed some development, 116 did not accumulate enough points to qualify as service centers even at the lowest level. The remaining 134 centers were

¹Mario E. F. C. Carvalho, "Regional Physical Planning in Kenya: A Case Study," Ekistics, XXVII, No. 161 (1969), 232-37.

²S. Ian D. McKee, "Towards a National Physical Plan for Kenya: A Case Study," Report of the Proceedings of the Town and Country Planning Summer School (University of Swansea, Royal Town Planning Institute, 1970), pp. 65-69, esp. Appendixes I and II.

³Republic of Kenya, A Study of the Possible Distribution of Urban Growth in Kenya as a Framework for Physical Planning, by J. A. N. Eastwell (Nairobi: Town Planning Department Ministry of Lands and Settlement, September, 1969).

classified into four main groups, graded in a descending order of hierarchical importance as URBAN CENTERS, RURAL CENTERS, MARKET CENTERS AND LOCAL CENTERS. This grading was determined by using an exponential graph on which the level of service . . . was plotted along the horizontal scale and the number of centers on the vertical scale, the break point in the graph being regarded as change in the level of service.¹

Each of these centers, according to the Town Planning Department,

. . . provided a different range and level of service and [served] larger or smaller hinterland and correspondingly . . . if a center collected 8-12 points it was considered to be a local center, with 13-18 points a market center, with 19-36 points a rural center, and with 37 points or more it was designated as urban center. In areas of scattered population and limited development centers which collected less than 8 points were also listed and designated as local centers.²

We have, however, devised a new classification which follows the pattern of market development: any center with 0-8 points was designated as a local center; with 8-18 points, a market center; with 19-36 points, a rural center; 37-49 a minor urban center; and 50 and above points, a major urban or metropolitan center. Such a detailed classification was necessary first to identify the regional importance of major urban centers and second to segregate the local centers into a further subdivision for planning purposes. Thus, according to these studies, there were 4 major urban

¹A. N. Ligale, "Regional Planning Practice and Possibilities to Kenya," in The Role of Urban and Regional Planning in National Development for East Africa, ed. by Michael Safier, I (Kampala: Milton Obote Foundation, Adult Education Center, 1970), 56.

²Republic of Kenya, Western Province Regional Physical Development Plan, p. II-2. This same terminology and points were used in all the physical regional plans for the seven provinces studied to date.

centers, 48 minor urban centers and towns, 132 rural centers, 226 market centers, and 589 local centers in Kenya¹ (see Appendix XIII and Table 7:3). Using the Kenya government data and the 1969 population census, we have further categorized the central places in Kenya as shown in Table 3:6. The central places in the whole of Kenya were consciously organized. Consequently, there is a net principle, although a mixture of K=3 and K=4 is also very common. It should be emphasized that unlike the central places within the market-place sub-system, the central places of the urban-place sub-system are primarily wholesale centers where exchange orientation is mainly horizontal. Most of these commercial transactions consist of large-scale exchange of raw materials for export and shopping goods for import (see Tables 3:2 and 3:3). These central places are also the political centers for the respective political unit. This development of centrality was due mainly to the initial advantages of good communications and external contacts. In addition to these functions, centralizing institutions (attributes) such as schools, church, or health centers--to mention only a few--were also located in the colonial administrative centers. Although the urban centers were not well distributed in the economic space, the hierarchy existed in varying degrees.

In this chapter we have discussed the urbanization

¹Republic of Kenya, Development Plan 1970-1974, pp. 91-102.

TABLE 3:6
THE HIERARCHY OF URBAN CENTERS IN KENYA, 1973

Order	Official grade level	Urban centers	Type of central function	Exchange orientation	Examples
1	Municipality	Municipality or major urban	International and national retail and wholesale (bulking)	Horizontal and vertical	Nairobi
2	A	Minor urban	Wholesale and retail (bulking)	Horizontal	Kisumu
3	A or B	Lacustrine or coastal ports	Retail with some wholesale	Horizontal	Mombasa
4	B or C	Rural	Retail and whole-sale	Horizontal and vertical	Sare
5	B or C	Market	Retail	Vertical	Ranen
6	C	Local	Retail	Vertical	Mariwa
7	C	Sub-local	Retail emergency items	Vertical	Kodede

Note:

These urban centers are also the political, administrative, and social centers for the respective governmental agency.

process of Kenya during the turn of this century. The colonial governments introduced major urban centers in the country, built roads, railways and other forms of communication, encouraged the non-African settlements, and introduced large-scale cash crop economy. All these external forces were instrumental in encouraging the duality of urbanization whereby the traditional central places helped only the indigenous Africans while the central places that were artificially introduced by the colonials were externally oriented. This chapter then puts in perspective the fact that the hierarchical and spatial organization of central places in Kenya was not always conducive to the development of the country, but were tended mainly for exploitation of the rich hinterlands. All the administrative centers were more of export enclaves than central places. This chapter sets up the background information necessary in understanding Chapter IV where we analyze the spatial linkages of the urban-place sub-system. Because of the lack of data, we will only analyze the towns with 2,000 people and above. In Kenya spatial systems, these 47 towns are the most important central places and their analysis can portray the characteristics of the Kenya urban-place system.

CHAPTER IV

SPATIAL DIMENSION AND FACTOR STRUCTURE OF
THE URBAN-PLACE SUB-SYSTEMIntroduction

In this chapter we will discuss the spatial and characteristics of forty-seven central places of the urban-place sub-system. The main purpose of this analysis is to show the close relationship of central places of the urban-place sub-system and to point out how the characteristics of this sub-system is oriented more to the Metropolitan countries than to the economic well-being of Kenya, as a country. This linkage has been studied by a detailed analysis of the location of modern-based utilities and physical structure of urban centers and by analyzing regionally the levels of primacy, formal education, demographic dynamics, and racial and ethnic mixture. These econo-socio-cultural and demographic variations have also been synthesized by the use of principal component analysis in order to further portray the hierarchical orientation and the spatial linkages of these central places within the urban-place sub-system.¹

¹For similar studies in developing countries, see Akin L. Mabogunje, Urbanization of Nigeria (New York: Africana Publishing Corporation, 1969); Qazi Ahmad, Indian Cities: Characteristics and Correlates (Chicago: University of Chicago, Department of Geography, Research Paper

The Urban Regions

The regions to be analyzed are the Coastal Region, the Central Highlands, the Western Region, and the Masai-Northern Frontier Region (Figure 4:1). The Coastal Region consists of the present Coast Province; the Central Highland Region consists of Nairobi Extra-Provincial District, the Central Province, the Districts of Nakuru, Laikipia, Trans-Nzoia, Uasin Gishu, Baringo, and Elgeyo-Marakwet of the Rift Valley Province, and the Districts Meru and Embu of the Eastern Province. The Western Region consists of Western Province, Nyanza Province, Nandi District, and Kericho District. Finally, the Masai-Northern Frontier Region consists of the present Northeastern Province; the Districts of Narok, Kajiado, West Pakot, and Samburu of Rift Valley Province and Machakos, Northern Laikipia, Isiolo, and Marsabit.

Location of Modern Urban Utilities

The provision of public utilities like water supplies, electricity, and rail and road traffic were an index of importance and set units for growth of towns in Kenya. From the inception of colonial domination the hierarchical importance of any central place could be calculated on the presence or absence of these utilities. For many years only Mombasa, Nairobi, and the provincial

No. 102, 1965); and Michael L. McNulty, "Urban Structure and Development: The Urban Systems of Ghana," Journal of Developing Areas, III (January, 1969), 159-76.

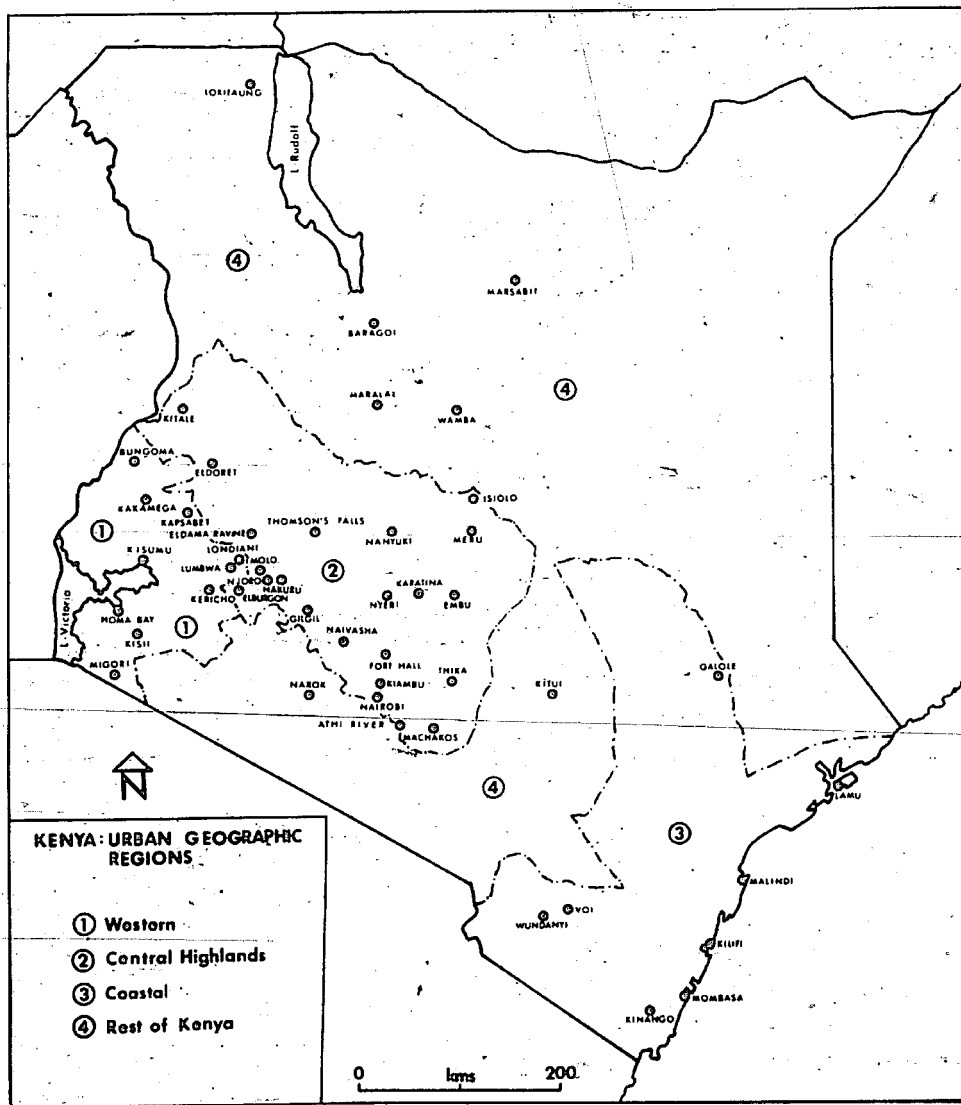


Fig. 4:1--Kenya: Urban geographic regions.

Source: Republic of Kenya, National Atlas of Kenya (Nairobi: Survey of Kenya, 1970).

bomas had these public utilities. The ability of these towns to expand rapidly depended entirely on the ready availability of these public utilities.

The provision of water in the urban areas has been one of the major undertakings of either the central or municipal governments; but very few non-public authorities have built water supplies. In general, it can be said that in Kenya, all municipalities, townships of Grades "A" and "B," have some sort of public water supply schemes while all the trading centers, market centers, and local centers do not possess water schemes. Kangundo and Kisumu which are in the Masai-Frontier Region and in the Western Region, respectively, are the only central places with well-organized municipality water schemes while there are over ten such central places in the Central Highland Regions alone. Other government water undertakings show more concentrations in the Central Highland than the Western Region in spite of the fact that the latter has the highest population density.

The provision of electrical services was also of considerable importance. In the 1970 physical development plan, the provision of electricity was emphasized more than any other public utility (Table 4:1). As a matter of fact, the industrial development in Kenya today has been and will be dictated by the presence or absence of electric supply. The division of Kenya urban centers into hierarchical grades as well as the effect of this on the development of

TABLE 4:1

KENYA URBAN CENTERS WITH ELECTRIC
POWER INSTALLATION IN 1969

Hierarchical order	Western Region	Central High-lands Region	Coastal Region	Masai-Northern Frontier Region
Major urban center	Kisumu	Nakuru Nairobi	Mombasa	None
Minor urban center	Kisii Kericho Homa Bay Kakamega	Fort Hall Thika Nyeri Thomson's Falls Eldoret Nanyuki Kitale	Malindi	None
Rural center	Maseno Miwani Muhoroni Yala Nyabunwa Macalder Litein Nandi Falls Mbale	Kiambu Limuru Ruiru Karatina Athi River Meru Naivasha Gilgil Eldama Ravine Embu	Kilifi Kwale Msambweni Lamu	None

Note:

There is no electricity supply in periodic market-place sub-systems, that is, the market and local centers.

Source: Based on data from Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printer, 1969), Map A.

the infrastructural services serve to underline the increasing differentiation among them.

Although Kenya is not favored with a uniformly distributed network of roads, rail, and air routes,¹ a study of their distribution can indicate the extent to which the urbanization process has developed in the country. The railway traffic (goods only) between Voi and Mombasa is next in order. The lowest level of railway traffic is between Kisumu and Nakuru, and Nakuru and Tororo on the Kenya-Uganda border.

The road density in Kenya can be classified into three broad classifications: "(a) the high road density, (b) the medium road density, and (c) the low density road areas."² The high-density area includes the whole of Western Kenya, the narrow belt of the Central Highland, the region between Molo and Nairobi, and the southern part of the Central Highland region. Except for the Northeastern Province and the northern part of the Eastern Province, which are mainly low-density road areas, the rest of Kenya can be considered medium density. The air traffic in Kenya is one of the least developed, as there are only a few connections between Nairobi and some provincial urban centers. The distribution of rail, road, and air routes are concentrated mainly in the Central Highlands and Western regions of Kenya.

¹Republic of Kenya, National Atlas of Kenya, pp. 2-3.

²Ibid., p. 68.

Physical Structure of Urban Centers

Two major classifications of physical structure and layout of Kenya urban centers based on climate and historical settlement can be recognized. The first group of settlements which derives its architectural base from Arabic and Indian towns is common in the coastal region.¹ The second group was based on characteristics of English towns and are commonly found in inland areas of Kenya. The inland towns have a grid pattern layout while the coastal towns have a mixture of planned and unplanned sections. In the coastal part, most of the urban residential houses are of bungalow type and range in quality from temporary to permanent structures. Some of the houses are commercial-cum-residential types of houses popularly known as the Swahili style or majengo houses.² These majengo houses usually have several rooms, parts of which are sublet, while the front room is the duka and the back rooms are for residential purposes. These coastal houses have diffused in the rest of the country and are particularly common in the Indian or Arabic sectors of the urban centers.

Among the inland urban centers, particularly in the Central Highlands and Western Regions, the layout of the houses in the towns show the strong influence of European

¹Harm J. de Blij, Mombasa: An African City (Evans-ton, Ill.: Northwestern University Press, 1968), p. 71.

²Richard Stren, "A Survey of Lower Income Areas in Mombasa," in Urban Challenge in East Africa, ed. by John Hutton (Nairobi: East African Publishing House, 1972), p. 98.

architecture. The houses in the European quarter are different in size from those in the African quarter although the plan is basically the same. Usually with a tiled roof, such a house is one story, built of brick and stone with standard large gardens, bordered by hedges. The African quarters within the urban areas are usually small two-roomed houses built of semi-permanent materials.

In contrast to the houses in the urban centers, the houses in the peri-urban areas are very dilapidated.¹ Most of these houses are small, rectangular, one-roomed structures built of a combination of mud, grass, or tin. The most frequent type has a mud wall and grass roof. Windows consist merely of openings in the wall with wooden shutters, the ventilation coming from the door and roof. New migrants to Kenya towns attach themselves to their fellow tribesmen and exploit fully many tribal rights for help, whether they be kinship obligations or duties or agemates. This is particularly common among the Nilo-Hamitic and the Hamitic-speaking people, both of whom are less urbanized than the other Kenyan ethnic groups. They share accommodations-- which often causes overcrowding in the urban areas. Overcrowding and lack of sanitary amenities have given rise to serious urban health problems in Kenya. Whatever house is occupied by the urban African is made to accommodate the

¹Republic of Kenya, Kenya's National Report to the United Nations' Conference on Human Environment (Nairobi: Professional Printers and Stationers, Ltd., May, 1972), pp. 18-20.

extended family, comprising a man's immediate family, and the families of his grown male children.

Primacy

The 1969 census, which to date is the most comprehensive census in Kenya's history, provides certain information which may serve as an indicator of the importance of urban centers in the different regions of the country and different sized groups. According to this census, there were 47 urban centers with a total population of 1,079,908 making Kenya 9.87 percent urban. For each of the urban centers, the 1969 census gave a detailed analysis of the urban population by sex, area, density, size of urban center, ethnic group and nationality, birthplace, age, and education.

Based on the 1969 census, the Central Highlands Region has 63.33 percent of the urban centers and 42.55 percent of the urban population (Tables 4:2 and 4:3). This Coastal Region is second in population and the Western Region in number. The Masai-Northern Frontier Region is the least urbanized of all the regions. The least urbanized regions historically have received very few non-African settlements. The non-Africans who settled in the Central Highlands and Coastal Region developed a diversified urban economic base which helped in sustaining such a larger number of urban centers than in other regions.

In Kenya, the overwhelming dominance of Nairobi,

TABLE 4:2.

KENYA URBAN CENTERS: ANALYSIS OF URBAN CENTERS
BY SIZE, GROUPS, AND NUMBER

Size	Region					Total population	Percent to total
	Western	Central High- lands	Coastal	Masai- Northern Frontier			
Towns with population over 500,000	-	1	-	-	-	509,286	47.16
100,000-500,000	-	-	1	-	-	247,073	22.88
40,000-100,000	-	1	-	-	-	47,151	4.37
20,000-40,000	1	-	-	-	-	32,431	3.00
10,000-20,000	1	5	1	-	-	90,685	8.49
5,000-10,000	1	4	2	3	3	71,396	6.61
2,000-5,000	6	9	4	6	6	81,886	7.58
Grand total	10	20	8	9	9	1,079,908	100.00
Percent to total number	21.27	42.55	17.02	19.16	-	-	-

Source: Based on data from 1969 Kenya Population Census.

TABLE 4:3

KENYA URBAN CENTERS: ANALYSIS OF URBAN CENTERS
BY SIZE AND POPULATION

Size	Region				Masai-Northern Frontier
	Western	Central Highlands	Coastal		
Regional urban population	4,138,546	4,036,571	-	-	1,823,506
Towns with population over 500,000	-	509,286	-	-	-
100,000-500,000	-	-	247,073	-	-
40,000-100,000	-	47,151	-	-	-
20,000-40,000	32,431	-	-	-	-
10,000-20,000	10,144	69,784	10,757	-	-
5,000-10,000	12,324	25,208	12,716	21,148	-
2,000-5,000	17,588	32,512	13,106	18,680	-
Grand total	72,487	683,941	283,652	39,828	-
Percent to total: Urban population	6.72	63.33	26.27	3.68	-

Source: Based on 1969 Kenya Population Census.

the capital, with a population of 509,286 (which represents 47.16 percent of the urban population) is only rivaled by Mombasa, the second largest urban center with a population of 247,073. As shown in Table 4:4, in 1967 Nairobi accounted for 56.34 percent of the employment of industrial manufacturing. Mombasa's population accounts for 22.88 percent of the urban population. But it should be remembered that Mombasa is a seaport for Kenya as well as for other Eastern African countries. This explains why its population is half of that of Nairobi. The largest part of the urban population in Kenya was and still is concentrated in Nairobi and Mombasa; and this proportion is increasing. These two cities accounted for 446,369 or 66.00 percent of the total urban residents of 670,945 in 1962. By 1969 this proportion had increased to 756,359 out of 1,057,494 or 72 percent. But the low population of the third urban center, Nakuru, with 4.37 percent of the total urban population, the fourth urban center, Kisumu, with only 3 percent of the total urban population, and the fifth urban center, Thika, with only 1.70 percent, proves the primacy of Nairobi over the years as shown in Table 4:5.

Although Kakamega and Bungoma had populations of 6,244 and 4,401, respectively, the former is more important in Western Province because of the following reasons. Firstly, Western Province was, until 1962, a part of Nyanza Province and as such was only a district whose economic functions were relegated to the district level. Lastly,

TABLE 4:4

KENYA EMPLOYMENT IN INDUSTRIAL MANUFACTURING BY PROVINCE, 1967

	Nairobi	Nyanza	West- ern	Rift	Central	Coast	East- ern
Slaughtering, meat preparation and dairy products	516	44	-	734	106	147	2,805
Canning of fruit and vegetables	108	-	-	684	652	-	324
Canning of fish	-	-	-	75	-	40	-
Grain-mill products	1,536	108	51	644	65	259	3
Bakery products	757	88	4	182	82	186	47
Sugar factories and refineries	-	2,508	-	-	-	575	-
Miscellaneous food preparations	381	-	87	447	81	450	219
Breweries and manufacture of malt	1,883	18	-	36	15	304	-
Soft drinks	387	59	-	20	29	155	-
Tobacco manufacturers	1,088	25	-	32	59	4	47
Knitting mills and cotton ginning	103	67	26	-	1,151	623	136
Cordage, rope, and fishing textiles	846	416	394	486	307	650	-
Textiles	173	38	2	97	1,357	119	20
Footwear manufacture and repair	1,387	95	18	161	99	710	132
Made-up textiles and clothing	641	147	-	2,692	1,186	111	182
Wood carving and sawmills	308	16	-	7	31	50	-
Wood, cork products, furniture, and fixtures	1,284	110	30	153	38	412	16
Pulp and paper products, printing, publishing	3,424	167	17	239	104	683	-
Tanneries and leather finishing plants	259	3	-	19	101	-	16
Rubber manufacturers	501	24	-	8	-	14	-
Basic chemicals	281	-	-	382	-	28	-

(continued)

TABLE 4:4 (continued)

	Nairobi	Nyanza	West- ern	Rift	Central	Coast	East- ern
Paints, varnishes, and lacquer	239	-	-	-	17	17	-
Wattle bark extract manufacture	-	-	-	105	147	-	45
Soap	152	99	177	12	-	97	-
Miscellaneous chemical products	622	-	-	126	-	172	-
Petroleum refineries	-	-	-	-	-	233	-
Glass and glass products and allied products	319	7	-	-	11	367	-
Cement	17	-	-	41	-	642	194
Non-mineral products	298	26	-	137	1	114	31
Metal products	925	44	4	21	684	1,500	20
Non-electrical machinery	1,044	150	3	117	34	104	20
Electrical machinery and appliances	1,992	33	-	374	36	81	33
Shipbuilding and repairing	11	13	-	-	-	1,320	-
Railway equipment	4,565	209	3	922	33	1,141	22
Motor body building	607	80	-	10	-	87	-
Repair of road vehicles	1,748	284	-	925	314	355	48
Bicycle repairs	3	-	3	32	17	9	8
Miscellaneous manufacturing industries	1,030	40	-	11	118	174	31
Total	28,865	4,936	819	9,924	8,329	12,108	2,805

Source: T. K. Gitao, "Location of Industry and Policies for Location in Kenya," in The Role of Urban and Regional Planning in National Development of East Africa, ed. by Michael Safier (Kampala: Milton Obote Foundation, 1970), pp. 132-45, esp. p. 137.

TABLE 4:5

KENYA: PRIMATE URBAN CENTERS IN RELATION TO SECOND, THIRD, AND FOURTH URBAN CENTERS OF THEIR PROVINCES AND URBAN GEOGRAPHIC REGIONS, 1969

Province or urban region	Percentage of primacy of first, second, third, and fourth urban centers	Urban centers			
		First	Second	Third	Fourth
1. Central Province	100-54-41-26	Thika 18387	Nyeri 10004	Thomson's Falls 7602	Fort Hall 4750
2. Coast Province	100-8-3-2-	Mombasa 247073	Malindi 19757	Lamu 7403	Voi 5313
3. Eastern Province	100-81-77-65	Isiolo 8201	Marsabit 6635	Machakos 6312	Athi River 5343
4. Nyanza Province	100-19-10-6	Kisumu 32431	Kisii 6080	Homā Bay 3252	Migori 2066
5. Rift Valley Province	100-39-25-25	Nakuru 47151	Eldoret 18196	Nanyuki 11624	Kitale 11573
6. Western Province	100-70-17-12	Kakamega 6244	Bungoma 4401	Busia 1057	Kimilili 723
7. Central Highlands Region	100-9-4-4	Nairobi 509286	Nakuru 47151	Thika 18387	Eldoret 18196

(continued)

TABLE 4:5 (continued)

Province or urban region	Percentage of primacy of first, second, third, and fourth urban centers	Urban centers			
		First	Second	Third	Fourth
8. Western Region	100-31-19-19	Kisumu 32431	Kenicho 10144	Kakamega 6244	Kisii 6080
9. Masai-Northern Frontier Region	100-81-77-65	Isiolo 8301	Marsabit 6635	Machakos 6312	Athi River 5343
10. Coast Province	100-8-3-2	Mombasa 247073	Malindi 10759	Lamu 7403	Voi 5313
11. Kenya 1969	100-49-9-6	Nairobi 409286	Mombasa 247073	Nakuru 47151	Kisumu 32431
12. Kenya 1962	100-79-16-10	Nairobi 226794	Mombasa 179595	Nakuru 38181	Kisumu 23526
13. Kenya 1948	100-71-14-9	Nairobi 118976	Mombasa 84746	Nakuru 17625	Kisumu 10899

Note:

The percentages after the provinces or urban regions, for example, 100-8-3-2, give the values of the populations of the four largest urban centers of each province or urban region as percentages of the values of the ranking urban center and are arranged in order of the relative importance of that urban center.

Source: Based on data from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population (Nairobi: Statistics Division, Ministry of Finance and Economic Planning, 1971).

Kakamega's economic, cultural, and social importance has been heavily dominated by Kisumu town because of the nearness of these two towns. According to Waller, the catchment area of ". . . the southern Kakamega District belongs to the catchment area of Kisumu. Kisumu carries out not only the higher order functions for the entire region but also the medium order functions for its Kakamega hinterland."¹ The primacy ratio percentage of Western Province is 100:70:17:12 compared to that of Nyanza Province of 100:19:10:6 (Table 4:5).

In considering intra-regional and intra-province primacy, no region shows a greater presence of this factor than the Coast Province and Region.² Mombasa, with a population of 247,073, dominates the whole region and is only rivaled by Malindi and Lamu. The primacy percentage for the province as well as the region is 100:8:2:3. Despite the fact that there are a number of towns and trading centers in the Coast Province, there is a lack of centrality because "the demand for many kinds of services, especially of an economic nature, which create growth of such places is not very large."³ The Central Highlands, which is the

¹Peter P. Waller et al., Basic Features of Regional Planning in the Region of Kisumu (Kenya) (Berlin: Deutsches Institut für Entwicklungspolitik, 1960), p. 29.

²Taylor, "Emerging Central Places in the Coast Province, Kenya."

³Taylor, Development of Central Places in the Coast Province of Kenya, p. 95.

most urbanized area of Kenya,¹ shows the highest level of primacy with Nairobi (509,286) and Nakuru (47,151), Thika (18,387) and Eldoret (18,196) resulting in primacy ratio of 100:9:4:4. According to the 1962 census, the population of Nairobi city accounted for 39.79 percent of the urban population (over 5,000) and 3.07 percent of the total Kenya population, while the peri-urban areas of Nairobi accounted for 47.78 percent of the urban population and 3.70 percent of the total population. This compares with 47.16 percent of the urban population and 4.65 percent of total population for 1969. The primacy tendency as shown on Table 4:5 is not common in Eastern Province or Masai-Northern Frontier Region because this is the least urbanized part of Kenya.

Formal Education

In a developing country, education plays a very important role in the modernization process.² According to Safa, "education can play an important role in both the material and ideological components of the process of national integration. It develops the manpower resources of the country by providing new opportunities and new

¹W. T. W. Morgan, "Urbanization in Kenya: Origins and Trends," Proceedings and Transactions of British Institute of Geographers, No. 46 (March, 1969), pp. 167-78.

²Cf. James R. Sheffield, ed., Education, Employment and Rural Development Report of the Kericho Conference (Nairobi: East African Publishing House, 1967), pp. 3-32.

channels for upward mobility."¹ Maxwell in a recent study of Kenya secondary schools echoed the same conclusions when he said that

the education system plays a crucial role in the developments of the human and natural resources in any country [by] creating attitudes which inspire and dispose individuals toward change and concurrently providing the necessary participatory skills which are the contributions that education offers to social, economic, and political development.²

In Kenya, educational opportunities came with the arrival of European missionaries who until the last thirty years had a practical monopoly in the education systems of the country. While the area of initial activities was in the coastal region around Mombasa, the spread of missionary schools went hand in hand with the effective expansion of British administration in inland areas, particularly in Kikuyu and the Nyanza regions. The level of education and literacy (except in Arabic and Southeastern Asiatic languages) was very low in the Coast Region where non-Islamic education was frowned upon.³

Taking Standards I through IV as the minimum level of education, we have analyzed the regional variation of

¹Helen I. Safa, "Education, Modernization and the Process of National Integration," in Anthropological Perspectives on Education, ed. by Murray L. Wax, Stanley Drimond, and Fred O. Gearing (New York: Basic Books, 1971), p. 208.

²Robert Maxwell, "Occupational Inclinations and Attitude Toward Rural Modernization of Students in Selected Kenya Secondary Schools," East African Journal of Rural Development, II, No. 2 (1969), 60.

³Ibid.

of literacy among Kenya towns. Table 4:6 bears out the historical pattern of the spread of education among the four regions with the Central Highlands having the highest proportion (31.49 percent literate) followed by Western Region (26.71 percent), the Coastal, and Masai-Northern Frontier Regions. Only in the Central Region is the level of education above the national average of 27.08 percent. Literacy level was low in the Coast Region and to some extent in the Masai-Northern Frontier Region because of the policy of the Moslem societies in these regions to deemphasize non-Moslem education.

Despite the low level of urbanization in Kenya, it is clear from Table 4:6 that the educated elements in almost all regions tend to gravitate to towns because the average percent for towns 5,000 to 40,000 in population size in the Western Region, all sizes in the Central Highlands Region, 10,000 to 500,000 town size, and all of the Masai-Northern Frontier Region is very much higher than their respective regional average. In the Western Region, the size of a town seems to be an important factor related to the percentage of the literates. According to the town size group, highest percentage for the region is 55.41 percent in the 20,000 to 40,000 category and the lowest is 23.21 percent in the 2,000 to 5,000 category. In the Western Region the literates tend to migrate to towns between 5,000 and 40,000 sizes--particularly in Kisumu, Kericho, Kakamega, and Kisii, in that order. The low level of

TABLE 4:6

KENYA URBAN CENTERS: FORMAL EDUCATION*
AS PERCENTAGE OF TOTAL URBAN POPULATION
(NATIONAL AVERAGE: 27.08%)

Size	Region			
	Western	Central High- lands	Coastal	Masai- Northern Frontier
Regional average	27.71	31.49	21.09	8.69
Towns with population over 500,000	-	55.96	-	-
100,000-500,000	-	-	39.59	-
40,000-100,000	-	50.57	-	-
20,000- 40,000	55.41	-	-	-
10,000- 20,000	52.06	49.16	31.42	-
5,000- 10,000	51.15	43.58	7.98	25.87
2,000- 5,000	23.21	47.28	9.15	15.20

*Minimum level education is education from grades 1-4.

Source: Based on data from 1969 Kenya Population Census.

literacy in the 2,000 to 5,000 is a reflection of the poor standard of education and lack of schools in rural areas.

In the Central Highlands Region, the situation is very different in that all classes of urban centers have a higher percentage than the national average (27.08 percent) as well as the regional average (31.49 percent). This region has the highest percentage of migrants' destinations as well as the highest percentage of industries which are mainly located in the major urban centers. Therefore, most literates from all parts of the country migrate to this region in search of employment. In addition to this advantage, because of the European settlement, Central Highlands has the most well-developed education facilities in the nation. The level of literacy varies directly with the urban center size; this is very apparent urban center between sizes of 10,000 and over 500,000, and also between urban center sizes of 2,000 and 10,000 size groups.

The Coastal Region, despite the fact that it had exposure to formal education earlier than any other regions of Kenya, has the lowest attainment of literacy. This low level of formal education can be attributed to the wide influence of Islamic education and religion. The regional average of 21.09 percent is very much below the national average of 27.08 percent, although 10,000 and 20,000 town sizes have percentages higher than the regional average. Again, like the other regions, the size also varies directly with the level of education. Mombasa dominates

the Coastal Region because at present nearly all of the secondary schools and technical colleges are located there. This has left the small urban centers (2,000 and 10,000 groups) with the lowest percentage of literacy.

While the percentage of formal education is much lower in the Masai-Northern Frontier Region (8.69 percent) than the national average, all the towns in this region have a higher percentage than the regional average. The low level of formal education in the Masai-Northern Frontier Region is attributable to the lateness of exposure to the influence of modernization and lack of educational opportunities. There is a direct relationship between town size and literacy. The educated concentrate in the urban areas where they can find employment.

In summary, it can be concluded that Kenya education is urban based and oriented. Ghai, in a recent study, also arrived at the same conclusion: "a large and increasing proportion of these (rural-urban migrants tend to be primary and secondary school-leavers whose education has been irrelevant to life and problems in the rural areas and consequently see little prospects of a productive and satisfying career in farming."¹ Hunter,² in an outstanding

¹D. P. Ghai, "Employment Performance, Prospects and Policies in Kenya" (University of Nairobi, Institute of Development Studies Discussion Papers No. 99, September, 1970), p. 1; and see also Lars Bondestam, Population Growth in Kenya (Uppsala: The Scandinavian Institute of African Studies, Research Paper No. 12, 1972), pp. 22-23.

²Guy Hunter, "Employment Policy in Tropical Africa," International Labor Review, CV, No. 1 (January, 1972), 35-59.

study of employment policy in Africa, and Weeks,¹ in another study of employment in developing countries, also emphasized Ghai's thesis.

Demographic Characteristics

Table 4:7 shows the percentage of males to total urban population by regions and among different size urban centers. By regions, Western Region has the lowest level of male population which was only 49.36 percent compared to 50.10 percent for the national average. This low level of males can be attributed to the fact that since the founding of Kenya, the Western Region has been one of the important sources of labor migration.² Since most of the migrant's destinations are the urban centers in either the Central Highlands Region or the Coastal Region, it is only natural that the percentage of males category in the Coastal Region has a higher proportion of males than females--a feature which is very common among colonial towns. The percentage of males in all sizes of towns is higher than the national average. Regionally, the Western Region has a higher proportion of males in the 10,000 to 20,000 size categories than the higher or lower categories. This is particularly so in the higher category centers. Kisumu, for example,

¹John Weeks, "Employment, Growth and Foreign Domination in Underdeveloped Countries," The Review of Radical Political Economics, IV, No. 1 (Winter, 1972), 59-70.

²Ominde, Land and Population Movements in Kenya, pp. 122-34; and also Waller et al., Basic Features of Regional Planning in the Region of Kisumu (Kenya), p. 20.

TABLE 4:7

KENYA URBAN CENTERS: MALES AS
 PERCENTAGE OF TOTAL POPULATION
 (NATIONAL AVERAGE: 50.10%)

Size	Region			
	Western	Central High- lands	Coastal	Masai- Northern Frontier
Regional average	49.36	50.17	51.17	52.10
Towns with population over 500,000	-	59.54	-	-
100,000-500,000	-	-	58.17	-
40,000-100,000	-	55.39	-	-
20,000-40,000	55.82	-	-	-
10,000-20,000	58.47	57.19	55.92	-
5,000-10,000	57.84	56.23	52.31	55.40
2,000-5,000	55.20	56.98	48.97	62.74

Source: Based on 1969 Kenya Population Census.

has been and is still being used in the stepwise migration to the urban centers of the Central Highlands or the Coastal Region. In the Western Region among the town sizes between 10,000 and 2,000 there is a direct relationship between the size and the percentage of male population.

The Central Highlands Region, which is the most urbanized area, has the highest proportion of males in the towns than all other population regions. Nairobi, with 59.54 percent of males, is the highest in the region. Size has some relationship, although to a lesser extent than the other regions because of the developed nature of urban centers in this region. In Coastal regions, the larger towns are more male dominated than the smaller towns. The relationship between the size of the town and the male dominance varies directly to the extent that in the lower level categories there is female dominance. The Masai-Northern Frontier Region showed a very high male dominance particularly in the lower level towns (62.75 percent) because of the undeveloped nature of the urbanization process in this region.

Table 4:8 shows the percent of adult males and females (between ages of 15 to 49) as a percentage to the total male and female population. It is important to analyze this age category because it is the most important age in the work force of any urban structure. By region, the Western Region shows the lowest percentage for the male population (36.17 percent) and 41.56 percent for the female

TABLE 4:8

KENYA URBAN CENTERS: ADULT MALES AND FEMALES AS A
 PERCENTAGE OF TOTAL MALE AND FEMALE POPULATION
 (NATIONAL AVERAGE: ADULT MALE 40.78%,
 ADULT FEMALE 42.71%)

	Region							
	Western Kenya		Central Highlands		Coastal		Masai-Northern Frontier	
	Male	Female	Male	Female	Male	Female	Male	Female
Regional average	36.17	41.56	42.41	41.83	46.56	48.03	40.98	44.55
Towns with population over 500,000	-	-	64.21	50.35	-	-	-	-
100,000-500,000	-	-	-	-	61.28	53.14	-	-
40,000-100,000	-	-	56.63	47.93	-	-	-	-
20,000-40,000	60.27	39.92	-	-	-	-	-	-
10,000-20,000	62.96	50.18	60.64	50.13	56.41	50.82	-	-
5,000-10,000	61.72	50.90	55.33	45.35	50.11	46.09	55.53	51.23
2,000-5,000	55.96	44.95	51.85	50.10	41.85	46.85	52.25	47.36

Source: Based on 1969 Kenya Population Census.

compared to the national average. This means that the Western Region is heavily populated by children (ages 0-14) and the aged (50 years and above). The other three regions compare favorably with one another and well above the national average for both adult males and females which is 40.78 percent and 42.71 percent, respectively.

The Western Region urban centers have more adult male population than either the region or the national average.¹ But the adult females were above the national as well as regional average for all categories except 20,000 to 40,000 size groups. All adult males who migrate to Kisumu do not come with their adult wives. Since the Central Highlands is a major destination point for all adult labor migrants, the town size groups for both sexes are above the national and regional average. This is also true of the male adult population in the Coastal urban centers of all sizes except the 2,000 to 5,000 group where the adult population is below the regional average. The adult female population in the Coastal towns in size groups 2,000 to 10,000 is also below regional average but not national average. It is only in the Masai-Northern Frontier Region that the number of urban residents are above both the national as well as regional average. One can only conclude that, in general, all Kenya urban centers consist of adult male workers of middle-age range rather

¹Obudho, "Urbanization and Regional Planning in Western Kenya," in Urbanization, National Development and Regional Planning in Africa, p. 168.

than children or the aged and there are more adult males than adult females. The unbalanced sex ratios in favor of the males in the urban centers can be attributed to the lack of urban employment opportunities for women in the urban areas, the practice of leaving wives in the rural areas to take care of the family shamba (garden), and the inability of most workers to earn the minimum income required to support a family in the urban centers. The only exception to this rule are the small towns of the Coastal Region which are dominated by adult females.

Age-Sex Ratios

Demographic dynamics of Kenya urban centers can be further diagnosed by analyzing the age-sex ratio (Appendix IV and Table 4:9). Sex ratio is one of the most important indices of demographic change. Sex ratio is "the number of males per 100 (or per 1,000) females. A sex ratio of 100 means equality of the sexes, a sex ratio above 100 indicates a larger number of males than females, and a sex ratio below 100 indicates a majority of females."¹

While the dominance of the male population is still common among most of Kenya towns except Kinango, Lamu, Galole, and Wundanyi in the Coast, the high percentage of adult females will remain for some time because of the socio-cultural and economic tradition of the country.

¹ Donald J. Bogue, Principle of Demography (New York: John Wiley and Sons, Inc., 1969), p. 166.

TABLE 4:9

KENYA URBAN CENTERS:
SEX RATIO BY AGE GROUPS

Age	Total Kenya	Total urban popu- lation	Nairobi	Kisumu	Mombasa	Isiolo
0-9	102	101	101	96	104	107
10-14	107	100	94	84	122	121
15-19	103	105	99	93	131	118
20-24	95	143	155	136	142	116
25-29	85	164	182	144	153	96
30-39	95	224	252	219	197	148
40-49	100	244	285	271	195	143
50+	106	209	211	207	158	134
Total	100	139	147	126	139	119

Source: Based on 1969 Kenya Population Census.

This is particularly true with the females who in most cases have not been able to accompany their husbands to major industrial towns of the Central Highlands Region and the Coastal Region.

Kenya urban centers are overwhelmingly male except in age categories 0 to 15 (the youth) where the sexes are nearly equal in number. Male dominance for all urban centers increased with age categories until the age of 49 (the limit of active working age) at which time there is a slight drop in the ratio. This is very high for the Kenya average since the ages between 20 and 49 are dominated by females. The dominance of females between the ages of 10 to 14 can also be detected among all the urban centers in Kenya since this is the only case where the number of females equals that of the males. In Nairobi and Kisumu, the sex ratio for the 50 and over years is 211 and 207, respectively (Table 4:9). The urban centers in Kenya are developing a new characteristic which should be watched very closely during the next ten to fifteen years.

Ethnic Mixture

One of the most important indicators of the extent of urbanization among Kenyans is the degree to which various racial and ethnic groups have mixed as a result of urbanization. Kenya urban centers have been centers of cultural and demographic frontiers, where people of different cultural backgrounds settled and for the first time

in their lives have come to learn, and contend with the customs, traditions and mores of one another. Ethnic identity in a predominantly rural country such as Kenya is very important in understanding not only the pattern of urbanization process but also the population mobility in general. In Kenya the African population can be classified into four main language groups, namely Bantu, Nilotes, Nilo-Hamitic, and Hamitic (Appendix V and Figure 4:2).¹ The non-Kenyans are, for statistical purposes, classified into non-Kenya Africans, Europeans, Asians, Arabs, and others.

Geographically, the population in Kenya has shown greater mixing in the urban centers of the Western Region, the Central Highlands, and a few parts of the Coastal Region than any other parts of Kenya. The mixing process has encouraged migration from rural to urban and from the less developed parts of the land to the developing sectors. The destination points, the urban areas, and the developing sectors have been conveniently described by Fair as "chief economic islands."² Ethnic and racial heterogeneity is greater in the larger urban centers and/or developing areas than in the rural areas and/or the lagging regions.

In Kenya there is a strong tendency for ethnic or

¹H. J. Greenberg, Studies in African Linguistic Classification (New Haven, Conn.: Campus Publishing Company, 1965).

²T. J. D. Fair, "Regional Approach to Economic Development of Kenya," South African Geographical Journal, XVII (1962), 169-86.

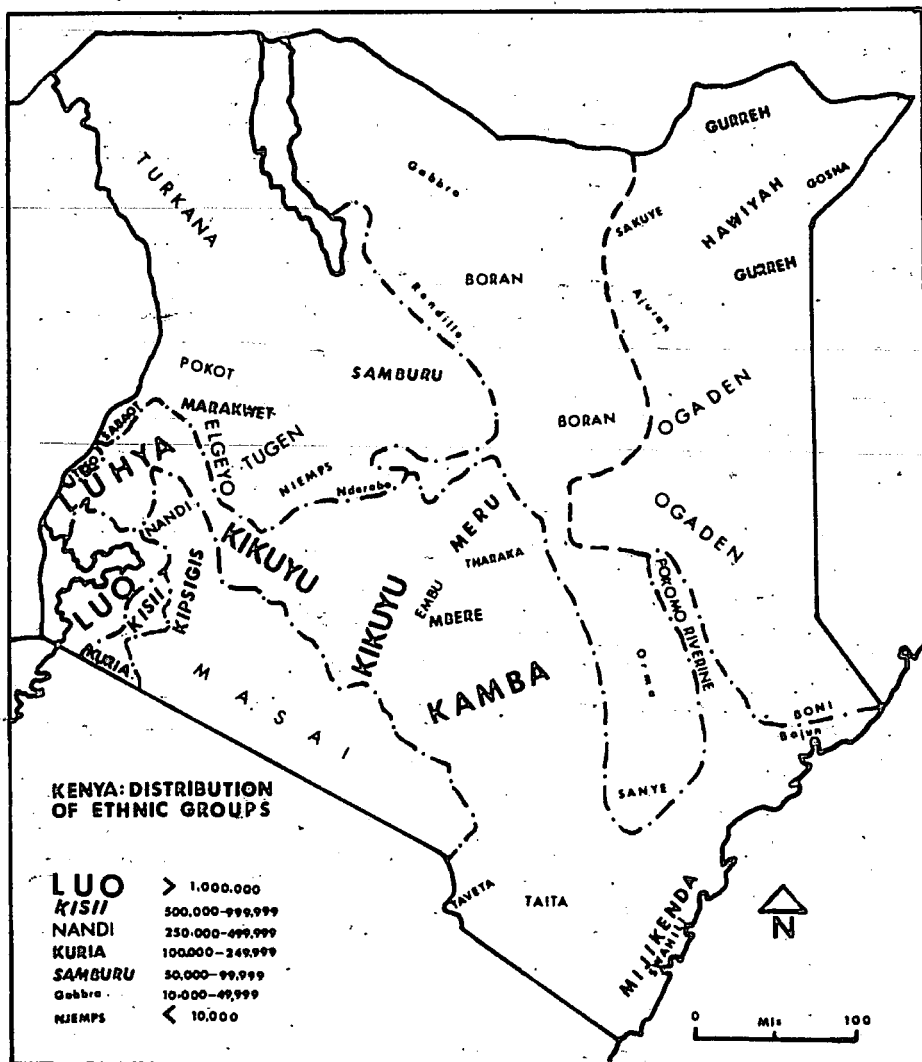


Fig. 4:2--Kenya: Distribution of ethnic groups.

Source: Based on data from 1969 Kenya Population Census and National Atlas of Kenya.

racial groups to retain links with the traditional homelands through circular migration. This is one of the major problems facing urban centers today. Africans have one leg in an urban area and the other leg in a rural area. Non-Africans also keep close relationships with their national countries outside of Kenya without being permanent urban residents in the country. Among the Kenya ethnic groups, the Luos, Kikuyus, and the Kambas have been known for their early and constant migrations during the colonial and post-colonial eras. According to Soja,

in 1948, fully one third [336,000] of the Kikuyu population lived outside their home district of Fort Hall [Muranga], Kiambu and Nyeri. . . . By 1962, despite the forced movement of many [Kikuyus] back to the reserves, the figures for the Kikuyu outside their homeland rose dramatically to more than 715,000 or 44 percent of the entire Kikuyu population. . . . The group closest to the Kikuyu in number of migrants within Kenya are Luhya, 272,000 outside [Western Province] and Luos [160,000 outside the South Nyanza, Kisumu and Siaya Districts]. The figure for the latter is misleading since the Luo have become intimately involved in the railway activities and like the Kamba during the caravan trade have spread throughout East Africa.¹

The Nilotes dominate Kisumu, while the Luhyas dominate Kakamega in Western Kenya. The Central Bantu dominate the city of Nairobi in the same way that the Coastal Bantu dominate Mombasa (Table 3:1). This dominance is natural in view of the fact that Nairobi and Mombasa are located among Central and Coastal Bantu, respectively.

The presence of major migratory ethnic groups in

¹Soja, The Geography of Modernization in Kenya, pp. 54-55.

other urban centers in Kenya, however, is very common. The Kamba form 11.92 percent and 11.88 percent in Nairobi and Nakuru in the same way that the presence of Luhya is common in Nairobi, Mombasa, Nakuru, and Kisumu. Despite the fact that the Luos are from the Nyanza Province, they are also the third largest ethnic group in Nairobi and Mombasa (Table 3:1).

Analysis of the urban ethnic distribution in Kenya further shows that the mixing of diverse people is one of the most important roles that urbanization has played in transforming the country's landscape (Table 4:10). In general, the Central Bantu (Kikuyu, Embu, Meru, Mbere, Kamba, and Tharaka) account for more population (39.89 percent) in the urban centers than any other ethnic or racial group. The Western Bantu (Luhya, Kisii, and Kuria) are the second most urbanized ethnic group in Kenya with 12.39 percent of the urban population. The Luos have 11.84 percent of the urban population; and compared with individual tribes such as Kikuyu, Luhya, and Kamba, the Luo lead in percentage. It should be pointed out that because of migrations a good number of the Bantus are in the Central Highlands and Coastal towns and not in the Western Region towns which are their home districts. District and provincial migration is therefore still a factor to be noted in the urbanization process of Kenya.

The third urbanized group are the Asians with 12.11 percent where they form 14.23 percent of the urban

TABLE 4:10
KENYA URBAN CENTERS: ETHNIC AND RACIAL COMPOSITION

Ethnic or racial group	Percent to total				
	Total	Western Kenya Region	Central Highlands Region	Coastal Region	Masai-Northern Frontier Region
Central Bantu	39.89	14.91	52.78	17.60	13.80
Western Bantu	12.39	28.01	13.87	5.84	2.29
Coastal Bantu	10.88	0.61	1.12	38.51	0.18
Nilotic	11.84	32.07	11.71	8.16	1.20
Nilo-Hamitic					
[Kalenjin]-speaking	1.70	6.25	1.75	0.41	1.65
Other Nilo-Hamitic	1.89	1.10	0.72	0.17	46.30
Western Hamitic	0.92	0.05	0.21	0.34	24.45
Eastern Hamitic	0.49	0.30	0.33	0.26	6.66
Total Kenya African	80.00	83.31	82.49	71.29	96.53
Non-Kenya African	3.16	2.25	2.40	5.38	1.83
European	2.61	1.31	3.06	2.07	0.27
Asian	12.11	12.58	11.68	14.23	0.94
Arab	2.04	0.48	0.24	6.99	0.42
Others	0.08	0.06	0.13	0.04	0.01
Total	100.00	100.00	100.00	100.00	100.00
Percent to total	100.00	6.71	64.20	26.27	2.82

Source: Based on data from 1969 Kenya Population Census.

population. Among the non-African population, the Asians have the highest percentage of urbanization followed by Europeans and Arabs with 2.61 percent and 2.04 percent, respectively. Eighty percent of the urban residents in Kenya are Africans and the non-Kenyan contribution of urban residence is dominated by Asians. The balance is shared almost equally between non-Kenya Africans, Europeans, and Arabs.

Regionally (Table 4:10), urban residence is almost in conformity with the ethnic-oriented settlement patterns in Kenya. Urban areas of the Western Region are dominated by the Nilotic Luo (32.07 percent) followed by Western Bantus (28.01 percent), Central Bantu (14.91 percent), and Asians (12.58 percent). Urban settlement in the Central Highlands is dominated by the Central Bantu (52.78 percent) followed by Western Bantu (13.87 percent), Nilotic Luos (11.71 percent), and the Asians (11.68 percent). This is also the only area where the presence of Europeans, non-Kenyan Africans, and Nilo-Hamitic [Kalenjin]-speaking (Kipsigis, Elgeyo, Pakot, Saboat, and Tugen) are noticeably high. The Coastal urban centers are dominated by the Coastal Bantus (Mijikenda, Pakomo/Riverine, Taveta, Taita, Swahili/Shirazi, Banjun, Boni/Sanye) (about 38.51 percent). This is followed by the Central Bantu (17.60 percent), Asians (14.23 percent), Luo (8.16 percent), Arabs (6.90 percent), and the Western Bantu (5.84 percent) in that order. As for the Masai-Northern Frontier Region, the

urban centers there are young and poorly developed. It should be noted that this region has a sparse population and as such cannot be expected to develop a strong urban population compared to the other parts of the country.

It is important to note that urban areas have brought a very important ethnic and national mix which has generated modernization processes which have diffused throughout the country. The dominance of non-Africans in colonial days and the dominance of Luos, Luhya, Kikuyus, and Kamba in the post-independence period helped reinforce the modernization pattern in post-colonial days as will be seen in the factorial analysis of Kenya's urban-place sub-system.

Factor Structure of Kenya's Urban-Place Sub-System

The socio-cultural and demographic variation we have discussed in the first half of this chapter can be further synthesized by the use of principal component analysis--a branch of factor analysis.¹ Principal component

¹The following works have been crucial to my understanding and application of component factor analysis: R. J. Rummel, Applied Factor Analysis (Evanston, Ill.: Northwestern University Press, 1970); R. J. Rummel, "Understanding Factor Analysis," Journal of Conflict Resolution, II (1967), 444-80; George W. Carey, "Principal Component Factor Analysis and Its Application in Geography," Rutgers University, Department of Geography, New Brunswick, New Jersey, 1972 (mimeographed); George W. Carey et al., "Educational and Demographic Factors in the Urban Geography of Washington, D.C.," Geographical Review, LVII, No. 4 (October, 1968), 515-37; George W. Carey, "The Regional Interpretation of Manhattan Population and Housing Through Factor Analysis," Geographical Review, LXI, No. 4 (1966),

analysis¹ is appropriate for this study because the covariance of demographic, socio-cultural, and economic characteristics of urban centers is a problem of a multivariate nature. In the study of interrelationship among variables, "we are concerned with the relationship of a set of variables among themselves, no one being selected as special in the sense of the dependent variate."² According to Cooley and Lohnes, the rationale behind factor analysis is to determine the minimum number of independent dimensions which account for most of the variances in a set of variables.³ And finally, according to Ahmad, "the essence of component analysis is to investigate how much of the total variability exhibited in the primary variables can be accounted for by a smaller number of new independent variates."⁴

551-69; James W. Hughes, Urban Indicators, Metropolitan Evolution and Public Policy (New Brunswick, N. J.: Rutgers University, Center for Urban Policy Research, 1972); Ahmad, Indian Cities; and Mabogunje, Urbanization of Nigeria.

¹We have used R-factor analysis as opposed to Q-factor analysis. According to Rummel, R-factor analysis "consists of factor-analysis, a matrix with variables (columns) referring to the characteristics as entities; the cases (rows) are the entities themselves. The data are for the same occasion. While Q-factor analysis consists of factor-analyzing a matrix in which variables refer to entities and the cases (rows) are their characteristics, the data are all for the same occasion." Rummel, Applied Factor Analysis, pp. 194 and 196.

²M. G. Kendall, A Course in Multi-Variate Analysis (London: Charles Griffin, 1957), p. 6.

³K. W. Cooley and P. R. Lohnes, Multi-Variate Procedures for the Behavioral Sciences (New York: Wiley, 1952), p. 151.

⁴Ahmad, Indian Cities, p. 23.

The essential feature and operational procedure of the component analysis used in this study are shown in Table 4:11. The advantage of component factor analysis with varimax rotation is that the factors constitute a set of variates measured along orthogonal axes r dimensional space and are thus statistically independent and additive.¹ The solution is constrained so as to account for most of the variance by only a few factors.

Variables

The twenty-eight variables (Appendix VI) were calculated mainly from the 1969 Kenya Census Population, Kenya National Atlas, and Kenya Statistical Digest and other governmental and private agencies. Operational definitions, sources of data, and the method of computation of these

¹According to Soja, "Varimax rotation simplifies the columns of factor loadings by producing closer correspondence between the dimensions and the variables. It does so by approximating "simple structure," a pattern in which the number of high and low loadings is maximized, thereby reducing the number of distressing intermediate loadings and aiding interpretation. Varimax rotation tends to react less to the entire distribution than to major clusters of related distribution than to major clusters of related variables within it. The original orthogonal axes are accordingly shifted to coincide more closely with these clustered vectors, thus creating a set of more easily interpretable components which are not as sensitive to changes in the number of variables as is the original solution. Consequently, where there are groupings of significantly interrelated variables, these will continue to be identified even if new variables are included in the analysis (a characteristic known as factorial invariance)." Soja, The Geography of Modernization in Kenya, p. 72. See also Henry F. Kaiser, "The Varimax Criterion for Analytical Rotation in Factor Analysis," Psychometrika (1958), pp. 187-200; Harry H. Harman, Modern Factor Analysis (Chicago: University of Chicago Press, 1960), pp. 289-308; and Rummel, Applied Factor Analysis, pp. 368-94.

TABLE 4:11

ANALYTICAL SCHEME

Data flow	Printed output	Summary of computational procedure
1. Raw data sources	-	m demographic and economic variables of n spatial units (cases) formed into $n \times m$ raw data matrix. ¹
2. Raw data converted into percentages	Raw data list	$n \times m$ percentages of raw data--transformed in percentages in order to ensure linearity and normality.
3. Coded raw data	Coded raw data list	$n \times m$ raw data matrix punched on computer cards.
4. Principal components factor analysis program	Means and standard deviations Correlation matrix Eigenvalues and cumulative proportion of total variance Initial communality estimates are squared and final communality calculated Factor matrix orthogonal--rotated factor matrix Factor scores coefficients Factor score	BMDX72: ² Factor Analysis Program Data input via punched cards. The means and standard deviations are computed. The correlations are computed using the means and standard deviations. From this matrix, the program performs a principal component first estimating the initial and final communalities. The factor matrix is rotated via the varimax criterion so that each factor is stated in terms of those few variables with which it is highly correlated. The final factor scores are punched out by computer cards and/or paper.

Sources: ¹For a full explanation of the sources on the data, see Appendix VII.

²W. J. Dixon, ed., BMD Biomed Computer Programs (3rd ed.; Los Angeles: University of California Press, 1973), pp. 193, 200.

measures are provided in Appendix VII. Table 4:12 shows the abbreviated names of twenty-eight variables and their general nature and structure. It should be emphasized that the 1969 census was the first of its kind that gave census tracts in all the forty-seven urban centers. As far as Kenya's urban centers are concerned, this is the first time that their regional differences and spatial variations have been analyzed in such a detailed manner.¹ The variables used in this study relate to the following attributes of Kenya urban centers and are distributed as follows:

- | | |
|-------------------------------------|---------------|
| 1. Population size | (1 variable) |
| 2. Households | (4 variables) |
| 3. Employment | (4 variables) |
| 4. Spatial structure | (1 variable) |
| 5. Social amenities | (3 variables) |
| 6. Ethnicity and racial composition | (6 variables) |
| 7. Demographic dynamics | (4 variables) |
| 8. Education and literacy | (4 variables) |
| 9. Migration | (1 variable) |

As shown in Table 4:12, the number of variables used could have been increased if accurate data were available. It is

¹For other similar utilization of factor analysis methods in the investigation of the spatial structure of urban areas, see Brian J. L. Berry, "An Inductive Approach to the Regionalization of Economic Development," in Essays on Geography and Economic Development, ed. by Norton Ginsburg (Chicago: University of Chicago, Department of Geography, Research Paper No. 62, 1962); Ahmad, Indian Cities; Mabogunje, Urbanization of Nigeria; John Thompson et al., "Toward a Geography of Economic Health: The Case of New York State," Annals of the Association of American Geographers (1962), pp. 1-20; Carey, "Principal Component Factor Analysis and Its Application in Geography"; Carey, "The Regional Interpretation of Manhattan Population and Housing Patterns Through Factor Analysis"; Carey et al., "Educational and Demographic Factors in the Urban Geography of Washington, D.C."; Hughes, Urban Indicators, Metropolitan Evolution and Public Policy.

TABLE 4:12

VARIABLES USED IN THIS STUDY

1. TOTUPOPON	Total Urban Population
2. ANEPUBRET	Annual Earnings Per Urban Resident
3. PERCRTPOP	Percentage of Central Bantu to Total Urban Population
4. PERWBTPOP	Percentage of Western Bantu to Total Urban Population
5. PERCBTPOP	Percentage of Coastal Bantu to Total Urban Population
6. PERNTUPOP	Percentage of Nilotes to Total Urban Population
7. PERHATPOP	Percentage of Nilo-Hamites and Hamites to Total Urban Population
8. PERNATPOP	Percentage of Non-Africans to Total Urban Population
9. PERHHTPOP	Percentage of Head of Household to Total Urban Population
10. PERRHTPOP	Percentage of the Other Relatives of the Household to Total Urban Population
11. PERNHTPOP	Percentage of the Non-Relatives of the Household to Total Urban Population
12. SEXRATIOF	Sex Ratio Per 1,000 Females
13. FEWP ERAFP	Female Workers as Percentage of Total Urban Adult Female Population
14. MAWP ERAMP	Male Workers as Percentage of Total Urban Adult Male Population
15. WKPERTPOP	Workers as Percentage of Total Urban Population
16. PERPEDPOP	Percentage of Urban Residents with Primary Education to Total Urban Population

(continued)

TABLE 4:12 (continued)

17. PERSEDPOP	Percentage of Urban Residents with Secondary Education to Total Urban Population
18. PERFPDPOP	Percentage of Female Urban Residents with Post-Secondary Education to Total Urban Population
19. PERMPDPOP	Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population
20. PERMCTPOP	Percentage of Male Children to Total Children Population
21. PERMATPOP	Percentage of Male Adult to Total Adult Population
22. PERMGTPOP	Percentage of Male Aged to Total Aged Population
23. PERWHTPOP	Percentage of Wives of the Head of Household to Total Urban Population
24. NWSSPUCET	Number of Water Supply Schemes
25. DARTDENST	Daily Road Traffic Density
26. NMEDFUCET	Number of Medical Facilities
27. NPTELECOM	Number of Postal and Telecommunications Facilities
28. PERUBOKEY	Percentage of Urban Population Born Outside Kenya

imperative that a study such as this be done again in the future as more detailed data become available because each stage of urbanization will act independently of present structural features.

Analysis of Factor Scores

The results of component analysis are shown in Tables 4:15 to 4:29 and Figures 4:3 to 4:9. Table 4:13 summarizes the proportions of the total inter-urban variances accounted for by each of the seven components. This was 71.96 percent of the total variance. For all practical purposes, it can be assumed that these seven common factors represented the most important dimensions of the process of urbanization in Kenya.

The matrix of correlation coefficients derived from the data set of 47 urban centers (cases) and 28 variables (Appendix VIII) provides the basic material upon which the principal factor analysis operated. While it was possible to extract all the 28 components, only the components with eigenvalues greater than unity were extracted (Appendix IX for unrotated and Appendix X for rotated).¹ Table 4:14 shows the percentage of variance of each primary variable accounted for by all seven components. These values are

¹The eigenvalue is a measure of the contribution of each factor in explaining variation. According to Rummel, ". . . common factor ceases to have generalizability when its associated eigenvalue is less than or equal to one." Rummel, Applied Factor Analysis, p. 356, and especially Chapter 15.

TABLE 4:13
 KENYA URBAN CENTERS:
 PERCENTAGE OF TOTAL VARIANCES
 EXPLAINED BY EACH COMPONENT

Components	Eigenvalues	
	Number	Percent of total variance
I	4.577	16.35
II	3.805	14.00
III	3.710	13.25
IV	2.613	9.33
V	1.969	7.03
VI	1.875	7.00
VII	1.397	5.00
Percent of the eigenvalues of all the seven components		
Percent of communality of all the seven components		71.96
The seven rotated components together explain--percent		71.96

TABLE 4:14

PERCENTAGE OF VARIANCE COMMUNALITY* OF EACH
OF THE TWENTY-EIGHT VARIABLES ACCOUNTED
FOR BY ALL SEVEN COMPONENTS

Variables**	h^2 in percentage
TOTUPOPON	98.40
ANEPUBRET	68.45
PERCRTPOP	90.20
PERWBTPOP	81.50
PERCBTPOP	83.17
PERNTUPOP	82.68
PERHATPOP	79.41
PERNATPOP	70.78
PERHHTPOP	75.58
PERNHTPOP	67.81
PERNMTPOP	96.45
SEXRATIOF	90.02
FEWPERAFP	48.96
MAWPERAMP	82.70
WRPERTPOP	72.38
PERPEDPOP	87.16
PERSEDPOP	82.70
PERFPDPOP	58.76
PERMPDPOP	70.54
PERMCTPOP	92.42
PERMATPOP	57.01
PERMGTPOP	55.25
PERWHTPOP	73.85
NWSSPUCET	67.80
DARTDENST	67.73
NMEDFUCET	94.06
NPTELECOM	98.13
PERUBOKEY	48.36

*Communality expresses the percentage of variation in the data accounted for or "explained" by the factor.

**See Table 4:12 for explanation of the variables.

the total sum of squares of the correlations of a particular variable with all seven components. Appendix XI shows the relative importance of each of the seven components and Table 4:15 only shows the factor loadings with $\geq \pm 0.300$. Examination of these factor loadings revealed that the first dimension accounted for the main variation in the socioeconomic and demographic status of the population (16.35 percent of the total matrix variance) while the seventh dimension accounted for 5.00 percent. In other words, the first factor is three times as significant as the seventh in a statistic sense.

In the subsequent discussion, variables showing the highest correlations have been extracted from each of the seven components in order to facilitate the discussion. For each of the dimensions we have extracted factor scores of $\geq \pm 0.400$ and have also plotted them on maps to make it easy to appreciate the spatial organization of the central places of the urban-place sub-system (Figures 4:3 to 4:9). To interpret each of these maps successfully, one must bear in mind the significance of the high and low values and the positive and negative signs of the variables correlating strongly with each dimension (Appendix XII).

Factor Patterns and Factor Scores--An Interpretation

The first component (Table 4:16) which accounted for 16.35 percent of the total variance is identified predominantly with the Primacy Size of Centers and the Urban

TABLE 4:15
KENYA URBAN CENTERS (1969) ROTATED FACTOR LOADINGS--
VARIMAX ROTATION

Number	Variables* Names	Factors						
		I	II	III	IV	V	VI	VII
1	TOTUPOPON	0.988						
2	ANEPUBRET	0.393	-0.698					
3	PERCRTPOP					0.561		-0.433
4	PERWBTPOP					-0.773		0.874
5	PERCBTPOP						0.764	
6	PERNTUPOP							
7	PERHATPOP			-0.426	0.670	-0.644		
8	PERNATPOP		-0.346					
9	PERHHTPOP				-0.812			
10	PERRHTPOP					-0.798		
11	PERNHTPOP			0.429	0.859			
12	SEXRATIOF			0.876				
13	FEWPERAFP		-0.658					
14	MAWPERAMP		-0.863					
15	WRPERTPOP		-0.799					
16	PERPEDPOP		-0.422					
17	PERSEDPOP	0.356	-0.427		-0.416			-0.533
18	PERFPDPOP	0.558	-0.365					-0.364
19	PERMPDPOP		0.393					-0.446
20	PERMCTPOP			0.362				0.395
21	PERMATPOP			-0.865				
22	PERMGTPOP			0.637				
				0.627				

(continued)

TABLE 4:15 (continued)

Variables*		Factors						
Number	Names	I	II	III	IV	V	VI	VII
23	PERWHTPOP			-0.346	-0.722			
24	NWSSPUCET	0.794						
25	DARTDENST	0.574	-0.457					
26	NMEDEUCET	0.921						
27	NPTELECOM	0.985						
28	PERUBOKEY						0.690	
Variance explained by factor (percent)		16.35	14.00	13.25	9.33	7.03	7.00	5.00

*See Table 4:12 for explanation of the variables.

TABLE 4:16
 FACTOR I--PRIMACY FUNCTIONAL SIZE OF
 CENTERS IN THE URBAN HIERARCHY

Primary variables	Factor loadings
Total Urban Population	0.988
Number of Postal and Tele- communication Facilities	0.985
Number of Medical Facilities	0.921
Number of Water Supply Schemes	0.794
Daily Road Traffic Density	0.574
Percentage of Female Urban Residents with Post-Secondary Education	0.558
Annual Earnings Per Urban Residents	0.393
Percentage of Urban Residents with Secondary Education to Total Urban Population	0.356

TABLE 4:17
 KENYA URBAN CENTERS WITH EXTREME
 FACTOR SCORES ON COMPONENT I

High positive	High negative
Nairobi 6.121	Athi River -0.463
Mombasa 2.395	Kisii -0.458
	Embu -0.443
	Kakamega -0.405

Hierarchy. This factor shows the status of urban centers within Kenya's urban hierarchy. The highest factor loadings here are urban-based social amenities such as postal and telecommunication and medical and water supply facilities. Three other variables which show positive correlation with this component are daily road traffic density, female with post-high school education, and the annual earnings per urban residents. Since this first component accounts for the highest and largest proportion of the total variance, it should be emphasized that the primacy size is the most important single dimension of variation of Kenya urbanization. This is why it is important to study the spatial dimension of the urban-place dimension within the tenets of central-place theory.

Primacy of Nairobi and Mombasa (the two national business centers) comes out very clearly as shown in Figure 4:3 and Table 4:17. The cities with high positive scores are mostly large administrative centers--Nairobi, Mombasa, Nakuru, Kisumu, and Bungoma. It should be emphasized that only the old provincial capitals show high positive loadings since the socio-cultural and economic activities of the other urban centers at the district level have been overshadowed by the provincial administrative centers. The other urban centers with high negative rankings (for example, Athi River, Kisii, and Embu) are small medium centers whose existence has been overshadowed by the major urban centers. All the negative loading urban centers are the

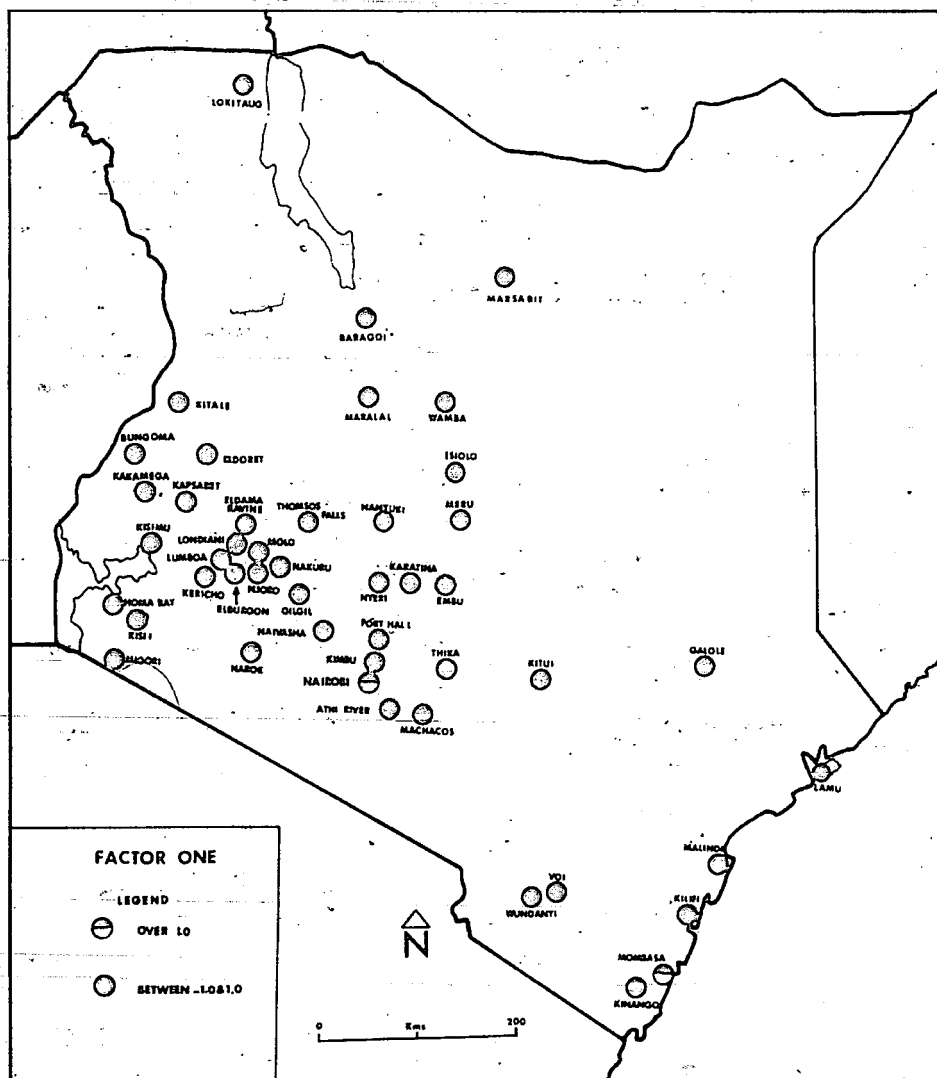


Fig. 4:3--Kenya urban centers: Spatial distribution of scores of factor (component) I.

Source: See Table 4:12 for explanation of data source.

high-order export enclaves for the periodic market sub-systems. In the Coastal Region, the dominance of Mombasa is very extreme. In the Central Highlands Region, Nairobi is the primate city, followed by Nakuru with Karatina and Thika playing lesser roles in the primacy. Primacy is also obvious in the Western Region which dominates space by Bungoma since Kakamega, the provincial capital, is overshadowed by Kisumu. The Masai-Northern Frontier Region is still a frontier in the urbanization process and as such displays no apparent hierarchical orientation of any significance at the national level, although intra-regional primacy does exist.

It should also be pointed out that the resulting factor scores and factor patterns of Kenya urban centers can be categorized between component I and the rest of components II through VII. In other words, Nairobi dominates the country (component I) and the rest of the factor scores (II through VII) load negatively and/or positively against Nairobi.

The second component is associated with the urban socioeconomic status of urban communities relating to income, education, urban workers, social amenities, and racial background (Table 4:18). This component represents the second most important characteristic of Kenya's urban centers. The most important variables in this component are related to urban-based functions, hence the importance of urban centers in Kenya economy. The list also shows the

TABLE 4:18
 FACTOR II--SOCIOECONOMIC STATUS
 OF URBAN COMMUNITY

Primary variables	Factor loadings
Male Workers as Percentage of Total Urban Adult Male Population	-0.863
Workers as Percentage of Total Urban Population	-0.799
Annual Earnings Per Urban Residents	-0.698
Female Workers as a Percentage of Total Urban Adult Female Population	-0.658
Daily Road Traffic Density	-0.457
Percentage of Urban Residents with Secondary Education to Total Urban Population	-0.427
Percentage of Urban Residents with Primary Education to Total Urban Population	-0.422
Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population	-0.393
Percentage of Female Urban Residents with Post-Secondary Education to Total Urban Population	-0.365
Percentage of Non-Africans to Total Urban Population	-0.346

close relation between the urban economic functions and high educational attainment (standard I and over). It also emphasizes that where urban economic functions are important, non-Kenyans play a very important role which is equivalent with the number of post-high school graduates.

Urban centers that rank high negatively here are major industrial centers or administrative centers where food processing and manufacturing require a substantial employment (Table 4:19).¹ The urban centers which have high positive loadings are usually small administrative bomas with no industrial activities whatsoever (Figure 4:4). The distribution of the scores by each urban center in Kenya have justified our expectation. Important urban centers like Nyeri, Kisumu, Kericho, Eldoret, and Meru on major road and rail lines had the highest negative scores (between -2.00 and -1.00). The other inland urban centers scored mostly between -0.50 and -1.00. Most of these urban centers are concentrated in the Central Highlands Region. The highest positive scores are also registered mainly in the small urban centers in the Coastal, Western, and the Masai-Northern Frontier Regions. Most of the employment activities in these small urban centers are tertiary activities since they are mainly provincial district or divisional headquarters and ports, where daily market activities and

¹Note that, for the sake of analysis, the negative and positive signs are statistically switched since all the variables within this component II loaded negatively.

TABLE 4:19

KENYA URBAN CENTERS WITH EXTREME
FACTOR SCORES ON COMPONENT II

High positive		High negative	
Narok	1.442	Nyeri	-2.950
Homa Bay	1.433	Kisumu	-2.823
Migori	1.262	Kericho	-1.575
Karatina	1.232	Eldoret	-1.330
Galole	1.150	Meru	-1.267
Bungoma	1.114	Kitale	-0.955
Wundanyi	1.088	Nakuru	-0.861
Kapsabet	1.079	Kiambu	-0.770
Njoro	0.861	Thika	-0.711
Maralal	0.771	Kilifi	-0.516
Isiolo	0.640	Fort Hall	-0.487
Baragoi	0.638	Thomson's Falls	-0.472
Marsabit	0.939	Molo	-0.467
Mombasa	0.592		
Wamba	0.585		
Lokitaung	0.565		
Gilgil	0.516		

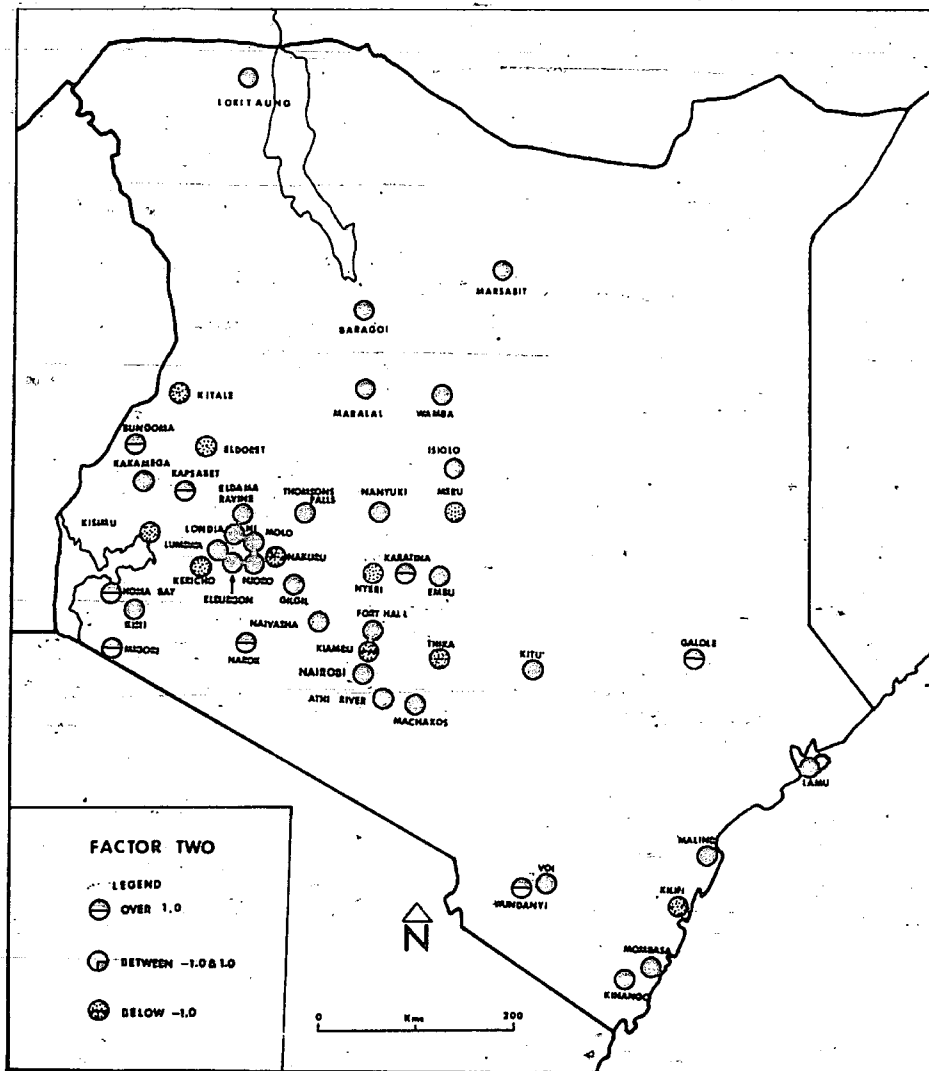


Fig. 4:4--Kenya urban centers: Spatial distribution of scores of factor (component) II.

Source: See Table 4:12 for explanation of data source.

duka outlets are the commercial activities.

In component III (Table 4:20), the importance of children is compared with the importance of the adult population demographically, educationally, ethnically, and in terms of urban residence preference. In addition to showing the urban demographic dimension, this component can also be discussed in conjunction with component II because high correlation of sex ratio, male adult population, post-primary education, and non-relatives of the household, to mention only a few, are indicative of the potential labor force. These variables, as should be expected, correlate negatively with male children, wives of the head of household, and the presence of Nilo-Hamitic-speaking people.

In general, urban centers in the major transport routes have high positive loadings (Table 4:21). This is particularly true in the Central Highlands Region and the Western Region which have the highest density communication networks. Western Region urban centers, such as Bungoma, Kakamega, Kapsabet, Homa Bay, Kisii, Migori, and Kericho, are major centers in the stepwise migration of the adult-educated migrants to the Central Highlands industrial towns. ~~The high negative scores indicate the immigration~~ of adults from favorably located urban centers in the Masai-Northern Frontier Region and Coastal Regions (see Figure 4:5).

Component IV (Table 4:22) shows the importance of the makeup of households among urban centers. The

TABLE 4:20
 FACTOR III--DEMOGRAPHIC STRUCTURE

Primary variables	Factor loadings
Sex Ratio Per 1,000 Females	0.876
Percentage of Male Children to Total Children Population	-0.865
Percentage of Male Adult to Total Adult Population	0.637
Percentage of Aged Male to Total Aged Population	0.627
Percentage of Urban Residents with Secondary Education to Total Urban Population	0.514
Percentage of the Non-Relative of the Head of Household to Total Urban Population	0.429
Percentage of Nilo-Hamites and Hamites to Total Urban Population	-0.426
Percentage of Urban Residents with Primary Education to Total Urban Population	0.385
Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population	0.362
Percentage of Wives of Household to Total Urban Population	-0.346

TABLE 4:21

KENYA URBAN CENTERS (1969) WITH EXTREME
FACTOR SCORES ON COMPONENT III

High positive		High negative	
Karatina	2.291	Baragoi	-2.232
Embu	1.693	Kinango	-1.597
Homa Bay	1.415	Galole	-1.572
Migori	1.372	Lokitaung	-1.291
Kitui	1.287	Londiani	-1.258
Athi River	1.258	Wamba	-1.242
Kisii	1.056	Wundanyi	-1.210
Thika	1.042	Elburgon	-0.109
Machakos	0.935	Lumbwa	-0.879
Fort Hall	0.870	Lamu	-0.823
Kiambu	0.862	Molo	-0.792
Meru	0.855	Eldama Ravine	-0.787
Voi	0.756	Maralal	-0.771
Narok	0.729	Kitale	-0.594
Malindi	0.585	Kilifi	-0.491
Mombasa	0.494	Njoro ²¹	-0.442
Nyeri	0.459		

TABLE 4:22

FACTOR IV--HOUSEHOLD STRUCTURE

Primary variables	Factor loadings
Percentage of the Non-Relative of the Household to Total Urban Population	0.859
Percentage of Head of Household to Total Urban Population	-0.812
Percentage of Wives of Head of Household to Total Urban Population	-0.722
Percentage of Nilo-Hamites and Hamites to Total Urban Population	0.670
Percentage of Urban Residents with Primary Education to Total Urban Population	-0.416

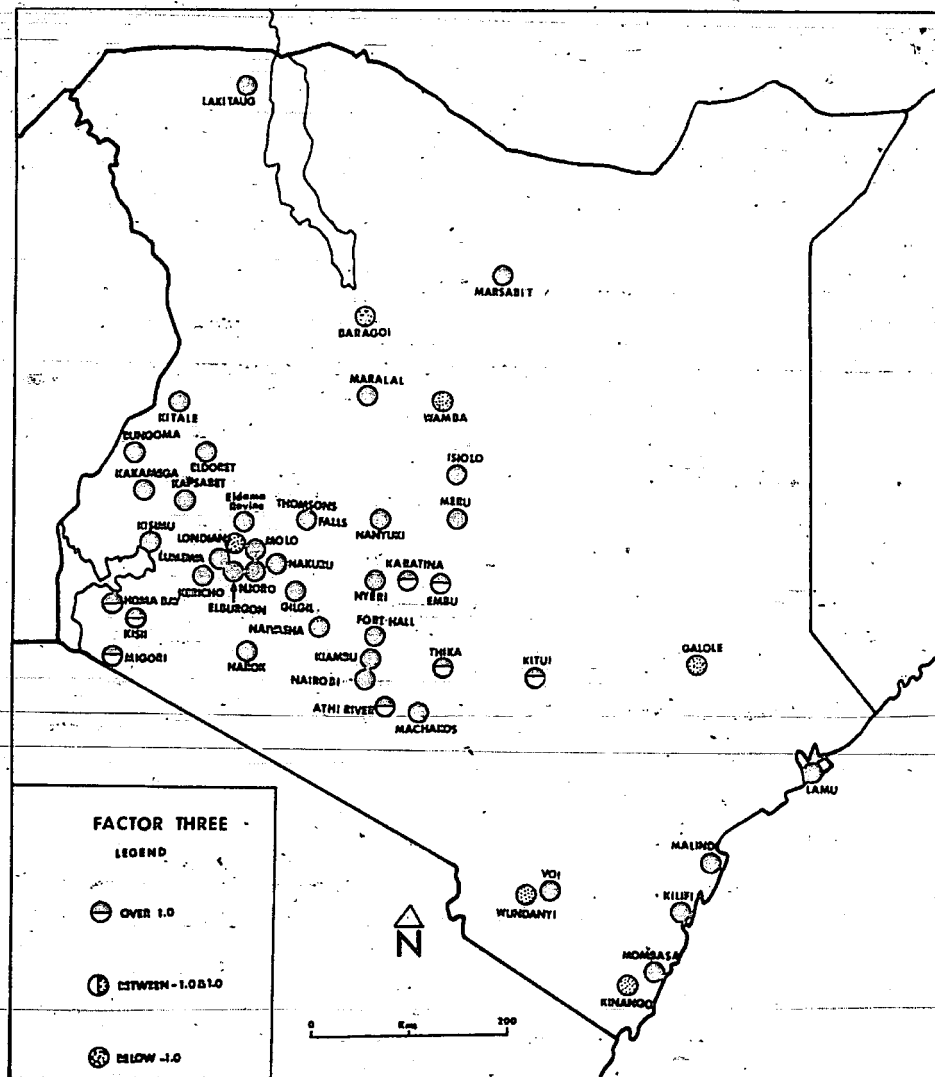


Fig. 4:5--Kenya urban centers: Spatial distribution of scores of factor (component) III.

Source: See Table 4:12 for explanation of data source.

percentage of those not related to the head of the household but who live in the household loads very high, thereby proving the tendency of most of the urban migrants to reside with non-relatives as long as they are from the same ethnic or racial group. This is particularly true of Nilo-Hamites and Hamites who are the least exposed to the urbanization process. The following variables, namely, head of households, wives of heads of households, and urban residents with high school education, however, correlate very negatively with non-relatives in the household and Nilo-Hamitic and Hamitic-speaking people. The urban ethnicity is also common in major urban centers such as Nairobi, Kisumu, Fort Hall, and Malindi (Table 4:23 and Figure 4:6). Otherwise ethnic, residential clustering is very limited among the major ethnic groups that have been associated with the rural to urban migration. Urban centers with high negative scores are industrial urban centers, and are located mainly among the Nilotes, Central Bantu, and Coastal Bantu in the Western, Coastal, and Central Highlands Regions. Urban ethnicity is still very important in Kenya urbanization.

While component IV has been characterized as ethnicity and the household structure, component V (Table 4:24) can be characterized as ethnicity-cum-racial preference in urban residence. This factor contrasts the household structure/urban residence of the Coastal Bantu and the non-Africans with the Central Bantu (Appendix V). The Central Bantu variable has the only high positive

TABLE 4:23

KENYA URBAN CENTERS (1969) WITH EXTREME
FACTOR SCORES ON COMPONENT IV

High positive		High negative	
Lokitaung	3.236	Galole	-1.497
Marsabit	2.275	Njoro	-1.283
Wamba	1.889	Londiani	-1.240
Baragoi	1.657	Elburgon	-1.214
Nyeri	1.616	Mombasa	-1.078
Malindi	1.342	Naivasha	-1.048
Karatina	0.965	Thomson's Falls	-1.010
Isiolo	0.761	Nakuru	-0.984
Kapsabet	0.675	Gilgil	-0.963
Meru	0.513	Molo	-0.875
Kisumu	0.406	Kilifi	-0.817
		Nanyuki	-0.740
		Kinango	-0.706
		Wundanyi	-0.563
		Lamu	-0.436
		Embu	-0.421

TABLE 4:24

FACTOR V--ETHNICITY-CUM-RACIAL
PREFERENCE IN URBAN RESIDENCE

Primary variables	Factor loadings
Percentage of the Other Relatives of the Household to Total Urban Population	-0.798
Percentage of Coastal Bantu to Total Urban Population	-0.773
Percentage of Non-Africans to Total Urban Population	-0.644
Percentage of Central Bantu to Total Urban Population	0.561

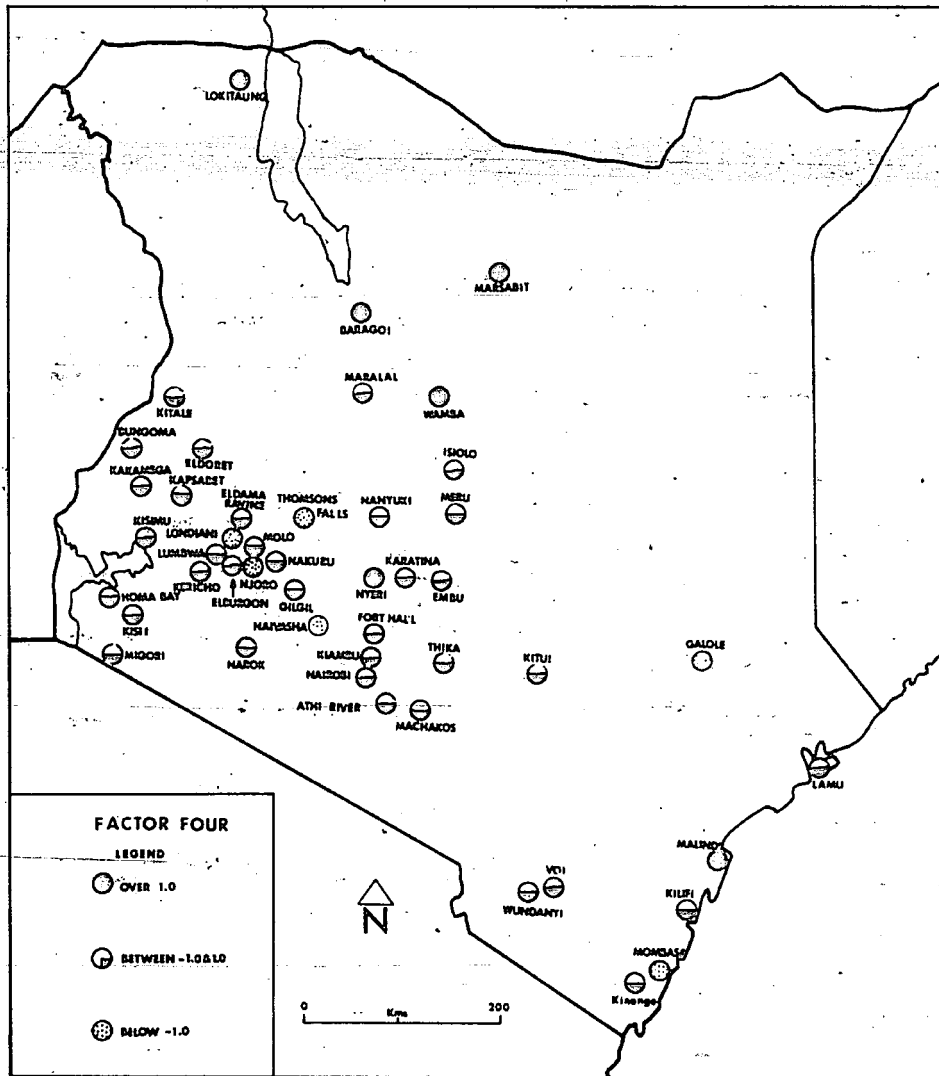


Fig. 4:6--Kenya urban centers: Spatial distribution of scores of factor (component) IV.

Source: See Table 4:12 for explanation of data source.

correlation while the non-relatives of the head of households, Coastal Bantu, and non-African population show very high negative correlations. The high percentage of urban residence among Coastal Bantus compares very closely with the non-African preference for urban centers since that region, as we have discussed in Chapter III, had the earliest contact with the urbanization process.

The urban centers having a high negative loading on this factor are mainly Coastal Region towns where a majority of the Coastal Bantus reside (Table 4:25). The cultural assimilation of the Coastal ethnic groups with Arabs, Indians, and Nubians (from Somalia Republic) and the remnants of European farmers is still common in selected administrative centers such as Migori, Kisii, Homa Bay, and Kisumu in the Western Region; Nyeri, Kitale, Meru, and Eldoret in the Central Highlands Region; and Wamba in the Masai-Northern Frontier Region (Figure 4:7). The urban centers with the highest positive scores are the industrial towns located in the Central Bantu country where because of their participation in labor migration their ethnicity spreads beyond the Central Highlands Region.

Component VI is called the Nilotic (Luo)/Labor Migration factor (Table 4:26). This factor compares migration of the Luos and the urban population born outside Kenya against literacy or labor potential (number of urban residents with primary and secondary education, and number of males with post-secondary education). Most of the

TABLE 4:25

KENYA URBAN CENTERS (1969) WITH EXTREME
FACTOR SCORES ON COMPONENT V

High positive		High negative	
Elburgon	1.257	Lamu	-3.096
Londiani	1.125	Malindi	-2.832
Baragoi	0.982	Kilifi	-2.369
Molo	0.884	Mombasa	-1.414
Athi River	0.881	Kinango	-1.129
Njoro	0.874	Galole	-1.003
Kiambu	0.867	Kisumu	-0.997
Thomson's Falls	0.834	Wundanyi	-0.993
Lokitaung	0.795	Voi	-0.946
Lumbwa	0.794	Kisii	-0.552
Naivasha	0.772	Kitui	-0.494
Gilgil	0.717	Kitale	-0.417
Nanyuki	0.691		
Maralal	0.649		
Embu	0.605		
Eldama Ravine	0.599		
Fort Hall	0.585		
Thika	0.538		
Karatina	0.488		

TABLE 4:26

FACTOR VI--NILOTES/LABOR MIGRATION

Primary variables	Factor loadings
Percentage of Nilotes to Total Urban Population	0.764
Percentage of Urban Population Born Outside Kenya	0.690
Percentage of Urban Residents with Primary Education to Total Urban Population	-0.533
Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population	-0.446
Percentage of Urban Residents with Secondary Education to Total Urban Population	-0.364

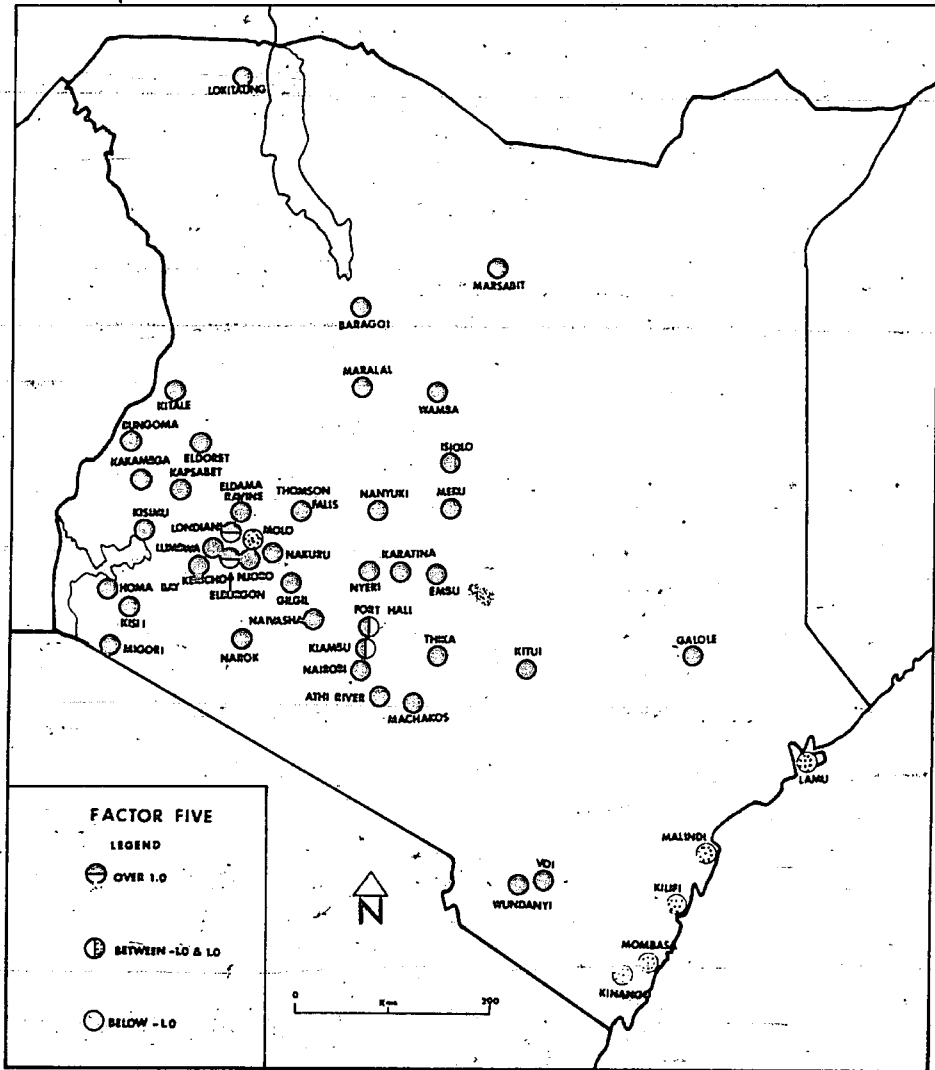


Fig. 4:7--Kenya urban centers: Spatial distribution of scores of factor (component) V.

Source: See Table 4:12 for explanation of data source.

country's African urban population who were born outside of Kenya is made up of non-Kenyans mostly Luos from Uganda and Tanzania. Most of these non-Kenya Africans migrate to Kenya urban centers in the Central Highlands and Coastal Regions in search of better economic opportunities, and in most cases use Western Kenya's central places in their stepwise migration. The Nilotic Luos have had a tradition of labor migration which spans from the colonial to the present national era.¹ Most of these migrations have taken place all over Eastern Africa. The Nilotes have for many centuries been migrating long distances and since the turn of the century have migrated within the developing urban systems. Their migration was not directly influenced by education, since most of the adult males of working age have learned to accept labor migration as a very important part of growing up. Consequently, most of the migrants are unskilled and uneducated. The reasons for the migration of Nilotic Luos as well as other ethnic groups in Kenya is not primarily caused by lack of employment opportunities in the rural areas but according to Safa is ". . . due to major structural transformations in the economies of developed and Third World economies. Migration is a manifestation of a world-wide shift from rural agrarian base to an urban-industrial base in the economies of most Third World

¹Obudho, "Urbanization and Regional Planning in Western Kenya"; and Simeon H. Ominde, "Land and Population in Western Districts of Kenya" (unpublished Ph.D. thesis, University of London, 1963).

countries."¹

The second variable that loads very high on this component is the number of urban residents born outside Kenya. Most of these residents include the Ugandans, Tanzanians, Ethiopians, Somalis, Sudanese, Congolese, Rwandese, Burundis, Indians, Arabs, and Europeans. The urban centers that have high positive scores include Homa Bay, Migori, Voi, Kisumu, Lumbwa, and Londiani, among others (Figure 4:8 and Table 4:27). The labor migration is directed mainly in the Central Highlands Regions, although the small urban centers in the Coastal and the Masai-Northern Frontier and Western Regions are important in stepwise migration processes. The Nilotes have played a very important part in the urbanization process of Kenya along with the immigrant population and this will continue during the national period.

Component VII, like the sixth one (Table 4:28), shows a strong regional ethnic and labor migration factor versus the Central Bantu. One would expect the Western Bantu to correlate closely with the Central Bantu, but because of the unbalanced nature of the urbanization process, the Western Bantu component is closer to the Nilotic labor migration. Like the Nilotes of the Western Region, the Western Bantu have migrated to the primate urban

¹Helen Safa, "Migration, Change, and Development: The Social Consequences of Rapid Industrialization" (paper presented at the International Congress of Anthropological and Ethnological Sciences, Chicago, 1973), p. 1.

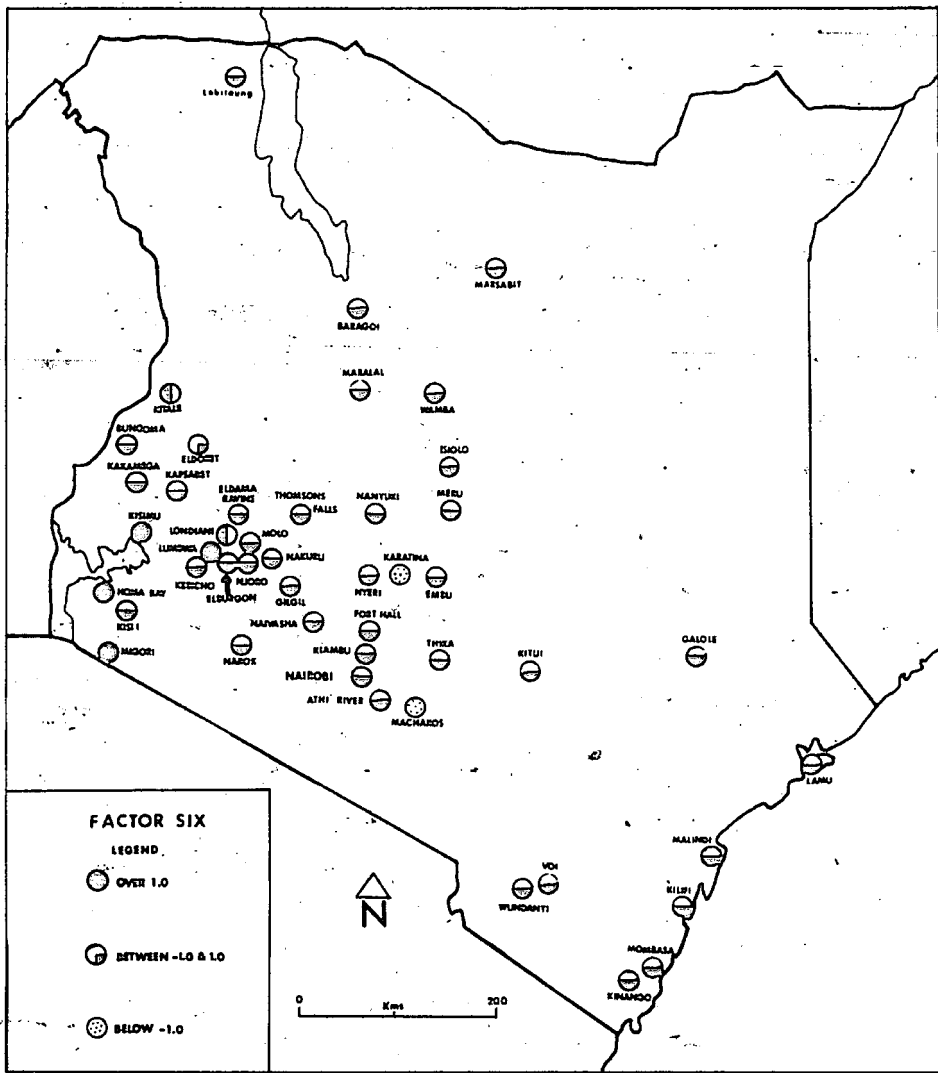


Fig. 4:8--Kenya urban centers: Spatial distribution of scores of factor (component) VI.

Source: See Table 4:12 for explanation of data source.

TABLE 4:27

KENYA URBAN CENTERS (1969) WITH EXTREME
FACTOR SCORES ON COMPONENT VI

High positive		High negative	
Homa Bay	3.449	Karatina	-1.906
Migori	3.348	Machakos	-1.283
Voi	1.361	Kapsabet	-0.805
Kisumu	1.244	Kilifi	-0.801
Lumbwa	1.192	Fort Hall	-0.798
Londiani	0.829	Kiambu	-0.754
Maralal	0.738	Malindi	-0.741
Kitale	0.692	Nanyuki	-0.716
Athi River	0.526	Narok	-0.716
Marsabit	0.488	Meru	-0.702
Isiolo	0.411	Bungoma	-0.698
		Embu	-0.637
		Kakamega	-0.614
		Njoro	-0.569
		Wundanyi	-0.548
		Thika	-0.530
		Thomson's Falls	-0.519
		Galole	-0.498

TABLE 4:28

FACTOR VII--WESTERN BANTU

Primary variables	Factor loadings
Percentage of Western Bantu to Total Urban Population	0.874
Percentage of Central Bantu to Total Urban Population	-0.433
Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population	0.395
Percentage of Nilotes to Total Urban Population	0.352
Percentage of Urban Population with Secondary Education to Total Urban Population	0.325

centers or the industrial urban centers of the Central Highlands Region in pursuit of employment opportunities. Until recently, only the able-bodied male adults have contributed to this labor migration stream but, during the national era, only the educated male adults have migrated from rural to urban areas.¹ The Western Bantu, like the Nilotic Luos, have played a very important part in the post-colonial urbanization in Kenya.² The urban centers which had the highest positive scores include Kakamega, Kisii, Bungoma, Kitale, Eldoret, Kisumu, and Kapsabet (Table 4:29 and Figure 4:9). This component is not as widespread as the first six because of its regional nature. Most of the urban centers loading high and negatively are the Coastal and the Masai-Northern Frontier Regions which are far from the Western Region.

The principal component analysis of the twenty-eight variables extracted seven major dimensions of variation of the forty-seven Kenya urban centers (Table 4:30). This component analysis of Kenya urban centers in 1969 underlines the complexity of urbanization which has been taking place since the colonialization of the country. This complexity is particularly very prevalent in the urban place sub-system.

¹Ominde, Land and Population Movements in Kenya, pp. 108-79.

²Rempel recently reached the same conclusion in his study of the rural-to-urban migrants in Kenya. See Henry Rempel, "The Rural-to-Urban Migrant in Kenya," African Urban Notes, VI (Spring, 1971), 53-72.

TABLE 4:29

KENYA URBAN CENTERS (1969) WITH EXTREME
FACTOR SCORES ON COMPONENT VII

High positive		-High negative	
Kakamega	2.647	Voi	-1.588
Kisii	2.632	Kitui	-1.358
Bungoma	2.343	Nyeri	-1.265
Kitale	1.845	Kinango	-1.231
Eldoret	1.471	Londiani	-0.987
Kisumu	1.462	Fort Hall	-0.980
Kapsabet	1.119	Athi River	-0.956
Nakuru	0.582	Lamu	-0.872
Kericho	0.573	Elburgon	-0.687
Homa Bay	0.560	Marsabit	-0.637
		Thika	-0.629
		Isiolo	-0.591
		Thomson's Falls	-0.517
		Embu	-0.458
		Mombasa	-0.403

TABLE 4:30

KENYA URBAN CENTERS: MAJOR DIMENSIONS OF VARIATION
(PERCENTAGE OF VARIANCE EXPLAINED BY EACH FACTOR)

Factor	Percent of variance
I. Primacy/Size of Centers and the Urban Hierarchy	16.35
II. Socioeconomic Status of Urban Community	14.00
III. Demographic Structure	13.25
IV. Household Structure	9.33
V. Ethnicity-Cum-Racial Preference in Urban Residence	7.03
VI. Nilotes/Labor Migration	7.00
VII. Western Bantu	5.00
Total percentage accounted for by Factors I to VII	71.96

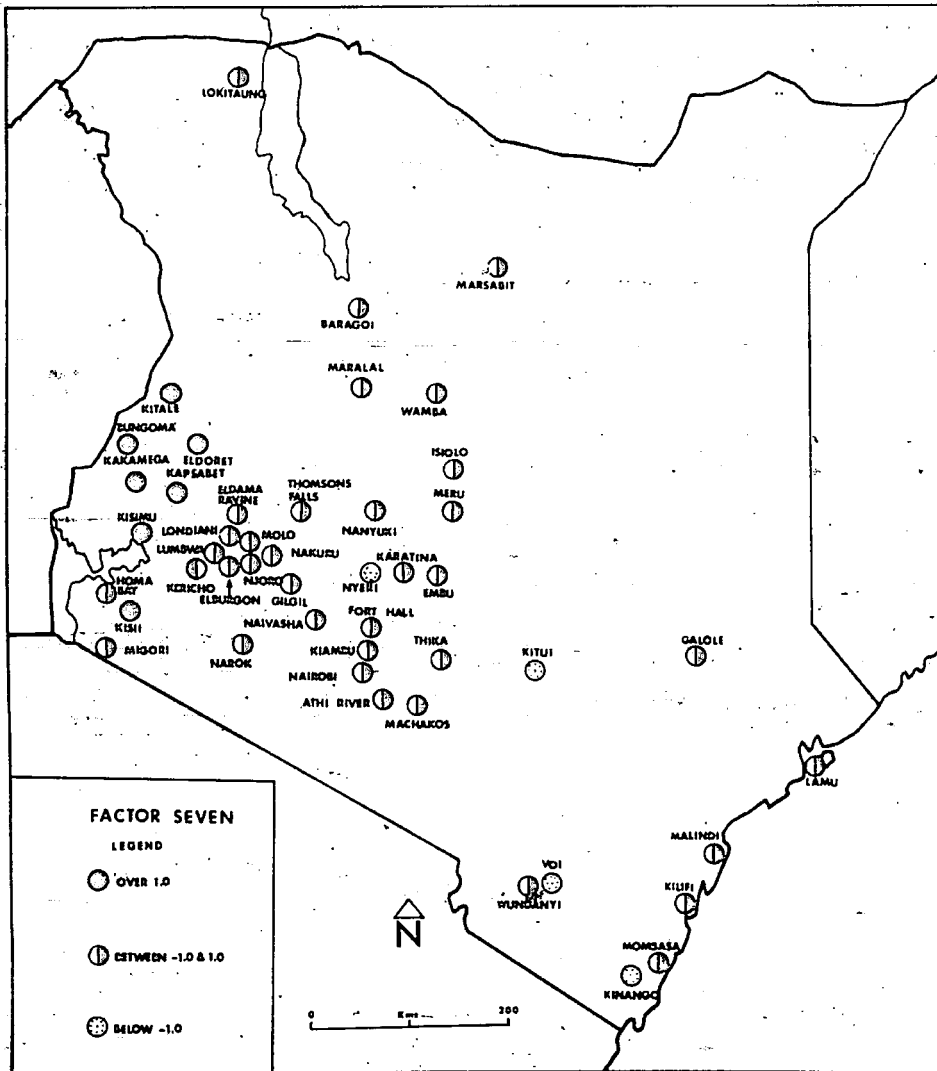


Fig. 4:9--Kenya urban centers: Spatial distribution of scores of factor (component) VII.

Source: See Table 4:12 for explanation of data source.

Implications of the Model Used

At this stage, a comparison of the dimension of variation of urban sub-systems with those found in the Western and non-Western urban centers will help to reinforce the analysis of the Kenyan pattern of urbanization. Note that this comparison is highly generalized because of the different socio-cultural and politico-economic systems in the world.

Historically, American cities have received more multivariate studies than any other area of the world. The first multivariate study was done by Price on the American metropolitan centers in 1930.¹ Using 15 variables, Price found 4 dominant dimensions of metropolitan centers: size, non-service occupational specialization, socioeconomic status, and trade center orientation. This same study was later confirmed by Perle using the same set of variables.² In 1952, Hofstaetter, using 23 variables of American cities with 30,000 to 50,000 inhabitants, found the principal dimensions to be socioeconomic status, degree of industrialization, and prevalence of slum conditions.³ Kaplan's 1950 study using 47 variables of 370 selected American

¹Daniel O. Price, "Factor Analysis in the Study of Urban Centers," Social Forces, XX (1941-1942), 449-61.

²Sylvia M. Perle, "Factor Analysis of American Cities" (unpublished M.A. thesis, University of Chicago, 1964).

³Peter R. Hofstaetter, "Your City Revisited: A Factorial Ecology of Cultural Patterns," American Catholic Sociological Review, XIII (October, 1952), 159-68.

cities with population exceeding 25,000 resulted in five factors, namely, size, socioeconomic status, population stability and growth, relative ethnic and racial homogeneity, and age-sex structure.¹ A similar study was done in 1960 from data comprising 65 variables for 644 American cities by Hadden and Borgatta in which the following 16 factors were identified: socioeconomic status, non-white population, age composition, educational centers, residential mobility, population density, foreign-born concentration, total population, wholesale concentration, durable manufacturing concentration, communication centers, public administration centers, high school education, and transportation centers.² Mayer's analysis of the 1960 Standard Metropolitan Statistical Areas (SMSAs) data of 212 SMSAs x 66 variables was similar to the Hadden and Borgatta study: socioeconomic status, age and size of city, family structure, growth 1950-1960, commercial versus manufacturing orientation, foreign population, non-white population, unemployment and male labor force, institutional or military population, relative isolation, use of public transport, and low density development.³ Berry, in a 1972 study

¹Howard B. Kaplan, "An Empirical Typology for Urban Description" (unpublished Ph.D. dissertation, New York University, 1958).

²J. K. Hadden and E. F. Borgatta, American Cities: Their Social Characteristics (Chicago: University of Chicago Press, 1965).

³Harold M. Mayer's study in Progress. Results are reported in Brian J. L. Berry and Elaine Neils, "Location,

using 97 variables of 1,762 urban places with 10,000 or more inhabitants, identified the following factors: functional size or cities in an urban hierarchy, socioeconomic status, family cycle, non-white population and home ownership, recent population growth experience, college towns, foreign-born population, recent employment expansion, manufacturing, female participation in labor force, specialized service centers, military towns, mining towns, and male participation in labor forces.¹ And finally, Mayer,² in a recent study, has classified American urban centers from a non-white perspective using 40 variables for each of the 145 SMSAs. He identified 7 factors as follows: socioeconomic status, variation among non-white groups in socioeconomic status, life cycle, size of housing and unemployment, housing type, position in urban hierarchy, and service workers.

In Canada first multivariate studies were completed by King for the years 1951 and 1962 (106 cities x 52 variables) in which he identified 12 factors of socioeconomic

Size and Shape of Cities as Influenced by Environment Factors," in The Quality of Urban Environment, ed. by Harvey S. Perloff (Baltimore, Md.: Johns Hopkins Press, 1973).

¹Brian J. L. Berry, "Latent Structure of the American Urban Systems with International Comparisons," in City Classification Handbook: Methods and Application, ed. by Brian J. L. Berry with assistance of Katherine B. Smith (New York: Wiley Interscience, 1972), pp. 11-60

²David R. Mayer, "Classification of U.S. Metropolitan Areas by Characteristics of Their Non-White Population," in City Classification Handbook: Methods and Application, ed. by Brian J. L. Berry (New York: Wiley Interscience, 1972), pp. 61-94.

status (related to differences between French and English-Canadian), relative isolation with primary industry, smaller specialized manufacturing towns, among others.¹ Ray and his associates (113 cities and 95 variables) reiterated King's basic socioeconomic significance of English-French contrasts in Canada and identified the following types of Canadian towns: mining cities, service centers, manufacturing, and metropolitan growth poles.² A similar study, although on a small scale, was carried on by Bunting in the Provinces of Ontario-Quebec, Canada, in which he isolated eight components.³

One of the outstanding studies in which factor analysis has been used in identifying spatial dimensions of central places is Moser and Scott's study of British towns.⁴ Using 60 variables of 157 towns in England and Wales, they identified 4 factors which explained 60 percent of total variances.

¹Leslie J. King, "Cross-Sectional Analysis of Canadian Urban Dimensions, 1951 and 1961," Canadian Geographer, X (1966), 205-24.

²D. Michael Ray et al., "The Socioeconomic Dimensions and Spatial Structure of Canadian Cities" (unpublished paper, University of Waterloo, 1968).

³T. Bunting, "Dimensions and Groupings in the Ontario-Quebec Urban System, 1951-1961," in Urban Systems Development in Central Canada: Selected Papers, ed. by L. S. Bourne and R. D. Mackinon (Toronto: University of Toronto Press, 1972), pp. 53-82.

⁴C. A. Moser and W. Scott, British Towns: A Statistical Study of Their Social and Economic Difference (Edinburgh: Oliver and Boyd, 1961).

Several factor analyses have also been completed in Chilean urban centers.¹ The first study was done on the employment structure of 105 communes with population exceeding 15,000 in 1952 and 1960; the second one on the 59 socioeconomic and politico-demographic variables for 80 urban communes in 1960, and lastly on the traffic and transportation variables for 94 urban places in 1952-1962. In all of these studies, size, socioeconomic status, and demographic structure were very important variances.

In the non-Western world, Fisher, using 1961 data (55 urban centers x 26 variables), identified the difference between the "developed" and the "undeveloped" regions of Yugoslavia.² Component factor analysis has been made of Korean business centers by Pitts in which he identified 5 factors, namely, light manufacture and wholesaling, agricultural servicing, supplying for primary enterprises, and a primary processing and craft factor.³ In the Indian study (102 cities x 62 variables), Ahmad identified 10 components which accounted for 72.5 percent of the variance group broadly in size, recent change, economic specialization,

¹Brian J. L. Berry, "Relationship Between Regional Economic Development and the Urban Systems: The Case of Chile," Tijdschrift voor Economische en Sociale Geografie, LX (1969), 283-307.

²Jack C. Fisher, Yugoslavia: A Multinational State (San Francisco, Calif.: Chandler Publishing Company, 1966).

³Forrest R. Pitts, "Korean Business Centers Study," a technical report to the Western Management Science Institute, University of California, Los Angeles, December 31, 1963. (Mimeographed.)

and regional difference.¹ The only two studies done on urban systems in Africa prior to our Kenya study were the analysis of Nigeria urban systems by Mabogunje² and Ghana's urban systems by McNulty.³ Mabogunje's factor analysis of Nigerian towns identified seven components (urban-economic function, regional factor, demographic Ibo, male dominance, female urban employment, and minority) which accounted for the 84.3 percent of the variance. McNulty also identified four components which accounted for 72.7 percent of the variance where he identified age structures and sex ratio, among others.

Characteristics of Post-Colonial Urbanization

In all these studies, despite socio-cultural differences, it is apparent that the components of size, demographic characteristics, economic specialties, racial or ethnic variations, and rural-urban (migration) orientations seem to be the order of the final factor scores. Based on the Western and non-Western studies, the following generalization emerges as a characteristic of the Kenyan urbanization. The first important factor here is size or hierarchy.

¹ Ahmad, Indian Cities: Characteristics and Correlates; and cf. V. L. S. Prakasa Rao, "Rational Groupings of the Districts of Madras State," Indian Geographical Journal, XXVIII (1969), 33-43.

² Mabogunje, Urbanization of Nigeria, pp. 137-71.

³ McNulty, "Urban Structure and Development: The Urban Systems of Ghana."

Kenya urban centers are organized into a hierarchy of centers based on aggregate economic power. This functional phenomenon has been shown in the factorial studies reviewed above. The hierarchy factor not only emerges as a component one, but is also common in the other six components. The Kenya urban centers are characterized with greater accessibility than other central places in the periodic market sub-systems in the country. All the social amenities are found in the urban areas and as a result they play more mediating roles than is generally acknowledged.

The second characteristic of Kenya urban sub-systems is the growing tendency of the African population to play more (components VI and VII) urban roles than foreign immigrants. This point is in terms of national urbanization and should increase in the future as more and more non-citizens are restricted from commercial and socio-cultural participation. These urbanization adjustments have taken many variations but, in general, it can be said that the urban centers have been "nationalized," hence the ever growing close link between the urban place sub-system and the market-place sub-system as will be explained in the subsequent chapters of this dissertation.

Third, there are considerable readjustments of Kenya urban centers which are particularly reflected in their demographic structure (age structure, social status and urban economic base, labor stabilization, and ethnic-urban residence). There is a general predominance of the

age group 15 to 49 in all urban centers with the relative unimportance of the children (0 to 14 years) and the aged (50 years and over).

Fourth, there is some cultural difference in the regional makeup of the urban centers. Since Kenya is a culturally heterogeneous society, there is a predominance of cultural groups that are clustered in periodic or urban centers. This is particularly true in the Coastal, Central Highlands, and Western Regions. This ethnic cluster is common among all Kenya urban centers and should be characteristic of a country undergoing the process of urbanization.

Fifth, the role of women is still very poor despite increased female migration during the national period. But this situation is expected to improve within the next decade.

Sixth, the role played by non-Kenyans and/or non-Africans in the urban centers is diminishing compared to the pre-independent era. Most of these non-Africans and Kenyans are predominantly adult males.

Seventh, urban centers in Kenya are predominantly places where industries and other social amenities are concentrated with the result that they are the final destination of rural-to-urban migrants. Most of the migrants originate in the Western Region and the Masai-Northern Frontier Region with their major destination to the industrial towns of the Central Highlands Region and in very few cases the

resort towns of the Coastal Region. And finally, like the Yugoslavian, Chilean, and West African studies reviewed above, modernism versus traditionalism has been expressed spatially in Kenya. This difference between the national core of the heartland (the Central Highlands Region) versus the periphery or hinterland (the other regions of Kenya) has been analyzed throughout this study. This unbalanced urbanization is still prevalent in Kenya and might remain so for many years to come.

The Kenya urban centers form a system since they clearly manifest a hierarchical arrangement with very strong interdependence and interaction. This pattern of interdependence is strengthened by a well-developed transport network, especially the railway, the road, telecommunications, and other modes of communication.

The main conclusions we can draw from these chapters is that the urban system is hierarchy organized based mainly on the colonial capital (Nairobi) and other provincial capitals. The central places of the urban-place system are closely intercorrelated and are not effectively linked with the market-place system. The urbanization benefits are mainly concentrated in the Central Highlands of Kenya because this region received the initial impetus of urbanization. This close relationship of the central places of the urban-place sub-system is also confirmed by the results of the component factor analysis. The comparisons of the studies done in both Western and non-Western

countries also confirmed the same conclusion arrived at in this study. Kenya's urban-place sub-system is linked more to the metropolitan countries than to Kenya itself although this situation is changing with the Africanization of the urban economic base.

CHAPTER V

TEMPORAL PERIODICITY AND LOCATIONAL SPACING
OF PERIODIC AND DAILY MARKETSIntroduction

In this chapter we will concentrate on the present locational spacing, structure, and hierarchy (size) of periodic and daily markets in Kenya.¹ Such an analysis is necessary because we believe that no adequate study of urbanization and planning in underdeveloped countries can be done without a proper understanding of the development of the central places of the market-place sub-system. This study of the market-place sub-system is particularly important in the former "marketless societies."² It will be important to understand how the interdependence and interaction of all the central places in the urban-place and market-place sub-systems interrelate with one another.

Periodic markets play a very important role in the

¹According to the official records there are over 984 rural markets while there are over 100 daily markets. Most of the periodic markets are concentrated on the densely settled part of the country, especially in the Western Region, Central Highlands Region, and parts of the Coastal Region.

²Cf. Good, Market Development in Traditional Marketless Societies.

internal trading processes of developing countries. These are places where people meet regularly in order to acquire and/or dispose of the locally produced and imported goods and services, and to exchange socio-cultural information. Periodic markets in a developing country, according to Eighmy, perform several spatial functions:

The first of these, market function, includes the local exchange, internal trade and central facets of market activity. The second element, form, must account for the existing pattern of market sites on the landscape including the periodicity factor and the formation of interlocking market rings. The interaction, the movement of goods and traders, will appear as a correlate of market function and form. Finally, drawing upon observed generalizations of function, form and interaction, one can make inferences about the process by which the periodic market system has been spatially extended to new sites and how the system has evolved in response to exogenous forces. . . .¹

In order to perform these spatial functions, the markets are held in the open (or closed structure for some urban daily markets) at predetermined or specific sites according to a set of temporal schedules: on every second, third, or n th day, where n rarely is greater than seven. Otherwise these market sites are deserted during the week. According to Wood:

As a direct result of European influence, all markets in Kenya work to a schedule based on the seven-day week. The frequency of market meetings varies from market to market. 49% of the markets meet weekly, 37% meet twice weekly, 9% meet daily and 5% three times weekly. No markets meet six times per week, one market meets four times per week and one market meets five times per week. This gives a total of 1974 market meetings per week. The distribution pattern and

¹Eighmy, "Rural Periodic Markets and the Extension of an Urban System," pp. 304-5.

periodicities of these markets have arisen gradually as a result of a multitude of independent decisions made within a common framework by numerous local government bodies over the past forty-five years.¹

In each ethnic area one or more sites are reserved as market places and are usually named according to the day of the week on which the market is held. The marketing schedule based on the weekly calendar is common to all regions of Africa. According to Smith,

seven day markets . . . have by far the widest distribution. This market week dominates the upper two-thirds of Nigeria . . . lower half of Ghana Songhai area to the North of Ghana, Gouro, Senoufo and Minianka country in Ivory Coast, the Kissi and Susu in Guinea, and the Wolof in Senegal . . . Liberia Malinke area in Western . . . [and] the Congo basin of South of the Cameroon.²

The seven-week schedule is just one of the many schedules, the other ones being fortnightly, monthly, and yearly, although the latter is now very rare.

The Development of Periodic Markets

In our analysis of the unpublished records on Kenya from KNA, we concluded that although there were a few contact periodic markets, the majority of the present-day markets were established in response to the penetration of the interior by alien traders. The pre-colonial periodic markets varied from ethnic group to ethnic group. The Nilotes and the Nilo-Hamites of the Western Region are known to

¹Wood, "The Temporal Efficiency of the Rural Markets Systems in Kenya," p. 65.

²Smith, "West African Market Places," p. 324.

have established some pre-contact periodic markets.¹ Early travelers in the Central Province of Kenya recorded the presence of four-day markets which were the focal points for internal exchange.² These markets were particularly very important during the harvest period as distribution nodes. The spatial influence of these early periodic markets remained at the ethnic level in all the inland areas except for the Kamba and Swahili traders who expanded the periodic market trade beyond their ethnic environment.³ The colonization of Kenya during the latter part of the nineteenth century transformed the indigenous economic development from barter exchange to some form of modern exchange economy. Except for these few periodic markets, Kenya, like other parts of inland East, Central, and South Africa, was essentially a "marketless region." But this does not mean that no markets existed at all. According to Fearn, for example,

. . . in Nyanza [the present Western Region], as in other parts of Africa, the system of mutual kinship obligations had, however, minimized the need for the market. If an individual was faced with disaster, he

¹A. Butt, The Nilotes of the Anglo-Egyptian Sudan and Uganda, Ethnographic Survey of Africa (London: International African Institute, 1952).

²John Middleton and Greet Kershaw, The Kikuyu and Kamba of Kenya, Ethnographic Survey of Africa (London: International African Institute, 1965), pp. 19-20; and Taylor, "The Internal Trade of Fort Hall District, Kenya," pp. 111-22.

³Cf. D. A. Low, "The Northern Interior, 1840-1884," in History of East Africa, ed. by Roland Oliver and Gervase Mathew, I (Oxford: Clarendon Press, 1963), 137.

could rely upon the assistance of members of his own kinship group and this gave a sense of security. Furthermore, consumer needs were very small, primarily for food and shelter [but] limited though the consumer needs of the community were . . . there were none the less some local markets and trade at the time of British contact.¹

The majority of these markets consisted of only intermittent and limited external trade with the people of adjacent

ethnic groups. As a matter of fact, some of the most important periodic markets were between the neighboring ethnic groups such as the Abagusii, Watende, Masai, Luo, Luhya, and the Nandi. Fearn, in another study, noted that

there has always been trading. Transactions could be safely carried out at the markets. Even during tribal warfare, a truce would be organized to enable the women folk to go to the market, the opposing warriors remaining at a distance at either side of the market. There would be mainly a bartering of foodstuffs and also there would be exchange of cattle in the payment of brideprice. The elders controlled the market and extracted dues.²

Most of these early markets were not spatially fixed, although some periodic markets took place under a specified tree. Traditional markets in Kenya and Africa, for that matter, ". . . received their original stimulus from external, long distance trading contracts [in addition to] a sufficiently high density of population and a political structure powerful enough to secure and maintain the

¹Hugh Fearn, An African Economy? A Study of the Economic Development of Nyanza Province of Kenya, 1903-1953 (London: Oxford University Press, 1961), p. 17.

²Hugh Fearn, "The Problems of African Traders" (Kampala: East Africa, Institute of Social Research Conference Papers, 1955), p. 29.

market place."¹

The importance of markets in Kenya was increased after the colonial domination of this area in the early part of this century. There were a number of markets managed by various types of authorities ranging from missionaries to local governments. Most of the markets were introduced by the colonial government after they saw the success of traditional trading activities that existed among different ethnic groups. The majority of the markets were established by the colonial powers as a result of the establishment of law and order, taxation, introduction of cash economy, and the development of communication patterns that had been established among the ethnic groups. The expatriate initiated periodic markets in Kenya increased as a result of a new Township Ordinance of 1930 which empowered the Governor of Kenya to locate towns, trading centers, and barter or periodic markets. The majority of the periodic markets; however, were built and gazetted between 1932 and 1936 as a result of the enactment of the Trading Center Ordinance of 1932.²

It is important to remember that in most cases the markets were sited next to but not on the same area as trading centers. The government coordinated and staggered

¹Hodder, "Some Comments on the Origins of Traditional Markets in Africa, South of Sahara," p. 104.

²See the Provincial Annual Reports from the PC's to the Governor in 1933 (Nairobi: KNA, 1933).

the market days such that markets near one another were not allowed to meet on the same day. These markets were also spaced such that any itinerant peddler would be able to attend markets each day of the week within walking distance. The spatial organization of markets was formalized in 1946 when the administration of the period markets was taken over by the local government.¹ But over the years the staggering of markets has been due to spatial and temporal competition. Although the meeting days of these markets were staggered by the government, the actual market days have been guided by the forces of supply and demand which determined the actual mode and locale of operation. As was noted by Marshall in the case of Nigeria, it was ". . . the economics of location rather than the Council [mediator] who operated as the final arbiter with many conflicting markets dying off."² Examples of places where markets have failed to develop in Kenya despite the government sanction are too numerous to enumerate here. This policy integrated timing of markets is an expression of the colonial tradition of having numerous bartering centers where raw materials were gathered for overseas export. All trading centers and the periodic markets in the rural areas were

¹LeVine, "Wealth and Power in Gusiiland," in Markets in Africa, ed. by Paul Bohannan and George Dalton (Evanston, Ill.: Northwestern University Press, 1962), pp. 520-36.

²Gloria Marshall, "Women Trade and the Yoruba Family" (unpublished Ph.D. thesis, Columbia University, 1964), p. 129.

located in separate areas according to the ADC (African District Council) Ordinance which emphasized that all townships belonged to the central government, the trading centers belonged to the local government, the periodic markets were left to the Locational Authority.¹ By the early 1950's, most of the periodic markets were already established in various parts of the region by the central or local government. The Africans controlled and dominated the rural periodic markets. The expansion of the periodic markets continued such that by 1954 there were a number of periodic markets in various parts of the country (Table 5:1 shows an example from Nyanza Province). All the periodic markets were categorized into three hierarchies as shown in the example from Central Kavirondo District, Nyanza Province (Table 5:2).

Between the two world wars, the ownership of dukas within the periodic markets, local, and sub-local centers had begun to be gradually taken from the Asians by African entrepreneurs.

Between the two world wars, African shopkeepers had begun to set up business around the rural markets. Butcheries and tearooms served the crowds who gathered on market days. As the time went by, grass shelters were rebuilt in brick or stone, provision stores appeared and business extended from market days throughout the week. The first local bus began to link country districts, defining the centers of trade. . . .²

¹Cf. Provincial Commissioner (PC), Nyanza Province, Annual Report (AR) (Nairobi: KNA, 1936), p. 116.

²Peter Morris and Anthony Somerset, The African Entrepreneurship and Development in Kenya (New York: Praeger, 1968), p. 9.

TABLE 5:1
 GEOGRAPHICAL DISTRIBUTION OF AFRICAN DISTRICT
 COUNCIL (ADC) PERIODIC MARKETS IN WESTERN
 REGION AS OF DECEMBER 31, 1954

District	Number of ADC ^a markets	Area of the district in sq. mi.	Average market area in sq. mi.	Total African population (1948)	Average number of people per ADC market
North Nyanza	133	2,442	18.36	633,568	4,764
Central Nyanza	173	1,746	10.09	462,772	2,675
South Nyanza	175	3,002	17.15	545,284	3,116
Kericho	46	989	21.50	212,608	4,622
Total	527	8,179	15.52	1,854,232	3,518

^aADC = African District Council, the legislative branch of the District.

Source: Based on data from Hugh Fearn, An African Economy: A Study of the Economic Development of the Nyanza Province of Kenya, 1903-1953 (London: Oxford University Press, 1961), pp. 175-76.

TABLE 5:2

THE DISTRIBUTION OF PERIODIC MARKETS IN
CENTRAL KAVIRONDO, WESTERN REGION, 1959

Location	Official classification			Shopping or duka center	Not planned	Total number of markets
	A	B	C			
Alego	5	4	7	1	13	30
Asembo	2	3	-	1	1	7
Gem	4	9	6	1	-	20
Kajulu	1	1	1	-	1	4
East Kano ^a	5	2	2	1	1	11
West Kano	2	2	6	1	-	11
Nyakach ^b	4	2	1	2	1	10
Kisumu Loc. ^c	4	2	4	1	3	14
Sakwa	3	5	1	2	-	11
Samia	3	6	3	-	8	20
Seme	4	5	2	-	3	14
North Ugenya	6	2	3	-	2	13
South Ugenya	2	-	2	1	-	5
Uyoma	1	3	1	-	2	7
Yimbo	3	-	-	1	2	6
Total	49	46	39	12	37	183

^aIncludes Ahero Market which had an auction area.

^bIncludes Sondu, a border market serving central Nyanza and Kericho Districts.

^cIncludes Kiboswa, a border market serving central Nyanza and North Nyanza.

Source: District Commissioner, Central Kavirondo, Annual Report (Nairobi: Kenya National Archives, 1956), p. 21.

Between 1970-1973, according to the government scheme of the Africanization of the commercial sector, all non-Kenyans were restricted from owning businesses except in a few major urban centers. While the periodic markets were expanding at an alarming rate, the development of major urban centers also increased in importance. This, then, was a marked step forward in linkage of the market system with the non-African cash economy.

Structure and Function of Periodic Markets

The markets in Kenya can be broadly classified as daily markets and periodic markets. The daily markets can be further categorized into the following main types: (a) covered urban daily markets found only in the major urban centers, (b) bi-daily lacustrine open markets around Lake Victoria and the Coastal parts of Kenya, and (c) rural open daily markets, while the periodic markets can be classified into (a) twice-a-week or cattle open-air markets, (b) weekly open-air markets, and (c) forestaller or seasonal markets.¹ Periodic markets must be viewed as an ethnic organization pattern that runs through the clan hierarchy into the village or Miruka level. This lower level central-place sub-system, then, forms the core of the daily livelihood of the Kenya Africans both in urban and rural areas.

¹Obudho, "The Central Places in Nyanza Province, Kenya," pp. 81-84.

Functions

The periodic markets play a more important role among the majority of the rural population of the African country than do the towns of the urban-place sub-system. According to Good, periodic markets perform the following primary functions: ". . . (a) the sale and purchase of livestock, local and imported manufacture, . . . (b) provision of services such as cooked meals, barbering, and repair of bicycles, watches and shoes and (c) intercommunity socializing."¹ Most of these functions are performed more by the rural periodic markets than by the urban daily markets where most of such services have been taken by specialized wholesales and retail entrepreneurs. The degree of functions which any market-place sub-system provides depends on its relative location, frequency of meeting, the size of the hinterland it commands, and the nature of economic development of the country. The temporal spacing of market meetings in Kenya is based on the purchasing ability, production habits, consumption of rural residents, and the underdeveloped transport facilities.

The periodic and daily markets in Kenya play very important functions.² In general, these are the places

¹ Good, Market Development in Traditional Marketless Societies, p. 3.

² The author reached the same conclusions in a recent study of Western Kenya. See Robert A. Obudho, "Urbanization and Regional Planning in Western Kenya" (paper presented at the African Studies Association, 15th Annual Meeting, Philadelphia, Pennsylvania, November 8-11, 1972).

where people meet regularly in order to acquire and/or dispose of the locally produced and imported goods and services, to exchange "news" (gossip) with relatives, friends and strangers, and to engage in recreational activities. The older men come to market for recreation and to buy and sell cattle. Women came to sell the raw materials in order to get some money for purchasing "shop goods" such as soap and paraffin. For young, especially children, the market is an exciting place where they can play and meet other agemates from other clans. Like Yorubaland, markets in Kenya ". . . fulfill an important social function for . . . women [who] use the market as a meeting place for the perpetration of lineage rights and obligations."¹ This is so because the household structure in Kenya is patrilocal and women at home are not around their agemates. The most important function of periodic markets is the economic function--the collecting, bulking, and distribution of local products. The distribution of imported products and the bulking and/or breaking down of raw materials are also very important. Hodder summarized the functional difference of periodic and daily markets well when he said that

periodic markets are in the regions most characteristic of good surplus areas while daily markets are most characteristic of food deficit areas; in other words, periodism in marketing may perhaps be equated with the dominant interest in selling rather than buying, a feature which is associated to some extent with the processes of "bulking up" rather than "breaking down" of

¹B. W. Hodder, "Distribution of Markets in Yorubaland," Scottish Geographical Magazine, No. 1 (April, 1965), p. 51.

commodities. . . . The daily markets in a town are more of a service unit . . . whereas the chief function of the periodic markets is the injection of locally produced goods into the distributive network.¹

The markets also act as distributive points for goods imported from other parts of Kenya and overseas.² Thus, raw materials are bought and bulked in the periodic markets for either exchange in other markets in the same ring or for onward transmission to higher areas. The imported manufactured materials are also brought into the periodic markets through the same hierarchical order except in reverse. The main function of daily markets, which in Kenya are exclusively located in the urban areas, is to assemble within each township or municipality the various commodities, mainly raw materials of the perishable type, required by the urban residents. While in periodic markets most of the raw materials are of local origin, the daily markets have products which are from the whole region, other parts of Kenya, and overseas. The bi-daily markets in the fishing ports of the Western and Coastal Regions seem to depart from the normal trend and contain most of the raw materials from the local composite hinterland. Daily markets serve

¹ B. W. Hodder, "Markets in Yorubaland," in Markets in West Africa, ed. by B. W. Hodder and U. I. Ukwu (Ibadan: Ibadan University Press, 1969), p. 86.

² Cf. Paul L. Bohannon, "Tiv Markets," Transaction of New York Academy of Science (Ser. II), XIX (1962), 613-21; J. B. Christensen, "Marketing and Exchange in a Western African Tribe," Southwestern Journal of Anthropology, IV, No. 2 (1962), 124-39; and B. W. Hodder, "Periodic and Daily Markets in West Africa," pp. 347-58.

the needs of urban residents, and retailing is just as important as wholesaling, which is a common feature of the periodic markets. For example, Jubilee Market, the largest daily market in the Western Region, serves the needs of not only Kisumu urban center residents but also of all the central places within the immediate hinterland of Kisumu. Its influence extends over most of the Western Region. The wide threshold of the daily market at Jubilee Market exists because of the presence of high population density and all the peri-urban-daily and periodic markets, which act also as second-order bulking points.

In addition to these economic functions, the periodic markets in Kenya perform very important political functions. The markets are used as centers for the dissemination of information relating to local and central government administration. During market day, all local residents go to the market in order to buy produce, as well as to meet government officials with the hope of exchanging current social information. The chief's and sub-chief's barazas¹ meet on the market days for the marketing people and as a means of pushing their activities to a wider audience.

Markets are also important as religious centers where various sects can meet for the sole purpose of

¹Baraza is a meeting of elders of the locational or sub-locational councils.

propagation of the gospel. With the establishment of churches during the colonial era, this function has diminished over the years.

The pre-contact periodic markets in Kenya, like some other markets among certain African societies such as the Tiv of Northern Nigeria, the Konkomba of Ghana, and the Konso of Ethiopia,¹ take their names from either the day of the week in which they meet or from the market region where they are located. Thus, one of the major functions of periodic and to some extent daily markets is that they provide a time reference for the community using a ring of markets. The functions enumerated above are not in any way complete since various markets in the country perform different functions which vary historically and geographically. Apart from their economic socio-cultural, religious, and political significance, markets are also effective meeting places for the urban and rural cultures. According to Hodder,

... conscious imitation [of] many urban fashions are copied by the villagers from the frequent contact with townspeople who regularly attend the rural markets and mix with the people. In this sense, then, rural markets play a significant role in bringing social change to the dwellers in rural areas.²

It is this function which is so important that we feel strongly that the urbanization process of dual economics

¹See Paul J. Bohannon and George Dalton, eds., Markets in Africa (Evanston, Ill.: Northwestern University Press, 1962).

²Hodder and Ukwu, Markets in West Africa, p. 53.

can only be transformed at the periodic market level.

Markets in Africa may be seen as fulfilling four economic, socio-cultural, and political functions in terms of the general population: (a) they act as a specialized economic institution where raw materials may be sold for cash and various "shop goods" may be purchased, (b) the markets gratify the desires of all Africans because this is where they interact with the sophisticated commercial atmosphere of the urban-place sub-system, (c) they are also the meeting places where various ethnic groups may gather and heterosexual liaison may be established without ethnic interaction of hostility, and (d) the government also uses these centers as places where new innovations are introduced. The market centers are the point of contact between the traditional ways of life and the urban-based modern economy.

Besides cattle, the following are some of the commodities traded in Kenya markets. Foodstuffs such as cassava, maize, flour, rice, beans, groundnuts, bananas, green vegetables, fruits, poultry, and imported foodstuffs such as manufactured and semi-manufactured materials are very popular. The imported materials find their way from the large urban daily markets to the ultimate consumers, while the raw materials are chiefly gathered at the once-a-week markets for transshipment to the daily markets in the major urban sub-system centers in the urban place.

Except for the very minor seasonal periodic markets,

most of the present markets are well organized and spatially fixed. In order to illustrate from a typical internal structure of a market in the region, we will quote extensively from Fearn, who, in a recent study, described the internal structure of ADC markets. Accordingly, they

. . . have the "bartering area" as the central feature. These are fenced-in areas with an entrance at which ADC market masters and clerks sit and collect dues from the African men and women who bring goods for sale. The bartering which goes on is not . . . the exchange of goods. In the "bartering" areas of the ADC markets the transactions are in cash. . . . The bartering area has an important function with regard to the trade of the African dukas built around the bartering area. The bartering area has been the main attraction, for it has social as well as an economic importance. Each market day, men, women and children bring their goods and spend a greater part of the day at the market.¹

The internal structures of these trading centers and periodic markets vary from region to region and depend mainly on the type of economic social and politico-cultural functions they have performed over the years.

Periodic Markets

Periodic markets, according to Eighmy, "perform three important economic functions simultaneously: local exchange, internal trade and central place function."² In this thesis, we will concern ourselves with all these activities. Most of the periodic markets take place in Kenya once per a seven-day week or multiples thereof.

¹Fearn, An African Economy, pp. 179-80.

²Eighmy, "Rural Periodic Markets and the Extension of an Urban System," p. 299.

There are also fortnightly or monthly markets, but these are very rare. The markets are named after the days of the week on which they meet. For example, weekly markets would meet on Mondays only while twice-a-week markets meet either on Mondays and Thursdays, Tuesdays and Fridays, or Wednesdays and Saturdays. The most common and popular periodic rural markets are the once-a-week markets. As a market grows in importance in terms of the business transacted and the number of people attending, its schedule will change to twice a week by necessity of business activity. The periodicity is an essential element of the local indigenous market structure in the agrarian economy such as Kenya. Most of the periodic markets in this region are located next to the trading centers which initially have low population densities. But as the urban economies expand, they tend to have higher population densities. The most important market in rural areas is the weekly market. Although the occasional markets are the lowest, they are not as important and they only act as a signal of a need for markets in a particular area. As the economy develops, the periodic markets develop into daily markets.¹ The

¹The increases of marketing scheduling in Kenya from weekly to twice or thrice weekly to daily is due to increase of population, improved means of transportation, improved local demand for consumer products, and occupation specialization; and general urbanization (modernization) processes will tend to change the scheduling of periodic markets to daily. In the case of Ankole, Uganda, Good argues that the change from periodic to daily is due to "response to population growth (and increases in cattle density) and/or perhaps but less likely a decline in local

dominant economic function of periodic markets is the collection, bulking, and distribution of local food products which are mainly raw materials. The secondary, though still important, economic function of periodic markets is as distributing points of imported goods from other parts of Kenya and from abroad.

In Kenya there is a significant difference at the national level of the number of market days. In general, most of the periodic rural markets are distributed evenly between all days of the week except Sundays or Saturdays. According to Wood, the only three districts where market meetings are not evenly divided among the seven days are Nakuru, Nyandarua, and Kisii.

In Kisii there is an avoidance of market meetings on Saturday but there is also a concentration of meetings on Thursday and Sunday. The evidence of Saturday is related to religion. Kisii is the Kenyan stronghold of the Seventh Day Adventist Church which regards Saturday as the day of rest. It is likely that the official market meetings in Kisii do not accurately reflect the actual frequency of market meetings because of the considerable use of markets in this district on unofficial days. However, it is possible that, because of the officially uneven temporal supply of markets, the population has a need to use the markets on unofficial market days, i.e. the unofficial use of market places may be an adjustment to the inefficient temporal provision of markets. . . . Nyandarua and Nakuru both have

household self-sufficiency." See Good, Rural Markets and Trade in East Africa, p. 49. In the case of China, Skinner argued that population increases and/or declining average self-sufficiency will stimulate any of these reactions: (a) an increase in the size (population and trade volume of markets), (b) an increase in the number of market days per time unit, (c) an increase in the number of markets. See Skinner, "Marketing and Social Structure in Rural China," Part II, pp. 208-9.

an overconcentration of market meetings on Sunday and Wednesday. Both these districts formed part of the former White Highlands and it is likely that the importance of Sunday as a market day reflects the fact that this was the only free day for laborers on the European farms. If an extra day was later inserted into the weekly schedule of market meetings, then either Wednesday or Thursday would have been the obvious choice of market days.¹

Sunday or Saturday meetings are only common among the rural periodic markets, but not among daily markets.

Daily Markets

In Kenya the daily markets are classified into (a) urban daily markets, (b) rural daily markets, and (c) bi-daily coastal or lacustrine fishing markets. Daily markets here meet mainly on Mondays through Thursdays, although there is a variation in various parts of the country. All these markets differ in their functions, depending on the area where they are located. The development of the bi-daily markets always leads to the establishment of fixed trading facilities. In the major urban centers within the urban-place sub-system, there are the covered urban daily markets, while in the trading centers with the market-place sub-system including some lacustrine fishing ports, they have the bi-daily open markets. The daily markets are generally continuous and usually last from 7:00 a.m. to 8:00 p.m. The urban daily market in Kisumu town, for example, is full all the time. The ones

¹Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," p. 67.

at the third-order town level, although continuous, usually have one important day when they are full. For example, in Kisii town in the Western Region, the most important market day is on Thursday when people travel from all corners of Abagusii District and from adjacent areas of the Western Region in order to attend this market.¹ The lacustrine ports of the Western Region such as Karungu, Homa Bay, Kendu Bay, Mohuru, Asembo Bay, and Sio Port have bi-daily markets whose daily meeting times are early in the mornings and late in the afternoons. This is also true of the port markets in the Coastal Region. These morning and evening markets are occurring only in the lacustrine ports and some parts of the country with a concentrated settlement.

According to Hodder, ". . . one of the most striking features about daily markets, unlike periodic markets, [is that] they show a clear correlation in their location with the distribution and hierarchy of settlements. In brief, the larger the town the more numerous and larger daily markets it is likely to contain."² The spatial distribution of major and minor trading centers also shows a strong correlation with the distribution and hierarchy of daily markets. Because the development of these daily markets is not as clear as it may seem from the above discussion, there is always a possibility of a mixture of two types of markets

¹LeVine, "Wealth and Power in Gusiland," p. 529.

²Hodder, "Markets in Yorubaland," p. 68.

operating in one central place.

It should be emphasized that in discussing the periodicity of markets, the exchange attributes exhibit either vertical or horizontal orientation (Table 5:3). Vertical trade is usually dominated by local traders, contract traders, and long-distance traders, while horizontal exchange is dominated by local or sub-ethnic traders, former settlers, and itinerant traders. In most cases the vertical and horizontal traders are combined equally without any of them dominating the scene. The market periodicity in Kenya's landscape is closely related to the time required by each type of trader to purchase, distribute, and return to the bulking market. This repetition of period and daily markets is as a result of a number of factors of which the most important are the underdeveloped nature and lack of refrigerated storage facilities and underdeveloped methods of transportation facilities in the country.

Market Ring--A Case Study of Western Region,
Waware Sublocation

In discussing the spatial distribution of periodic markets in Kenya, it is important to analyze their distribution pattern which is based on a seven-day cycle or ring (tie) system. The ring system, according to Hodder, is

. . . a complete and integrated sequence of markets taking over 4-day or 8-day periods. . . . Markets operate on successive days in such a way that each of the seven 8-day markets take place on a day on which it is the only one of the seven operating

TABLE 5:3
HIERARCHY OF CENTRAL PLACES IN MARKET-PLACE SUB-SYSTEM, KENYA

Market types	Periodicity schedule	Central function	Exchange orientation	Hierarchical level	Official market level	Examples of markets
Metropolitan urban daily market	Daily	Wholesale and retail emergency items	Vertical with few horizontal activities	A	1	Jubilee market at Kisumu
Urban daily district markets	Daily with an important market day weekly	Wholesale and retail emergency items	Vertical	A	2	Kisii town market
Bi-daily open lacustrine or central markets	Daily with early and late evening maxima	Retail and incipient bulking	Vertical	A or B	3	Fish market at Homa Bay
Rural daily markets	Daily	Retail and bulking	Vertical with incipient bulking	B or C	4	Sare market
Cattle markets	Twice or thrice a week	Retail and wholesale and bulking	Horizontal and vertical	B or C	5	Ochuna cattle market
Weekly markets	Weekly	Retail and bulking	Horizontal and vertical	B or C	6	Mariwa market
Village or roadside markets	Occasionally	Retail emergency	Horizontal	C	7	Rinya market

within the ring. After all markets have had their turn, there is one marketless day, after which the process is repeated in the same order. . . . This ring also operates in such a way that successive markets are not normally adjacent markets. . . . In this way the timing of marketing activities is evened out over the whole ring, so that no hamlet or other settlement is far from a market for more than three days. This integrated timing and pattern of markets is most logical and convenient. It is a wholly indigenous phenomenon, expressing an intelligent mutual self-interest among neighboring village chiefs. . . . A ring or cycle of integrated markets is an expression of the need to contact a wider and more varied section of people and goods than is possible when only one market is involved.¹

The organization of markets in a ring system has been criticized by Marshall² as "relative entities rather than absolute ones. . . ." Even Ukwu recently warned that

the concept of the marketing ring must be applied with caution, since it suggests an institutionalized order and a uniformity which may not exist. A marketing ring has relevance only to the individual marketers in a given area. For the areal unit as a whole, the ring is meaningful only as indicating the markets most frequently visited by the people in that unit.³

Because periodic markets are organized at sub-ethnic levels, the ring systems of markets exist at various levels in Africa. Markets can belong to several overlapping and interlocking cycles simultaneously, resulting in what

¹Hodder, "Markets in Yorubaland," p. 66. See also B. W. Hodder, "Rural Periodic Day Markets in a Part of Yorubaland," Transactions, Institute of British Geographers, XXIX (1961), 149-59.

²Marshall, "Women Trade and the Yoruba Family," p. 111.

³U. I. Ukwu, "Markets in Iboland," in Markets in West Africa: Studies of Markets and Trade Among the Yoruba and Ibo, ed. by B. W. Hodder and U. I. Ukwu (Ibadan: Ibadan University Press, 1969), p. 159.

Hodder has described aptly as "a loose chain mail pattern of rings."¹

In the Western Region, like other parts of Kenya, the markets are organized in a ring system as shown in the case of Sare, Waware sub-location, South Nyanza (Figure 5:1). Each of the rings are composed of a complete and intertwined sequence of markets taking place over a seven-day-week period. By concentrating the markets into rings, it is possible to contact more and varied sections of people and also different products both in time and in space because the cost of overcoming distance is high and profit margins are low.²

Sare's seven markets take place as follows: Sare market meets twice a week on Mondays and Thursdays, Ochuna market meets on Tuesdays, Mariwa on Wednesdays, on Thursdays there are markets at both Sare and Maroo,³ Fridays there is a market at Rapogi, and finally on Sundays there is a market at Uriri. Except for Get, which is a new market, most of the above-mentioned markets have fixed trading

¹Hodder, "Distribution of Markets in Yorubaland," pp. 48-58.

²As Stine phrases it, "The consumer, by submitting to the discipline of time, is able to free himself from the discipline of space." Stine, "Temporal Aspects of Tertiary Production Elements in Korea," p. 70.

³Note that Maroo being on the Luo-Abagusii boundary is on a different ring system and Oyani being on the Luo-Masai boundary also belongs to a different tie system. Because of this, there are smaller markets that meet on these days at Ngonga and Rinya, respectively.

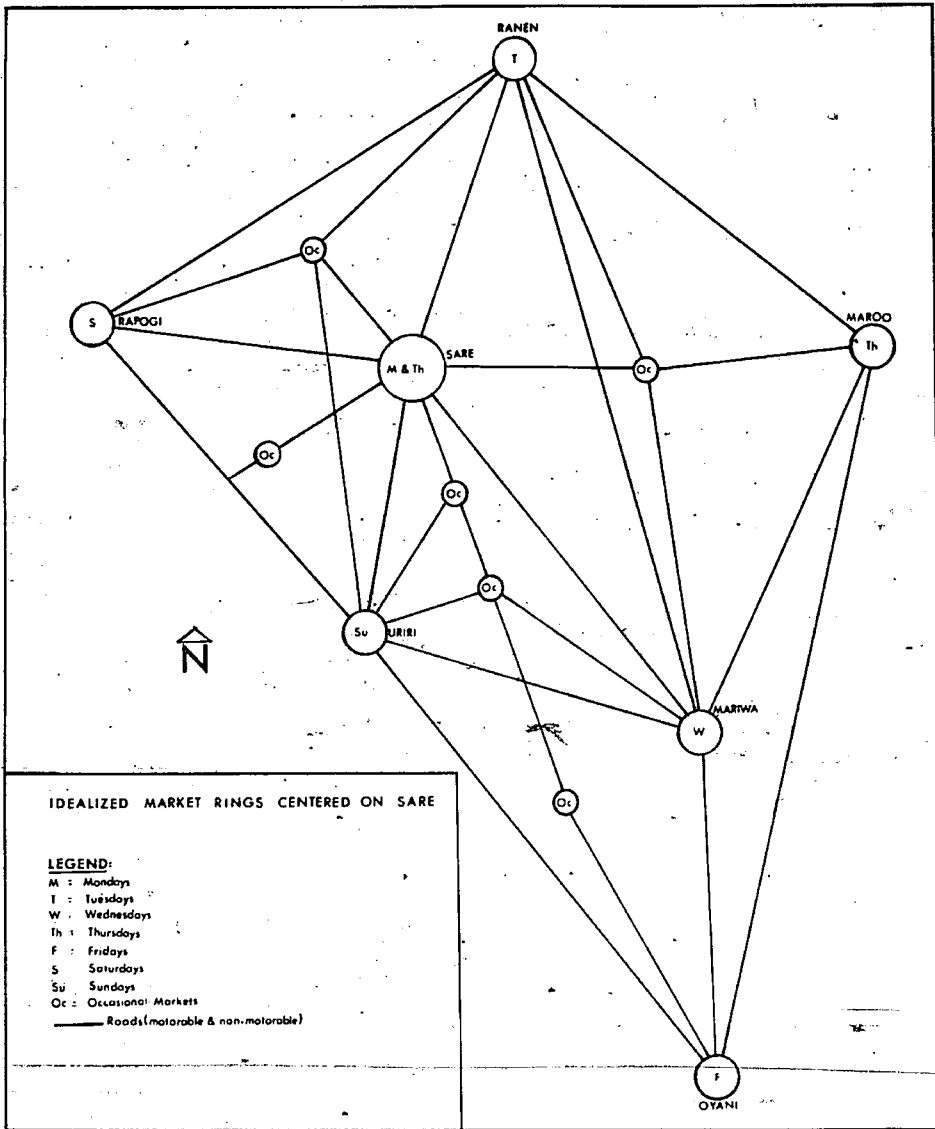


Fig. 5:1--The idealized market rings centered on Sare, Kenya.

Source: Based on data from Ministry of Settlement, Department of Urban Planning, Nyanza Physical Plan (Nairobi: Government Printer, 1970).

outlets such as dukas, hoteli (lunch counters), and associated facilities. This integrated pattern and timing of markets in the Sare ring is characteristic of Kenya periodic markets. Such a ring system constitutes a large daily movement of people and goods. Unlike West Africa where women dominate most of the market activities, in Kenya the market activities are dominated equally by men and women.

In Kenya it is possible to distinguish four types of rings. These four types will vary from ethnic group to ethnic group since these markets are ethnic oriented:

These types include

1. Village grouping
2. Clan or sub-location ring
3. Ethnic group ring
4. Regional area ring

The village and clan rings form the lowest level of marketing and are the least popular type because of their declining function. The most popular ring is the ethnic group ring which is visited by nearly all inhabitants in their capacity as consumers and producers. The regional area ring is visited by major traders who do most of the regional import and export of raw and manufactured goods.

Hierarchy of Periodic and Daily Markets

The spatial and hierarchical relationship between the daily and periodic markets in the agrarian societies have been linked with the concepts of central-place theory

in the studies done by Skinner, Smith, Stine, and Alao, among others. Smith, for example, commented that the hierarchical relationship between the periodic and daily markets exists

. . . if the logic rather than the form of central place theory is followed. . . . As periodic markets . . . provide economic, social and political services for their hinterlands and as the markets occurring in the same day are competing directly in the provision of these services, one should expect some order in the locational patterns of markets meeting on the same day.¹

As this competition between periodic markets takes place, there results a uniform spacing. This regular spatial distribution of markets is particularly common in regions of Africa where markets were introduced during the colonial urbanization. Based on the recent study of all the hierarchy of central places in Kenya and the frequency of market meetings, it is possible to identify a seven-level hierarchy of periodic and daily markets in Kenya.

The hierarchy of periodic and daily markets follows the same pattern of importance as centers (urban, rural, market, and local), but because of the duality of the economy, periodic, and daily markets have a unique spatial hierarchical organization (see Appendix XIII which shows all central places in the urban- and market-place sub-systems). All four levels of service centers in Kenya have markets. It is common to find daily markets in urban centers, and rural centers, as well as in some important

¹Smith, "West African Market Places," p. 336.

market centers. Periodic markets are a common feature in the market and local centers. In some cases there is a mixture of both periodic markets and daily markets, particularly in District and Provincial administrative centers. The periodic and daily (also known in Kenya as barter or produce) markets are "administered by the Local County Council Authorities [LCCA] in rural areas and by township authorities in the urban areas and are graded as A, B and C markets based on the frequency of their meeting and total attendance and revenue collected."¹ This definition therefore varies from district to district. According to the regional physical study over 75.00 percent of the centers in the Western Region, for example, have either B or C markets. In the Western Region, grade A markets, which meet daily, can be found at Kisii, Homa Bay, Kisumu, Kericho, Kapsabet, Kakamega, Busia, and Bungoma. There are also grade A markets such as Kimilili, Malakisi, Mangina (Funyula), Nambere (Bukhayo), and Butula (see Appendix XIII). According to the Department of Urban and Rural Physical Planning:

An average attendance of these markets ranges from 300 to over 1000 people and generates considerable economic activity. These markets are generally located on transportation routes and have a good bus service facility. Together with other shopping facilities they form the main core and hub of activities of a service center. It is these two services that are mainly responsible for attracting other services such as schools,

¹Nyanza Province, Western Province and Rift Valley Regional Physical Plans, pp. 11-22.

dispensaries, police, postal services, petrol stations, etc.¹

These periodic markets are still important in the traditional economy of Kenya, but as will be discussed later, the development of shopping centers based on chains of dukas is slowly taking over their services. The higher-order periodic and daily markets have grade A status like the higher-order urban centers. In these types of central places, the wholesale and retail duka outlets seem to be playing some important commercial roles.

Because of the difference in the grading of systems of various markets in the country, we have devised a new hierarchy of markets that can accommodate these differences.² The following hierarchies can be recognized in Kenya (Table 5:3). These hierarchies are based on frequency of meeting (daily or periodic), the nature of goods and services provided, and the functional importance within the marketing system of the region.

1. Grade A: Metropolitan urban daily market, which meets daily in a covered structure. Such metropolitan markets have a constant peak from morning to evening with a

¹ Nyanza Province, Western Province and Rift Valley Physical Plans, pp. II-22, II-23.

² Compare this classification with one proposed by Scott in which he identified the following types of markets: "(a) village market, (b) weekly-evening markets, (c) two-day market, (d) weekly-day market, and (e) urban daily." See Earl P. Scott, "The Spatial Structure of Rural Northern Nigeria: Farmers, Periodic Markets and Villages," Economic Geography, XLVIII, No. 3 (July, 1972), 316-19.

daily attendance of 15,000 to 25,000 people. The metropolitan daily markets are usually surrounded by feeder markets in the peri-urban areas of the city. A feeder market, according to Hodder, is ". . . placed at a distance of anything up to two miles from the market place itself . . . forestallers [feeder markets] are . . . at strategic points on the paths leading into the markets."¹ The feeder markets also "serve the function of providing a place on the edge of [urban centers] where [local farmers or traders] can dispose of [their] goods easily and early in the day."² In the Western Region, for example, metropolitan urban daily markets can be found at Kisumu (Jubilee market).

The feeder markets of Kisumu are located in the peri-urban slum settlements of the municipality. These feeder markets meet daily, either very early in the morning or late at night. In addition to these feeder markets, Kisumu also has morning fish markets near the railway station starting from dawn to 10:00 a.m. The daily market at Kisumu is operated and owned by the city council. It was first introduced by a private company who later sold it to the city government. In an urban center with its various wholesale and retail facilities, the daily urban market and its associated feeder markets act as a source of fresh vegetables (particularly tomatoes, oranges, pineapples,

¹Hodder and Ukwu, Markets in West Africa, p. 76.

²Ibid., p. 80.

potatoes, onions, and seasonally available garden produce), meat, and other prepared food such as hot maize meal (posho), millet porridge, porridge, boiled maize in-sheaf. The urban daily market at Kisumu acts as a bulking point as well as a retailing outlet, although the latter service overshadows the former. Few raw materials such as fish (tilapia), maize, and millet have been bulked for onward transmission to Nairobi particularly after independence. The urban daily market is the highest order in the hierarchy of markets (Table 4:3).

2. Grade A: Urban daily district markets. These markets take place daily, but the total attendance and revenue collected is comparatively smaller than that for the metropolitan daily markets. These types of markets are common in the inland district or sub-district bomas of Kisii, Migori, Lumbwa, Siaya, Kericho, and Kapsabet, to mention only a few. Although most of these markets meet daily, they have one or two important days of the week when they attract a larger population. In some cases the markets are operated by the respective urban center government or ADC, depending on the size of the town. Like the metropolitan daily markets, these district markets play a very important part in the lives of the indigenous Africans within their sphere of influence or regional ring system. They do more bulking activities than retailing since most of the produce has to be transshipped to the higher-order centers. The importance of these district urban markets is

based on the major product for which the area is famous. In Western Kenya, for example, Kisii urban market is famous for the banana and unprocessed coffee. In Central Province, such markets deal mostly with craft production for onward transmission to higher-order centers and overseas exports. All of these markets, because they were established after the founding of the towns, usually meet in an enclosed building located in the center of the town. In most cases, with the rising standard of consumption, these markets have attracted more traders than was expected.

3. Grades A and B: Bi-daily open-air lacustrine markets. These markets are located mainly on the lacustrine fishing ports of Lake Victoria, fishing ports in the Kenya Coastal Region, and along the inland lakes of the rest of the Kenya Region. These divisions tend to disappear as the modern urban economy develops, but the double maxima of morning and evening is still a very important characteristic. The morning markets usually begin soon after dawn and continue up to 10:00 a.m. and the afternoon market begins at 2:00 p.m. and remains open until 6:00 p.m. These morning markets meet when the fishermen land their catch and late evening markets meet when the itinerant traders, peddlers, collectors, transporters, and small firm importers bring their hinterland produce to the coastal ports after a day's journey from the inland periodic markets. In Kenya, early mornings and late evenings are the coolest parts of the day in lacustrine and coastal regions.

The double maxima meeting of these markets is influenced both by local economic and geographic factors. In Kenya such markets are commonly found at Homa Bay, Mohuru, Karungu, Ndhiwa, Mbita, Kendu Bay, Kaloka, Kilifi, Asembo Bay, Port Southby, Mombasa, Malindi, Lamu, Shimoni, Vanga, and Sio Port, among others. Fish and allied fish products play a very important role in the economic life of these markets. These markets have a competitive advantage over all markets in the market-place sub-system because their time of meeting does not conflict with the farmers' schedules. They can also accommodate day travelers and they basically retail with vertical transactions.

In most important urban centers there are usually more than two daily markets with several periodic and daily markets in the peri-urban region. The number of markets usually depends on the economic history, socio-cultural, and political importance of the urban center in question. Urban daily markets are usually located in historically important urban centers (Appendix XIII) which are also important transportation centers where the British established the administrative machinery for the control of the country. Urban daily markets, as mentioned earlier, serve the needs of Kenya Africans as opposed to the non-African (Indians, Europeans, Arabs, and Goans) population. The latter population usually purchases its goods from retail dukas. The urban areas, like the rural areas, have a dual marketing system. But as the local indigenous Africans

acquire more modern cash economy, the Kenyans will be using more of the dukas as their source of emergency purchases. Thus, daily markets can be viewed as a last stage in the urbanization process of the periodism of markets. Most of the transaction in the urban daily markets are retail (emergency) and wholesale with vertical orientation in urban daily districts and bi-daily lacustrine or port markets, while at the metropolitan daily markets there are some horizontal activities.

4. Rural daily open-air grade B or C markets.

These markets have been of importance since the early 1960's when, due to the economic and social needs of the area, some markets met daily despite the fact that legally they were supposed to meet only once or twice a week. Such markets support the hypothesis of this thesis that there is a close relationship between urban-place sub-system and periodism of markets in the urbanization process of the former colonial societies. A good example of such a market is Sare Market which was legally supposed to meet only twice a week on Mondays and Thursdays but now meets daily with the highest attendance on Thursdays and Mondays. Most of the daily rural markets have two important meeting days. The other days of the week are used mainly to buy perishable produce and some "shop goods." These daily rural markets are now an important part of the landscape as well as the economy. The daily markets are usually located in comparatively large rural centers and are important retailing

markets with incipient bulking particularly on the two important market days.¹ Most of the big-scale traders buy the produce here for large institutions, such as hospitals, schools, and hotels and for markets in the higher-order central places in the urban areas. These markets are also very important for the break-of-bulk process for finished goods, especially "shop goods," although bulking plays a more important role than break-of-the-bulk process. These markets are characterized by vertical exchange systems.² The markets are very important because they show the first stage of transforming a central place from a market to an urban-place sub-system.

5. Grade B or C: Cattle or twice-a-week open-air markets. These large rural markets meet either on Mondays or Tuesdays and Fridays or Thursdays, leaving Wednesdays and Saturdays and Sundays free for attending other lower-order markets. The 984 rural or periodic markets shown on Table 5:4 are from 36 of the 41 districts of Kenya. Of the remaining 5, Mambasa District and Nairobi Extra Provincial District are urban areas with only daily markets while the

¹Robert H. T. Smith and Alan M. Hay, "A Theory of Spatial Structure of Internal Trade in Underdeveloped Countries," Geographical Analysis, I, No. 2 (April, 1969), 121-36; and Hodder, "Distribution of Markets in Yorubaland," pp. 97-105.

²Sidney W. Mintz, "Internal Market Systems as Mechanisms of Social Articulation," Proceedings of the 1959 Annual Spring Meeting of the American Ethnological Society, ed. by V. F. Ray (Seattle, Wash.: University of Washington Press, 1959), pp. 20-30.

TABLE 5:4

NUMBER OF OFFICIAL MARKET MEETINGS ON EACH DAY OF THE WEEK IN KENYA BY DISTRICT

District	Number of market places	Number of market meetings	Mean number of market meetings per day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Chi-squared test (7 days)	Chi-squared test (6 days)
South	137	214	30.57	31	32	35	29	31	20	36	5.43	
Nyanza	137	214	30.57	31	32	35	29	31	20	36	5.43	
Kisii	66	81	11.57	7	8	9	22	9	1	25	38.71*	23.84*
Kisumu	46	153	21.86	21	21	21	22	24	26	18	1.74	
Siaya	53	93	13.29	16	19	11	13	19	14	1	17.23*	3.50
Busia	69	119	17.00	16	18	20	17	14	24	10	6.86	
Kakamega	72	181	25.86	24	30	30	26	24	31	16	4.45	
Bungoma	31	118	16.86	16	18	16	17	17	18	16	0.26	
Kajiado	4	6	0.86	0	2	0	2	0	2	0	7.95	
Nakuru	13	38	5.43	2	2	13	2	4	2	13	11.17*	25.02*
Kericho	46	55	7.86	4	10	10	7	8	7	9	3.39	
Baringo	46	52	7.43	8	6	10	6	8	5	9	2.64	
Elgeyo-Marakwet	22	23	3.29	0	4	3	4	3	5	4	4.66	
Uasin Gishu	4	17	2.43	2	2	2	3	2	2	4	1.53	
Nandi	10	10	1.67	0	1	1	1	1	4	2	6.79	
West Pokot	7	31	4.43	4	4	4	5	4	5	5	0.36	

(continued)

TABLE 5:4 (continued)

Dis- trict	Number of market		Mean number of market meetings per day	Day							Chi- squared test (7 days)	Chi- squared test (6 days)
	places	meetings		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday		
Kiambu	42	83	11.86	14	12	13	15	10	12	7	3.59	
Murang'a	47	85	12.14	14	13	13	15	12	14	4	6.83	
Kirinyaga	25	49	7.00	8	10	7	7	10	7	0	9.72*	1.31
Nyeri	33	81	11.57	11	10	13	13	14	11	9	1.72	
Nyandarua	19	43	6.14	2	2	13	5	2	4	15	29.79*	23.86
Kitui	35	39	5.57	6	6	4	10	6	7	0	10.00*	3.00
Machakos	54	86	12.29	12	11	15	13	9	21	5	12.31*	6.49
Embu	16	34	4.86	8	5	3	8	5	3	2	7.14	
Meru	55	157	22.43	25	25	27	25	26	23	6	14.40*	0.33
Kwale	14	98	14.00	14	14	14	14	14	14	14	0.00	
Taita	12	21	3.00	2	5	4	2	3	4	1	3.98	
Tana River	6	7	1.00	1	1	1	1	1	1	1	0.00	
Kenya	984	1974	282.00	268	291	312	304	279	288	232	14.93*	4.46

*Significant at the 5 percent level.

Source: Leslie Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," East African Geographical Review, No. 11 (June, 1973), p. 69.

districts of Samburu, Kilifi, and Garisa are sparsely settled by pastoral nomads where the existence of markets have not been confirmed. It should be pointed out that 9 of the 36 districts do not have periodic markets. Thus, the official number of periodic markets in Kenya are 984 with 1,974 number of market meetings.¹ The cattle market is just one of the three variations of the fair types of rural markets. The main feature of this type of market is that they are divided into two parts: one side is used for selling and buying livestock, while the other side is used for exchanging grains, vegetables, and manufactured products. Livestock markets are very popular among the Kenya ethnic groups because of the close association (cattle complex) which most Kenya Africans have with cattle. Good examples of the hierarchy are the Sare Market which meets Mondays and Thursdays and the Migori Market which meets Tuesdays and Fridays.² These cattle markets are the major source of the cattle which is sold to the Kenya Meat Commission. Although in most cases the selling and buying of cattle takes place outside the market site, most of the transaction is closely regulated and as such takes place by auction. Usually over 100 herd of cattle are bought or

¹Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," p. 64.

²Western Kenya cattle markets meet twice or thrice weekly unlike the Ankole cattle markets which, according to Good, meet twice monthly and alternate with produce markets. Good, Rural Markets and Trade in East Africa, pp. 43-49.

sold on any particular market day. In the public view, cattle markets are the most appealing and important event in the week.¹ They not only attract potential buyers and sellers, but also spectators, in addition to government officials who inspect and regulate the livestock entering any particular periodic market. Apart from the sale of cattle, the regular business transacted in other daily and periodic markets is also transacted here. Although other forms of periodic markets will be replaced by the smaller general stores, the cattle markets cannot be replaced because they play a very important role in a traditional society where the ownership of cattle is still regarded as a sign of wealth or prosperity, and perhaps also because those who control the trade are not losing it to the shop owners.

6. Weekly markets or grade B or C. These types of weekly markets are few and least popular in Kenya. They meet only once a week on a particular day; for example, Mariwa Market meets on Wednesdays, Uriri Market meets only on Sundays, and Oyani Market meets on Fridays. They meet from 7:00 a.m. to about 6:00 p.m. and they stay open longer than roadside markets. The weekly markets are so common that in a day's journey across Kenya it is possible to encounter as many as fifteen. The principal feature that distinguishes

¹Cf. E. W. Winter, "Livestock Markets Among the Iraqw of Northern Tanganyika," in Markets in Africa, ed. by Paul Bohannan and George Dalton (Evanston, Ill.: Northwestern University Press, 1962), pp. 457-68.

this market from other markets in the country is that it meets once a week and cattle are not traded there. Although the absence of cattle is regulated by law, it should be pointed out that as these markets grow in importance live-stock transaction facilities are usually added.

The weekly produce markets are the most common in Kenya. The great majority of the consumers attending these markets live in a sub-location or clan which is usually located at a distance of no more than ten miles away from the market place. In addition to produce, imported "shop goods" are traded in. The normal peak of weekly markets are 10:00 a.m. to 3:00 p.m., with an average attendance of 200 to 300 sellers, buyers, and spectators. Since these markets are of a higher order than roadside markets, they transact more horizontal trade than vertical trade.

These markets offer a variety of commodities for both retail and bulking. The transfer of small lots is usually horizontal and the transfer of large lots is usually vertical. For the rural areas these markets play a very important role because their weekly schedule allows them to provide a link with extra-regional markets thus helping in integrating the national exchange system. Weekly markets are oriented mainly to vertical trade although some horizontal transaction is also a common factor. But, as the demand density increases, these markets will change to a daily schedule.

7. Village or roadside markets. These markets are

fewer than the weekly markets, and they contain a limited number of buyers and sellers. These markets, although small, meet only to satisfy a particular demand at a specific time. The number of these markets might increase during the harvesting season or during a period of extreme drought and famine. The commodities sold here are mainly disposable, emergency items which are bought in small quantities as needed. These items include fruits, sweets, kerosene, soap, and salt. Under village markets one should include neighborhood trading outlets or feeder or forestaller markets which are usually located in the peri-urban areas and the roads leading to an important daily or periodic market. These trading outlets usually sell the most frequently used imported consumer goods broken into very small lots. These markets are located in rural villages and at the junction of secondary roads that lead to the rural areas of Kenya. Food items such as maize cooked in sheath, porridge, and other snack and breakfast items are very common. The village markets are characteristic of what Mintz has termed a horizontal exchange system.¹

As defined in the above hierarchical classification, the weekly market is the most important single kind of local market in Kenya. This type of market is indigenous and has undergone many changes in form and function since the early 1900's. This hierarchy of markets in Kenya is

¹Mintz, "Internal Market Systems as Mechanisms of Social Articulation," pp. 20-30.

intertwined and works very closely because the second to fourth levels are heavily dominated by the urban centers and are mostly controlled by the non-African immigrants while the fifth to seventh orders are heavily dominated by non-urban economy. According to Wood, "In any area containing markets, an efficient arrangement of market periodicities is one that ensures an equitable temporal supply of operating markets, i.e. there should be an equal number of market meetings on every day of the week so that every day is neither over- nor underdeveloped with market meetings."¹ In a study of 421 seven-day markets (by Hill and Smith) in the four Hausa Emirates of northern Nigeria, it was found that there are a significantly greater number of market meetings on Friday, the main religious day for Moslems, than on any other day of the week. In southern West Africa, where Islam is not the dominant religion, in only one area, southern Ghana, is there a significant difference in the number of market meetings from day to day. In this area there is a heavy concentration of market activity on Tuesday, Wednesday, Thursday, and Friday.² But when Wood applied the chi-squared test on the Kenya rural markets excluding the Sunday markets, the hypothesis of

¹Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," p. 65.

²Poly Hill and R. H. T. Smith, "The Spatial and Temporal Synchronization of Periodic Markets: Evidence from Four Emirates in Northern Nigeria," Economic Geography, XLVIII (1972), 346-848.

temporal efficiency was accepted. In his own words,

An efficient temporal arrangement of market meetings at any one site is one that both minimizes the lengths of the marketless periods and prevents an overconcentration of market meetings at any one time of the week. For markets meeting six days a week, as well as for both daily and weekly markets, only one combination of market and marketless days is possible. However, for markets meeting two, three, four and five days a week, a variety of combinations of market and marketless days is possible. . . . In summary, 87.0% of the two, three, four and five day markets in Kenya have the most efficient market day schedules and only 1.7% have the least efficient market day schedules. Thus, it seems reasonable to conclude that, in general, despite its piecemeal development, the rural market system in Kenya is temporally efficient.¹

This temporal efficiency at the national level for the six days of the week has been shown in Table 5:4. The temporal efficiency of rural markets also confirms the spatial efficiency, hence the neatly organized hierarchy of central places within the periodic market sub-system that had been confirmed by the Town Planning Department.

The hierarchy of central places in Kenya can be classified into two levels. On one hand, we have the hierarchy of markets which were contrived but have now partially developed into inter-merged market systems. On the other hand, we have a hierarchy of urban centers ranging from metropolitan to the rural trading centers. Because most of the towns and markets were developed by external forces, the development of markets has acquired what Johnson described as a dendritic form which may vary according to

¹Wood, "The Temporal Efficiency of the Rural Markets and Systems in Kenya," pp. 67-68.

cultural, historical, topographical, and political factors and usually consists of three components:

port cities which are both export-import points and consumption centers; strategic cities connected with port cities by some linear form of transport and well located for bulking exports, consolidations purchases of primary products and breaking wholesale lots of consumer goods for distribution through smaller markets; and dispersed local markets, usually dependent on strategic cities for transport processing, storage, bulk-breaking and credit facilities.¹

Thus, in Western Kenya, for example, we find the lacustrine port towns or trading centers at Mohuru, Karungu, Ndhiwa, Mbita, Homa Bay, Kendu Bay, Kisumu, Kaloka, Asembo Bay, Port Southby, and Sio Port. In the hinterlands of these ports we have a series of townships whose prosperity is directly linked to either rich agricultural areas or the strategic port towns. This same relationship is also found among the ports of the Coastal Region.

Until recently, trade in Kenya was mainly vertical and to that extent did not contribute directly to the development of the country. The development of central places has been encouraged by several factors of which the following are of paramount importance. First, colonial influence has spatially transformed the centrality of this country. Second, the nationalization influence centered in Nairobi with its associated non-African settlement in the Central Highlands Region. Finally, the local or indigenous force

¹E. A. J. Johnson, The Organization of Space in Developing Countries (Cambridge, Mass.: Harvard University Press, 1970), pp. 87-88.

which has reacted to the foreign forces in a positive manner to help in the development of myriad of central places in the country. Of these forces, the first, which included commerce, missionary activities, and colonial administration, played a far more important role than other forces. In a recent study of urbanization in East Africa, Gugler summarized the situation well when he said:

The three urbanizing forces of commerce, mission activity and government administration had differing effects on concentration: while mission church and mission school met the duka in a minute agglomeration, government administration established a network of small administrative posts which have become foci of local communications, and where the teacher training colleges and hospitals of the missions are found and the commerce is more developed.¹

All of these forces, whether foreign or local, have developed a system of central places in Kenya which can be categorized into two groups: the periodic markets versus the modern urban centers. It is the emerging fusion of these central-place hierarchies which form the theme of Chapter VI.

Summary and Future Prospects of the Market-Place Sub-System

It is important to summarize that except for the Kikuyuland, Kambaland, and most of the Coastal Region, much of Kenya received a myriad of market-place central places during colonial urbanization. Because of the low level of

¹ Josef Gugler, "Urbanization in East Africa," in Urban Challenge in East Africa, ed. by John Hutton (Nairobi: East Africa Publishing House, 1970), p. 1.

urbanization and modernization, most of the market-place central places are very weakly organized compared to periodic markets in West Africa (in particular the area that extends from Southern Ghana through Nigeria). But the market-place sub-system in Kenya has received a wider development of retail shops (mainly dukas) than was the case in West Africa.

The following points can be summarized about the market-place sub-system in Kenya. The central places of the market-place sub-system are very important for the internal trade of agricultural produce. The periodic markets are the link to a higher level of national economic systems such that they stimulate economic independence of inter- and intra-regional levels. These are the bulking points of the raw material both for internal and external consumption. Retail dukas, whose growth is closely associated with the daily and periodic markets, are well developed since the national era and are owned and managed by the indigenous Africans. But it is the market places that are the principal venues rather than the local dukas. The daily and periodic markets are well and evenly distributed throughout Kenya's landscape. Their functional activities are distributed according to their hierarchy within any administrative unit. The density of the daily and periodic markets is closely related to the population density. Hence, there are more markets in the Western and Central Highlands Regions than the other parts of Kenya. And

finally, there is a tendency for the marketing sub-system to disintegrate because the markets have become less and less periodic and have shifted to a daily schedule. Such a development, particularly during the national period, has begun a continuous process which will not only transform the marketing landscape of Kenya but also her urbanization process in the near future.

Although the periodic markets are very important as the final central places in the modern diffusion process, it is important to note that these institutions will disappear in the near future as the link between the dukas and periodic markets are fostered through the Africanization process. As Kenya's income improves and as the communication and demand increases, the larger and better located periodic markets will shift from a periodic to a daily regime and the location of these markets will move into closer accord with location of trading centers. With this shift in central places of the market-place sub-systems, there will be an upward shift in the economic, political, and socio-cultural functions. In other words, this shift in the hierarchy and functions of central places will also increase the tempo of rural to urban migration.

CHAPTER VI

THE EMERGING FUSION OF PERIODIC MARKET-PLACE
AND URBAN-PLACE SUB-SYSTEMS

In this chapter, we will examine the emerging linkages between the periodic markets and urban centers. We have been concerned with the extent of the emerging fusion of the two sub-systems within the horizontal as well as vertical organization of the central-place theory. In the previous chapters, we established that the urban system with its associated daily markets cater to a small percentage of the African indigenes while the periodic markets, although underdeveloped, cater to a wider proportion of the Kenya population. The markets, particularly daily markets, then perform a very important linkage in the relationship between the rural hinterlands and the export enclaves.

The development of central places in Kenya was organized spatially during the colonial urbanization. Rural periodic markets were founded and organized within major transportation nodes. The creation of these centers and the government bomas stimulated the economic and political transformation of the country to the extent that it was possible to identify the following central places in the urban sub-system and market sub-system.

The hierarchy of the market-place sub-system is truncated below the level of minor or port centers although the daily markets with their diminishing functions are located above those two levels of central places. Based on the functional criteria, it is possible to identify the following seven categories of central places within each sub-system, as shown in Table 6:1.

This is a very general classification because the hierarchical relationship within and between these sub-systems will vary economically, historically, and geographically. The hierarchy will also depend on the density of population and historical settlement patterns of the country or region in question.

Kenya's central places and their associated settlements have offered many socio-cultural opportunities, for example, the nodes of communication where roads crossed each other and either markets or trading centers developed, forming a myriad of central places that now dot all parts of the country. The establishment of these central places resulted in a dual economy, which consisted of an export enclave such as Nakuru, Kisumu, Nairobi, Mombasa, and Kakamega and a hinterland region or the rural countryside. According to Seidman, an export enclave is ". . . characterized by the . . . production and export of a few raw materials for processing in the factories of developed industrial countries, and the import of manufactured consumer goods with a significant share of developed industrial

TABLE 6:1

DUAL HIERARCHY OF CENTRAL
PLACES IN KENYA

Urban-place sub-system	Market-place sub-system
1. Major urban center	Metropolitan urban daily market
2. Minor urban center	Urban daily district market
3. Port center	Bi-daily lacustrine market
4. Rural center	Rural daily market
5. Market center	Cattle periodic market
6. Local center	Weekly market
7. Sub-local center	Forestaller market

countries" while hinterlands is the rural area where "the majority of the population lives and works in the traditional agrarian economy."¹ Also according to Myrdal, the colonial types of economic activities do not improve the economic position or prospects of the local population.² This is true of Kenya where the progressive sectors of the country have been traditionally concentrated in the colonial administrative urban centers within the urban-place sub-system. The Central Highlands Region, for example, which has been characterized as an "alien arable enclave," has not served as the "focal point . . . of development as far as the African community is concerned. Nor has it greatly assisted development by contributing to government revenues, by spreading skills and generally by promoting the exchange economy."³ Only a few urban centers were transformed.

Unlike other parts of Kenya and East Africa in general, the role of markets and the fixed central places has developed very much in spite of the agrarian nature of the economy. The countryside is dotted by periodic markets

¹Seidman, Comparative Development Strategies in East Africa, p. 5.

²Gunnar Myrdal, The Economic Theory and Underdeveloped Regions (London: Gerald Duckworth, 1967), Chapter V.

³Eric Clayton, "A Note on the Alien Enclave and Development in East Africa," East African Economic Review, X, No. 1 (June, 1968), 38. For reply to this article, see T. C. I. Ryan, "A Rejoinder to Dr. Clayton's Note on the Alien Enclave and Development," East African Economic Review, X, No. 1 (June, 1963), 41-46.

mainly dominated by Africans, while the trading centers with their associated dukas were heavily dominated by Arabs and Indians, Kenya's entrepreneurs. In most cases, the administrative system was organized around periodic markets and trading centers. While the periodic and daily markets affected most aspects of the life of Kenya residents, their relationships with their immediate hinterland were severely restricted. Kisii town, in the Western Region, for example, had more functions to transact with Kisumu, Nakuru, or Nairobi than any other central place within her immediate surroundings.

The central-place sub-system was closely linked to the modern processes which were introduced to the country by the non-African immigrants. The non-Africans attempted to organize the whole economy of the area by developing periodic markets in order to stimulate the exchange economy between the African producers/consumers and the European administrators. Thus, each type of central-place sub-system was connected with a type of market-place sub-system. The lacustrine ports, municipalities, and major towns contained daily markets, while the rest of the urban-place central places were closely linked with several varieties of periodic markets. Thus, as the population and economic activities of a periodic market increased, the chances of the central place becoming urbanized were very good because agglomeration allowed certain economies of urbanization to be realized. The urban centers developed in close proximity

with the markets. In smaller markets where most of the urban activities were not fixed, the mobile agents rotated with the weekly schedule of markets until the population base was large enough to warrant a fixed urban center.

Locational Expansion

During the national era, the market-place and the urban-place sub-systems have started to consolidate into one system due to several reasons. The first and the most important factor was the removal of socioeconomic, cultural, and political barriers which were initiated by the colonial governments. During the colonial days, the economic, political, and cultural aspects of power in the urban centers were restricted to the non-Africans while the Africans participated only in the rural areas. It was only during the post-independence eras that the Africans were able to have a permanent job in the urban centers, thus being able to reinvest some of their money in the market-place sub-system as well as the urban-place sub-system. This free movement of workers between the rural and urban areas during national era was very instrumental in the widespread of modernization process in the rural areas of Kenya.

The second important factor which has been helping the consolidation of the urban-place and market-place sub-systems has been the improved means of communication. During the national era, dirt roads have been constructed wherever possible to connect every periodic market with

the other major central places in the country. The improved communication pattern has increased the amount of raw materials bulked and exported to the urban-place sub-systems and also manufactured materials imported from the urban-place to the market-place sub-systems. This unrestricted commercial exchange has helped the two systems to emerge and depend on each other more often.

Third, the Africanization of the economic base of the central places of the urban-place sub-system has also been very instrumental in linking the two systems. For example, the Africanization of formal wage employment in the public sector was 87 percent in 1959 and in 1964 it increased to 92 percent, while the private sector increased from 80 percent in 1959 to 81 percent in 1964.¹ Despite these increases in percentages, it is only recently that the African businessmen have entered the downtown business areas of central places of the urban-place sub-system. According to Larimore, this policy of allowing the African entrepreneurs to take over the economic functions of the urban centers have changed the geographical character of the Kenya towns.² In addition, the policy of Africans to reside in all urban centers has meant the increase in

¹ International Labour Organization, Employment Incomes and Inequality: A Strategy for Increasing Productive Employment in Kenya (Geneva: International Labour Office, 1972), p. 89.

² Ann E. Larimore, "The Africanization of the Colonial Cities in East Africa," The East Lakes Geographer, V (December, 1969), 50-68.

consumer or African-oriented retail services in the urban areas. Most of these services were mainly restricted to the market-place system where the majority of Africans resided.

Finally, for political reasons, various governmental decrees have promoted or demoted in various central places in different hierarchical levels. During the national era more central places within the market-place sub-system have been promoted than the central places in the urban-place system. This has been done in order to make them qualify as a planning center or region in which case they can qualify for governmental subsistence. This conscious promotion of central places has been the first major attempt to organize central places to fit the Christallian hierarchy.

While the well-located periodic markets changed to daily markets, thus shifting their location to trading centers, some few periodic markets have resisted the merger, despite the economic development of the country. The few central places of the market-place sub-system that have resisted the change have done so because of the following reasons. First, because of a lack of a well-developed communication pattern. A good example of this can be found in the Masai and Northern Frontier Region where because of a lack of resources, communication links have not been encouraged. Second, there are areas of Kenya where the ethnic groups have not accepted change despite the

politico-economic inroads that have taken place during the national era. In the Masai region, for example, change for the sake of change has been resisted at all costs. And lastly, some market-place sub-systems have resisted the merger because of poor agricultural base as well as poor location of the particular region. The importance of any periodic market, as we have pointed out, depends on the rich agricultural hinterland. The lower the agricultural production, the less important will be the market center.

Despite these resisting forces, in general, central places of the market-place sub-system are integrating with the urban-place sub-system. During the national era, as the periodic markets acquired importance in terms of business transaction, the peddlers constructed fixed structures in which to display their goods. Because of improved transportation, the periodic, once-a-week market by economic necessity was changed into a twice- to thrice-a-week market and then into a daily market. As the markets met daily, more and more urban-oriented conveniences were constructed and then the market became a trading center. It should also be emphasized that the development of a periodic market into a trading center/daily market did not limit the periodic market functions since these continued to meet the socio-cultural, political, and economic needs of the region.

Diffusion of Trading Functions

As was well pointed out by Levine in his latest study of the markets in Gusiland of the Western Region,

the development of markets in that region, as well as in other parts of Kenya, was encouraged because of the presence of security through law and order, introduction of taxation, availability of exotic trade goods, and the creation of demand through the differentiation of traditional and external economic roles or functions.¹ Markets that were developed in Kenya, therefore, followed the establishment of administrative control. As these markets developed, the itinerant market peddlers have changed into permanent shopkeepers in the barter or produce markets. The tendency here is to minimize movement in space without radically changing the functions of the markets. The situation in Kenya is just opposite to that of West Africa where periodic and daily markets have specialized as wholesale trade outlets in the face of changing economic, political, and socio-cultural circumstances.² As the economic functions of rural periodic markets specialized in collecting more and more local produce, the retail shops or dukas also developed in order to intensify the sale of imported, manufactured goods such as sugar, salt, kerosene (paraffin), clothes, soap, household utensils, machinery, and transport equipment.

As was analyzed in the urbanization process of

¹LeVine, "Wealth and Power in Gusiland," pp. 525-26.

²B. W. Hodder, Economic Development in the Tropics (London: Methuen and Company, 1968), pp. 20-25.

Kenya, the increasing proportion of the use of imported goods attracted the location of permanent dukas next to or in the daily markets that had commanded the widest spectrum of population as well as economic functions. The dukas initially acted as the outlets for manufactured imported goods as well as non-perishable local commodities. Hodder and Ukwu, in their study of markets in West Africa, came to the same conclusions when they said that ". . . shops are simply the end products of the change from periodic to continuous marketing."¹ Hodder brought out this point clearly in another publication when he said that

one of the most interesting considerations arising out of the study of Yoruba markets is the close association of day markets with the growth of shopping districts. At its simplest, this can be seen to be the logical development of trading from periodic markets, which are dominantly wholesale in economic function and are attended by people from a wide area; through the daily markets in towns, which are non-periodic and cater dominantly for the retail trade and for those living over much smaller areas . . . ; and finally to retail neighborhood and permanent retail shopping areas. . . . Markets, then, and especially the large daily markets are an important feature of the retail structure of the largest towns.²

This process of development of periodic markets to daily markets to fixed urban centers which is now taking place in Kenya and other parts of Africa also occurred in Western Europe during the eighteenth and nineteenth centuries.

Hodder further concluded:

¹Hodder and Ukwu, Markets in West Africa, p. x and p. 154.

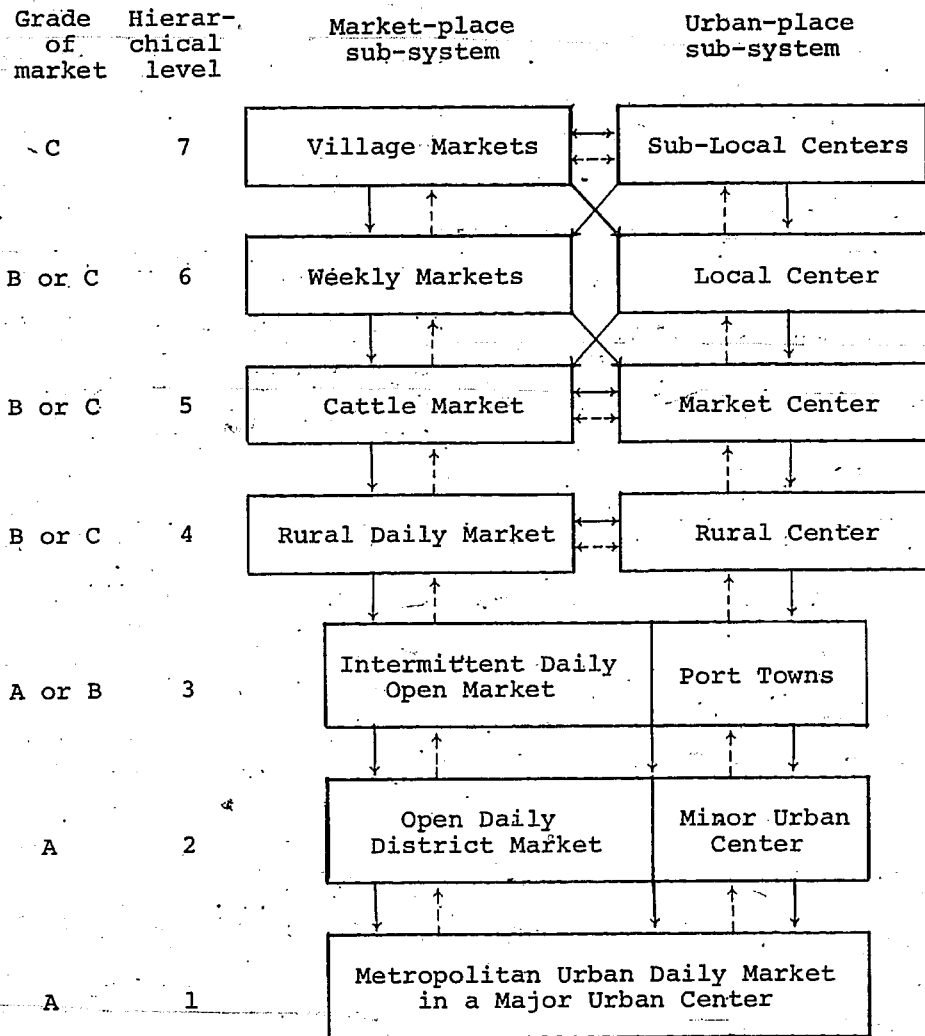
²Hodder, "Markets in Yorubaland," pp. 84-85.

This notion, tracing the development of markets from the simplest periodic markets through to the retail shops and large specialized markets in the larger towns, appears to fit with the facts as they are presented in this study, and is further strengthened by a number of analogies drawn from African markets and those of Europe from medieval times to the present day. Though in detail the institutional manifestations of the process of distribution and exchange may differ from society to society, these differences arise chiefly from the different historical, natural economic, social psychological and technological factors operating in one society as distinct from another.¹

This same process has taken or is taking place in most parts of Kenya where the dukas in the remote parts are open only on market day, while the markets in major urban centers meet daily to serve the needs of the urban community and the region as a whole.² The chain of urbanization process in Kenya and the rest of Africa during the colonial and national eras can be represented as follows in Figure 6:1 and Table 6:2 (for classification of all central places in Kenya with the market-place and urban-place sub-systems, see Appendix XIII which lists all of the central places in the country). As the marketing process becomes specialized, the demand of imported commodities is accompanied by the tendency of these goods to be distributed through dukas

¹ Hodder and Ukwu, Markets in West Africa, p. xii and also in pp. 84-85. They both argue that proliferation of permanent retail shops which assume many functions formerly aggravated with unspecialized markets is the ultimate product of the conversion from periodic to continuous marketing. A similar process of functional and structural change has been documented for London (Convent Garden) and Paris (The Halle) during the eighteenth and nineteenth centuries.

² The author reached the same conclusions in a recent study of Western Kenya. See Obudho, "Urbanization and Regional Planning in Western Kenya," in Urbanization, National Development and Residual Planning in Africa, pp. 161-76.



- ← Flow of innovation down the central-place hierarchy
 ← - - - Flow of traditional ideas up the central-place hierarchy

Fig. 6:1--Idealized relationship between market-place and urban-place sub-systems in a developing dual economy.

TABLE 6:2

EXAMPLES OF CENTRAL-PLACE HIERARCHIES IN KENYA

Urban centers	Periodic markets	Examples of central places		
Municipalities or major urban	Metropolitan urban daily	Kisumu	Nairobi	Mombasa
Minor urban	Urban daily district closed	Bungoma	Fort Hall	Kitui
Port towns	Bi-daily open	Homa Bay	Kendu Bay	Lamu
Rural	Rural daily	Londiani	Maseno	Malava
Market or sub-chief's <u>baraza</u>	Cattle twice or thrice a week	Kapkatet	Kibigori	Matete
Local	Weekly	Lugari	Sikusi	Songhor
Sub-local	Local or village forestarter	Lumakanda	Mabinju	Igare

that are located near the daily markets.

The urbanization chain depicted in Figure 6:1 is multi-directional. The diffusion of modern innovation diffuses down the hierarchy while the indigenous or traditional ideas also diffuse up the hierarchy. For example, central places in Kenya display colonial attributes as well as the African or local culture of the region. The diffusion process is also circular in that the ruralization can diffuse from the countryside to the urban areas. The stages of diffusion shown in Figure 6:1 will, of course, vary from region to region depending on the different historical, economic, social, and technological factors operating at any particular time. The relationship between the urban centers and the periodic/daily markets are not as simple as they are portrayed above. The first to the third hierarchical levels are heavily dominated by urban activities to the extent that the services performed by the markets are exceedingly localized. The central places from fourth to seventh are overwhelmingly dominated by the periodic markets. As a matter of fact, the periodic markets cover not only the widest geographic area but also have the most contacts with the widest spectrum of the rural population in Kenya.

As this urbanization process takes place, the periodic and daily markets will decline in importance to the extent that most of their services or functions will be taken over by retailing chains, an already common occurrence.

Thus, the urbanization process in Kenya helped transform periodic markets into daily markets. McNulty and Sada, who have done extensive work on the role of periodic markets in urban areas in West Africa, obviously came to the same conclusions when they noted:

Urbanization can be considered as intensification of the marketing landscape brought about by (i) an increase in density of households . . . and (ii) an increase in the degree of participation of households in the marketing process. . . . Functionally, the markets should be able to offer a wider range of goods and services with the addition of higher order goods as a result of an expanded market. Spatially, the increased competition for the urban market should lead to the decline of certain markets and the growth of the more advantageously located markets. This should result in a decrease in the number of markets operating. Temporarily, there would be a decline in the periodicity of the markets with the end result being permanent, daily markets. Obviously, none of the postulated changes in this system occur dramatically, conditions generally adjust to such changes at even slower rate pace. . . . Rather than an abrupt change . . . there is a continuation of formal market periodicity . . . but there are obvious changes in the daily activities around the market. . . . Gradually disappears the distinction between market day and non-market day.¹

They also found in their study of urban daily markets in other developing countries that

urban markets in many developing countries initially have been periodic owing partly to the generally low levels of demand together with the imposition of traditionally rural marketing schedules upon the urban areas. One consequence of urbanization is that the timing of the markets is altered. As demand density increases, and as occupations' specialization results in full-time traders, periodic markets change their schedules in order to meet more frequently. Thus, frequency of

¹Michael L. McNulty and Pius O. Sada, "Periodic Markets in a Metropolitan Environment: Lagos, Nigeria" (paper presented at the Association of American Geographical Annual Meeting, Kansas City, April 23-26, 1972), pp. 3-5.

meeting increases and after some time periodicity ceases. It is unlikely that such a change in market schedules will come about abruptly, except in those days of meeting. Rather, the volume of trading on days gradually increases making it difficult to distinguish the actual market day from non-market days. Intensification of the marketing landscape gradually leads to the development of daily markets.¹

Thus, as this urbanization process takes place, the periodic markets change into daily markets and the itinerant trade changes to fixed facilities. The tendency here is to minimize movement in space without changing the functions of the markets. This change from periodic to daily activities has shifted the location of the markets to a site of assured daily source of business. These daily markets will, in most cases, provide the lower-order needs not usually catered for by retail and wholesale shopping institutions.²

In the urbanization process of Kenya, we have analyzed the phenomenon of the development of the central places without bringing economic development to the regions in which they are located. In Hoselitz's thesis, the urban centers of Kenya, despite the rich agricultural base, have had "an unfavorable influence on the potentialities of economic growth of the surrounding country."³ In spite of

¹Michael L. McNulty and Pius O. Sada, "Aspects of Change in the Traditional Retail Structure of Cities in Developing Countries," in International Geography, ed. by W. Peter Adams and Frederick M. Helleiner (Montreal: University of Toronto Press, 1972), p. 824.

²Ukwu, "Markets in Iboland," p. 156.

³Hoselitz, "Generative and Parasitic Cities," p. 191.

this parasitic characteristic of colonial urbanization, we have pointed out that urbanization in general has brought about a lot of positive changes. Hoselitz, in another study, made a comforting remark when he said that the parasitic phase of a colonial city is only temporary and is only a developmental process that will not continue forever because ". . . the divergent trends of economic development within these cities and outside them, in the wider countryside, had the effect of creating a situation which tended to counteract and eventually turn the parasitic impact of these cities into its opposite."¹

Changes in the Structure of Urban-Place and Market-Place Sub-Systems

As the urbanization develops in Kenya, the present central places of the market-place sub-system will expand in their internal activities. More dukas will be built to cater for the imported manufactured materials and indigenous raw materials. Most of these dukas will be owned and managed by Africans rather than non-Africans as it was during the colonial era. The trading centers will replace most of the present periodic markets in the rural areas. In the regions where there is no agricultural activity, only the better located periodic markets will remain in the form of scattered trading centers. As the central places

¹Bert F. Hoselitz, Sociological Aspects of Economic Growth (Glencoe, Ill.: The Free Press of Glencoe, Inc., 1960), p. 192.

of the periodic markets move in closer accord with the trading centers, there will also be a massive upward shift of the economic, political, and socio-cultural functions to the central places of the urban-place sub-system. There will also be a massive population shift in that these new centers of urban-place sub-systems will enjoy a population base, mainly through rural to urban migration. The central places of the urban-place sub-systems will increase in importance both regionally and nationally. As Kenya becomes more and more urbanized, these central places will be the focus of all social life in the country.

Because the economy of Kenya is still dangerously linked to the Metropolitan, this linkage process of the two sub-systems is taking place very slowly. This is why it is important that the spatial and hierarchical organization of central places in Kenya be planned and guided at the local level in order to quicken the process. It is by increasing the tempo of the linking process between the periodic market sub-system and the urban-place sub-system that colonial urbanization can be nationalized. The best approach to "nationalize" colonial urbanization is by developing a planning scheme which will hasten this emerging orientation. This planning scheme must emphasize the growing relationship between the traditional and modern urban systems as will be analyzed in the concluding chapter.

CHAPTER VII

TOWARD A REGIONAL DEVELOPMENT STRATEGY

Problems of the Present Structure

In our analysis of the spatial structure of Kenya's urban system, we have concluded that because of the colonial exploitation of the country, the central places are divided between the urban-place and market-place sub-systems. This rural-urban dichotomy is still common in all parts of the country despite the emerging fusion of the two sub-systems because of the Africanization of the economic base during the national era. This emerging fusion might not take place as fast as it should because Kenya's neo-colonial economy, in which peasant land holdings are becoming small due to high population pressure, especially in urban areas and because of high rural to urban migration which consists mainly of male workers. The central places are still acting as export enclaves in which raw materials are gathered for export overseas while the improved manufactured products are assembled for distribution to various ports of the country. Because of this, only important central places (such as Nairobi, Mombasa, Kisumu, Nakuru, and Eldoret) benefited from the present space economy. Most of the planning has been based on

these centers because they have been regarded as the only important points in the development of the country.

Despite the unbalanced nature of urbanization in developing countries like Kenya, "urban centers perform indispensable functions in natural growth. . . . Cities, and especially large cities, bring about the external economies which increase productivity."¹ Because of these indispensable functions, it is important that a developmental strategy be devised for the spatial organization of all the central places. According to Harvey:

One of the basic problems of planning for economic growth in the developing countries is the concentration of resources in few large centers, resulting in the persistence of a dual economy characterized by polarization rather than articulation. Change in such a system involves the creation of a locational matrix through which a restructuring of the space economy so as to cause rapid and sustained overall growth is affected.²

It is this organization of the spatial urban system which will be a basis for our planning strategies for Kenya.

Important Urban Policy Issues

The analysis of central places in Kenya indicates a need to change the urbanization process in order to bridge the gap between the rural hinterland and the urban export enclaves. Perhaps bridging the gap is too strong a

¹International Union of Local Authorities, Urbanization in Developing Countries (The Hague: Martinus Nijhoff, 1968), p. 17.

²Milton E. Harvey, "The Identification of Development Regions in Developing Countries," Economic Geography, XLVIII, No. 3 (July, 1972), 230.

phrase because in the case of Kenya, which is at least 95 percent rural in nature, it is a question of reorienting urban centers to perform generative functions in the areas where they are located. The relationship between the export enclaves and the rural areas has been largely unbalanced in the sense that towns have been collecting raw materials for export overseas, while in most cases returning no direct benefit to these areas, despite claims and demand. Colonial authorities were only interested in collecting raw materials and preserving the hinterland as markets for manufactured goods. The trading posts and caravan towns which later grew into municipalities, towns, and trading centers were meant to serve the overseas metropolitan markets. Any advantages which accrued to the hinterland from urban areas were mainly accidental. During the national era, however, the two sub-systems started to consolidate because of the removal of the socioeconomic, cultural, and political barriers common during the colonial period. As the periodic markets acquired more business and a higher threshold, they acquired permanency and an improved infrastructure.

The development policy of Kenya has to be organized in terms of rural development strategy. According to Taylor and Kimani, "if appropriate centers are identified, they can form a vital link between rural and urban sectors. . . . A spatial strategy of rural development should be developed which incorporates and builds on traditional spatial

patterns in the rural areas."¹ Rural development, according to the Working Committee on the Human Environment in Kenya, is concerned with ". . . a sense of quantitative and qualitative changes occurring among a given rural population and whose converging effects indicate in time a rise in the standard of living and favorable changes in the way of life."² In an agricultural country such as Kenya, important development policy issues should be adapted from an essentially urban-based concept to a rural-based strategy. Development planning should be concentrated in selected central places of the market-place sub-system--the traditional marketing outlet. The functions of these central places should be the provision of services for their respective hinterland and as places where government activities can be coordinated. The spatial strategy of development in Kenya should be concentrated on the coordination of rural development and agricultural development.

Urban and Regional Planning Tradition

Urban planning in Kenya during the colonial era emphasized physical aspects in major urban centers. As summarized by Safier, physical planning in East Africa was imported by the colonial administration and had its

¹D. R. F. Taylor and S. M. Kimani, "The Role of Growth Centers in Rural Development," Institute of Development Studies, University of Nairobi, Working Paper No. II7 (August, 1973), p. 1.

²Simeon H. Ominde, A. N. Ligale, and A. B. Cusac, "Urbanization and Environment in Kenya" (Nairobi: Working Committee on Human Environment in Kenya, 1971), p. 2.

first application in new colonial capitals. . . . The initial concerns of town planning in East Africa were in health and hygiene and the laying out of well demarcated areas of differential land use; these concerns are still found enshrined in a large portion of the existing planning legislation. . . . The properly planned areas, well laid out and serviced to a high standard, were and are the main administrative, commercial, and industrial quarters, and restricted . . . residential zones--all of which are closely allied with the predominantly externally oriented modern urban sector.¹

In discussing urbanization and development planning in Kenya, Laurenti echoed the same conclusion:

. . . municipal administration was handled fairly well for the modest urban centers of pre-independence days so that no serious dilemmas developed. Only in the past five years or so, as the pressures of accelerating urban growth in many Kenyan centers pushed beyond local staff and finance capacities, have problems begun to emerge with such rapidity and on such a scale that they have become visible to administrators, social scientists, technicians, and politicians.²

Prior to the 1960's, most of the physical planning in Kenya was carried out within the statutory boundaries of the municipalities of Nakuru, Kisumu, Nairobi, and Mombasa; and most of it was ad hoc with the plans usually taking the form of fully designed land use maps. Comprehensive national and regional development planning which took account of the strategic elements for promoting urban, economic, and social growth was not adopted until 1964. But even after this

¹Michael Safier, "Urban Problems Planning Possibilities and Housing Policies," in Urban Challenges in East Africa, ed. by John Hutton (Nairobi: East Africa Publishing House, 1972), p. 33.

²Luigi Laurenti, "Urbanization Trends and Prospects," Urbanization in Kenya: An International Urbanization Survey Report to the Ford Foundation (New York: Ford Foundation Publications, 1973), p. 1.

period the urban and regional development plans were focused on the most obvious target--the export enclaves.

Despite the fact that the planning of these statutory municipalities was supposed to be physical, they only emphasized economic development to satisfy the metropolitan powers. Practically all of the studies on urbanization processes in Kenya were mainly concerned with social surveys until 1963 when Fair proposed his often-quoted regional approach to the economic development of Kenya in which he stressed:

It is thus necessary to establish regional as well as sectorial targets, for coordinated national planning which involves the provision not only of individual but also of the development of more than one natural resource in a variety of areas of widely differing character. In all economic planning, therefore, sector analysis should be supplemented by regional analysis so that comparative development possibilities, problems and priorities can be assessed region by region as well as sector by sector.¹

The initial and serious attempt to bring regional planning techniques to bear on the development of Kenya was a series of studies carried out by Deutsches Institut für Entwicklungspolitik.² In their studies, the Western Kenya Region was delineated based not on the political boundary but on an economically integrated area.³ Since 1960, the

¹J. D. Fair, "Regional Approach to Economic Development of Kenya," p. 55.

²Peter P. Waller et al., Grundzüge der Raumplanung in der Region Kisumu (Kenia) (Berlin: Verlag Bruno Hessling, 1969).

³Peter P. Waller, "The Delineation of a Planning Region: A Case Study from West Kenya," East African Geographical Review, No. 8 (April, 1970), pp. 55-60.

urban and regional Department of Physical Planning of the Ministry of Lands and Settlement have concentrated on two themes: regional research and urban planning. Between 1966 and 1973, the department published physical development plans for all provinces and urban centers.¹

The objectives of these regional and physical plans in Kenya, according to the latest development plan, were

. . . concerned with the development which involves the use of land, study the movement of people or goods, or modifies the physical environment. It deals with emerging patterns of production and residence, and distribution throughout the country of the physical infrastructure of development; roads and railways, power plants, shops and factories, public buildings, houses, schools and hospitals. Physical planning in Kenya has two objectives. Firstly, in a national and regional context, to plan a national framework or strategy for the location of capital investments. Secondly, in the urban context to plan both large and small towns in detail, so as to produce coordinated economic land use for developing projects within a satisfactory environment.²

These objectives were accomplished in three stages: the first stage consisted of the compilation of urban and regional planning data; the second stage has been the analysis and projection of modernization processes such

¹Since 1966 the Town Planning Department of the Ministry of Lands and Settlement has done an exhaustive inventory of physical and social planning schemes for nearly all provinces as well as major urban centers in Kenya. See Republic of Kenya, Central Province Regional Physical Development Plan, Eastern Province Regional Physical Development Plan, Nyanza Province Regional Physical Development Plan, Western Province Regional Physical Development Plan, Coast Province Regional Physical Development Plan, Rift Valley Province Regional Physical Development Plan, and Development Plan 1970-1974, pp. 81-102.

²Republic of Kenya, Development Plan 1970-1974, p. 81.

as population growth, economic development, technical and cultural change, and the urbanization process; and the third stage was concerned with the preparation of strategic plans.¹ Thus, most of the development planning in Kenya was concerned with the growth of major urban centers. Planning in Kenya, whether physical, social, political, or economic, has been a major goal since the publication of the influential document, The African Socialism, which stressed that

the power to plan and the power to implement are central to African socialism. Planning is a comprehensive exercise designed to find the best way to which the nation's limited resources--land, skilled manpower, capital and foreign exchange--can be used to promote the objectives of every individual, every firm, and every agency of government both central and local.²

But despite the underdeveloped nature of all urban centers except Mombasa and Nairobi, the government has selected a "strategy of selective concentration"³ in which major emphasis is placed on the development of Nairobi and

¹ Republic of Kenya, Development Plan 1970-1974, pp. 81-82.

² Republic of Kenya, African Socialism and Its Application to Planning in Kenya (Nairobi: Government Printer, 1965).

³ Lloyd Rodwin, Nations and Cities: A Comparison of Strategies of Urban Growth (New York: Houghton-Mifflin, 1970; and Lloyd Rodwin, "Choosing Regions for Development," in Regional Development and Planning a Reader, ed. by John Friedman and William Alonso (Cambridge, Mass.: The M.I.T. Press, 1964), pp. 37-58. The other two strategies of promoting national development planning are "concentrated development (all developments are concentrated in the export enclaves or progressive regions) and the "balanced growth" or "regional equity" in which all development is distributed evenly over space.

Mombasa for the following reasons:

First . . . these two cities have not yet reached optimum size. Secondly . . . Nairobi and Mombasa tend to be the logical choice of [new] industries. Thirdly, Nairobi and Mombasa are well supplied with service industries . . . which is often necessary for the smooth operations of a large business. Fourthly, Nairobi is already endowed with very good transportation routes to all parts of East Africa while Mombasa is the major port and has natural advantages for industries such as petroleum refining which require large quantities of raw materials arriving by sea. Fifthly, Nairobi and Mombasa are necessary to attract well qualified executive and managerial staff. Kenya is particularly fortunate . . . in having two cities with such high standards as infrastructures development and so many natural advantages which attract companies of international repute to invest their capital and, then, it is not, therefore, the policy of government to impose mandatory and artificial restrictions to private commercial and industrial development in Nairobi and Mombasa, for such a policy would discourage the economic development of the country as a whole.¹

Because of the economics of concentration which could accrue by the policy of encouraging development of Nairobi and Mombasa with very limited investment on other designated "growth centers," the government has encouraged their development and at the same time emphasized rural development. The Kenya Government adopted a planning policy that "growth does not appear everywhere at the same time, it becomes manifest at points or poles of growth, with variable intensity, it spreads through different channels, with variable terminal effects on the whole economy."²

¹Republic of Kenya, Development Plan 1970-1974, pp. 85-86.

²Francois Perroix, "Notes on the Concept of Growth Poles," in Regional Economics: Theory and Practice, ed. by D. L. McKee, R. D. Dean, and W. H. Leahy (New York: Free Press, 1970), p. 94.

Johnson, in a recent study, summarized the unbalanced nature of development in the world:

Economic development is never a uniform meliorative process. Even in advanced and mature countries, there are persistent backwaters such as Appalachia in the United States, or the Mezzogiorno in Italy and in the developing countries preferential policy efforts to homogenize the regional rates of economic development have usually failed . . . [because] some regions are poor in resources, or their people may suffer from endemic diseases which have weakened them and reduced their productive capacity [and some regions have] low rates of capital formation, inadequate education or training of the work force [and] inefficient scales of production. . . . Regional growth differentials must therefore be expected; the policy problem is not how to eliminate these differences, since that is probably impossible but how to reduce them, if that can possibly be done, and how to prevent them from becoming wider.¹

This policy of concentration of growth in favored growth points was also noted by Hirschman when he said that "there can be little doubt that an economy, to lift itself to higher income levels, must and will first develop within itself one or several centers of economic strength. . . ."² Furthermore, interregional inequality of growth is an inevitable concomitant and condition of growth itself. Because of the unbalanced development in Kenya, the government has stipulated a number of major growth centers with well-established infrastructures which will be needed in order to accelerate the growth of urbanization. These are

¹Johnson, The Organization of Space in Developing Countries, p. 62.

²Albert O. Hirschman, "Interregional Transmission of Economic Growth," in Regional Economics Theory and Practice, ed. by D. L. McKee, R. D. Dean, and W. H. Leahy (New York: Free Press, 1970), p. 105.

the only centers that can serve as polarization points toward planned expansion of the urbanization process. The Town Planning Advisor "emphasized the policy that the major growth centers such as Kisumu, Nakuru, Eldoret, and Thika, apart from Nairobi and Mombasa, would be given necessary encouragement so that more industries would be directed to them,"¹ because of limited financial resources available. This strategy of limited deconcentration which would aid the two major centers to grow unabated was also confirmed by a separate study done by Cassidy and Renssen.²

The development of selected urban enclaves (growth poles) will only be perpetuating the pre-independent colonial policies which over the years have failed to transform the economic development of the country. It is an alternative to such a policy that we intend to propose in the concluding sections of this thesis.

In discussing the regional planning scheme for a developing region, it should be realized that the planning strategies cannot work in isolation from national development strategies. Coordination of planning between sectors as well as between national and local agencies is very

¹National Staff Reporter, "30,000,000 People in Kenya by the End of the Century," East Africa Standard, Friday, August 11, 1972, p. 6.

²George Cassidy and Frank Renssen, "Urban Growth and Population Distribution in Kenya," Town Planning Institute Journal (May, 1970), p. 179. For a rebuttal to this article, see Robert A. Obudho, "The Hierarchy of Urban Centers in Kenya," Town Planning Institute Journal, LVI, No. 8 (September/October, 1970), 365.

important. Development planning should be comprehensive in the sense that it should include economic, social, and physical aspects in a multi-purpose programming and projects. While it is important to coordinate the regional planning strategies with national as well as sectoral planning, it should be emphasized that in the developing countries

maximum overall economic growth [should] be the primary objective of development planning. Because of the absence of a well-organized price mechanism and because of the large amount of non-market-oriented state activities, maximum growth can only be achieved by state level planning and cannot be left to the principles of laissez-faire. This applies equally to sectoral and regional allocation of investments. A typical phenomenon of many developing countries is the concentration of growth in certain preferred areas while the greater part of the country does not even reach the "take off" level. Important resources are left untapped and no attempt is made to achieve a maximum overall growth. The maximization of growth . . . is the primary objective of regional planning in the developing countries.¹

It is important that a development scheme be devised which will reduce the gap in the per capita monetary product among different regions and among urban centers of the same level. This can best be achieved by emphasizing the planning in the rural agricultural areas where the central places of the market-place sub-system are located.

Problems of the Present Development Strategy

The present approaches to the development issues in Kenya has some built-in problems which is common to any

¹Peter P. Waller et al., "Basic Features of Regional Planning in the Region of Kisumu, Kenya" (Berlin, German Development Institute, 1969), pp. 2-3. (Mimeographed.)

developing country. First, most of the development planning strategies are urban oriented. Most of the social and physical planning proposals have been concentrated in the major urban centers. This policy of improving the conditions in major urban areas has resulted in a high rate of rural to urban migration and adequate services and economic and social development have only been stimulated in these centers at the expense of the rural areas. Second, the improvement of major urban centers have not been done hand in hand with the Special Rural Development Programme (SRDP)¹ in which a series of selected pilot projects were established by means of stimulating the agricultural development in the rural areas. Most of these pilot projects have failed because they lacked a central place where the rural development program could be based. Rural problems and urban problems should not be viewed in isolation but as an interrelated spatial system. And finally, any spatial and regional planning of Kenya based on the present organization of the central towns of the urban-place sub-system will be done on a disorganized and baseless spatial system. Such a planning will not alter the dual, neo-colonial economic system, but might only succeed in fostering its growth. The central places of the market-place sub-system

¹For historical resume on this program, see J. R. Nellis, "The Administration of Rural Development in Kenya: Plan Formulation and Implementation in the Special Rural Development Programme," Issues in African Development (Ottawa: Canadian Association of the African Studies, 1972), pp. 168-82.

will play a very important part in interlinking the developments in the rural and urban systems. Planning of the market place should be central rather than peripheral to Kenya's development strategy. It will help in reducing the developments between the urban system and the rural system. These development problems can be reduced only by planning at the local level, especially at the selected central places of the market-place sub-system.

A Strategy for Development Planning

The main goal of the development strategy in which planning is emphasized at the selected central places of the market-place sub-system is mainly to use these centers as interface between the urban system and the rural areas. This strategy of development planning will enable the urban centers to be responsive to their agricultural hinterlands. It will provide an opportunity of linking the developing urban system with the developing rural system. The development strategies in Kenya, which emphasized development of the major urban enclaves, have not only succeeded in isolating these centers from their surrounding hinterland, but have also failed to organize the spatial structure of the central places of the country, especially at the local level. Further development of these major centers with the urban-place sub-systems will only increase their orientation with the overseas markets.

In the hierarchical organization of Kenya towns,

as we have discussed earlier, Nairobi is the primate city with most of the service functions concentrated there. In this hierarchical order of major urban centers, we have Nairobi, Mombasa, Nakuru, and Kisumu. The major urban and port centers account for only 0.4 percent of all central places in Kenya (Table 7:1 and Appendix XIII). As a matter of fact, all central places with a population of 500 and above only accounted for 5.20 percent of the total central places. ~~These are~~ the centers which are associated with daily markets, large-scale wholesale dukas, and other social amenities. Most of these central places are all found on the high-growth center of Kenya, the Central Highlands. Below the urban centers we have the rural centers which in most cases are associated in one way or another with the rural daily markets. With some minor commercial investment and provision of social amenities, these rural centers, which have accounted for 13.21 percent of the central places in Kenya, will qualify for the urban centers. Again, the first three orders of central places (major and port centers, minor urban centers, and port towns) are concentrated in the Central Highlands Region. In Kenya, 81.59 percent of the central places are either in the market or local centers. Of this group, 22.62 percent are market centers, while 58.97 percent are local centers. The majority of the periodic markets are located in either the local centers or market centers (Table 7:1). The Central Highlands Region has the highest concentration

TABLE 7:1
KENYA: NUMBER OF CENTRAL PLACES IN EACH HIERARCHY BY DISTRICT

Province	District	Major urban and port centers	Minor urban centers	Minor port towns	Rural centers	Market centers	Local centers	Percent total	Total urban centers
Central	Muranga	1	-	-	9	7	22	3.91	39
	Kiambu	4	-	-	7	6	20	3.71	37
	Kirinyaga	2	-	-	4	7	9	2.20	22
	Nyeri	2	-	-	5	7	26	4.00	40
	Nyandarua	2	-	-	4	3	21	3.00	30
Total Central		11	-	-	29	30	98	16.82	168
Percent total Kenya		1.10	-	-	2.90	3.00	9.82	16.82	
Coast	Mombasa	1	-	-	-	1	2	0.40	4
	Kilifi	-	-	5	2	4	20	3.11	31
	Kwale	-	-	2	3	7	9	2.10	21
	Taita	-	-	-	2	4	5	1.20	12
	Tana River	-	1	-	1	2	2	0.50	5
	Lamu	-	-	3	-	-	2	0.50	5
	Total Coast		1	1.10	8	18	40	7.81	78
Percent total Kenya		0.10	1.00	0.80	1.80	4.01	7.81		
Eastern	Embu	-	1	-	3	7	14	2.50	25
	Meru	-	1	-	8	8	15	3.20	32
	Machakos	-	2	-	9	15	17	4.31	43
	Kitui	-	1	-	5	18	22	4.61	46
	Isiolo	-	-	-	1	3	6	1.00	10
	Marsabit	-	-	-	1	2	5	0.80	8
Total Eastern		5	-	27	53	79	16.42	164	
Percent total Kenya		0.50	-	2.70	5.31	7.91	16.42		

(continued)

TABLE 7:1 (continued)

Province	District	Major urban and port centers	Minor urban centers	Minor port towns	Rural centers	Market centers	Local centers	Percent total	Total urban centers	
North-eastern	Wajir	-	-	-	1	1	2	0.40	4	
	Garissa	-	-	-	1	4	-	0.50	5	
	Mandera	-	-	-	1	2	1	0.40	4	
Total Northeastern		-	-	-	3	7	3		13	
Percent total Kenya		-	-	-	0.30	0.70	0.30	1.30		
Nyanza	Kisumu	1	-	-	6	6	16	2.90	29	
	Siaya	-	-	2	3	10	20	3.50	35	
	Kisii	-	1	-	5	12	27	4.51	45	
	South Nyanza	-	-	4	6	11	23	4.41	44	
Total Nyanza		1	1	6	20	39	86		153	
Percent total Kenya		0.10	0.10	0.60	2.00	3.91	8.61	15.32		
Rift Valley	Uasin Gishu	-	1	-	2	4	18	2.50	25	
	Kericho	-	1	-	5	6	26	3.81	38	
	Nandi	-	1	-	1	3	30	3.51	35	
	Nakuru	1	2	-	2	7	11	2.30	23	
	Trans-Nzoia	-	1	-	-	4	15	2.00	20	
	Baringo	-	1	-	2	7	25	3.51	35	
	Laikipia	-	1	-	-	2	10	1.30	13	
	Elgeyo-Marakwet	-	-	-	3	4	14	2.10	21	
	West Pokot	-	-	-	2	1	16	1.90	19	
	Kajiado	-	1	-	3	-	-	25	2.90	29
	Narok	-	-	-	2	1	13	1.60	16	

(continued)

TABLE 7:1 (continued)

Province	District	Major urban and port centers	Minor urban centers	Minor port towns	Rural centers	Market centers	Local centers	Percent total	Total urban centers
	Samburu	-	-	-	1	2	13	1.60	16
	Turkana	-	-	-	3	4	2	0.90	9
Total Rift Valley		1	9	-	26	45	218		299
Percent total Kenya		0.10	0.90	-	2.60	4.51	21.82	29.93	
Western	Kakamega	1	1	-	9	14	24	2.41	49
	Bungoma	-	1	-	5	13	19	1.90	38
	Busia	-	1	2	5	7	22	2.20	37
Total Western		1	3	2	19	34	65		124
Percent total		0.10	0.30	0.20	1.90	3.40	6.51	12.41	
Total Kenya		4	30	18	132	226	589		999
Percent total Kenya		0.40	3.00	1.80	13.21	22.62	58.97	100.00	

Source: Based on data from Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printer, 1969), pp. 101-2.

followed by Western and Coastal Regions, while the Masai-Northern Frontier Region has the lowest concentration. By major hierarchical groupings, there are more local centers than urban, rural, and market centers. The local centers account for over half (58.97 percent) of all central places in the country.

It was not until recently that regional development schemes were proposed in Kenya that combined physical, social, cultural, and political aspects at national, regional, and local levels. The initial planning attempts which were carried out in Kenya were based on the major growth centers of Kisumu, Nairobi, Mombasa, Kakamega, Nakuru, and Eldoret, but these initial planning attempts have failed to organize the spatial structure of the urban centers of the region. The central places are still parasitic to the region where they are located because they are concerned

. . . less with internal marketing and distribution of local produce and much with the efficient exporting of locally produced raw materials and importing of consumer goods from the colonial center. Exports and imports were taxed in order to finance the administration without burdening the colonial powers. The urban areas had an economic rationale, in the past largely related to external influences, and not to the direct generation of the output, employment and income.¹

Kenya towns were superimposed from above rather than the result of organic growth from within. Except for

¹ M. A. Tribe, "The Economics of Urbanization," in The Role of Urban and Regional Planning in National Development in East Africa, ed. by Michael Safier (Kampala: Milton Obote Foundation, 1970), p. 150.

parts of Kericho and Nandi Districts, and Central Highlands Region, the other parts of Kenya were not directly influenced by European settlements. Because of this, all other parts of Kenya show a lack of centrality. In a recent study, Ominde and others analyzed the situation in the African trustland when they said that

the hierarchy of service centers which normally develops in a native rural economy to provide for the commercial, administrative and social needs of the farming community and which forms a network of economic catalysts throughout the agricultural regions has developed defectively in Kenya, particularly in the African trustland areas.¹

It is very important that planning in a region such as Kenya which is mainly a trustland with very weak spatial organization should be concentrated in developing these small centers. Any further planning or improvement of the major urban centers will increase their relationship with outside Metropolitan powers, and may not necessarily result in modernization in the periphery. It is important that a planning model be devised which emphasizes planning at the local or grassroots level rather than at a higher-order center. Planning "from the grassroots will generate further growth and create a more meaningful symbiotic relationship between core and periphery."² The main object of such a planning model is to integrate the traditional

¹Ominde, Ligale, and Cusac, Urbanization and Environment in Kenya, p. 18.

²Milton E. Harvey and Phillip D. Greenberg, "Development Growth Poles and Diffusion Processes in Sierra Leone," African Urban Notes, VI, No. 3 (Fall, 1972), 118.

economy with the modern urban economy. The planning of the rural areas can play a very important part in the overall economic development of a country as has been aptly pointed out by Safier:

A first area of planned responses to be considered is . . . that of improving conditions in the rural areas. . . . A second is of government intervention . . . which lies in the planned improvement of the activities and services provided by the smaller urban areas in the remote . . . regions of the country. Here is where efforts to improve facilities and access in an ordered pattern can provide aids to productive effort and strengthen the local economy in face of the primate metropolitan dominance. Much can be done to boost associated marketing, maintenance and education services in a series of centers which will attract some complimentary responses from the surrounding areas now suffering from selective migration but with investment opportunities not exploited for lack of supporting infrastructures.¹

The key to the economic development of any developing country has normally been found in the historical relationship between the towns and the rural areas. This is particularly true of a country such as Kenya which is 90 percent rural. The planning needs and the rural character of Kenya were recently summarized in the Kericho conference:

The overwhelming majority of Kenya citizens live and work in the rural areas. The core of the problem is to bring a rapidly increasing population of this rural population into a modern productive economy. This is not only a question of production but of raising the income, the status, the self respect and the satisfactions of the whole farming community. Unless and until this can be achieved, the advance of the urban and industrial sector will be severely checked.²

¹Safier, "Urban Problems Planning Possibilities and Housing Policies," p. 31.

²Sheffield, Education, Employment and Rural Development Report of the Kericho Conference, p. 3.

Rural planning in developing countries is more important than the present planning schemes that have concentrated development in the few selected export enclaves. A recent seminar organized to study the role of urban and region planning in national development in East Africa recommended among other things:

(a) the encouragement of local and regional development, especially in those parts of a country outside the already developing area, (b) the choice of location of industrial investments . . . , (c) the distribution of capital resources amongst urban areas . . . , and (d) the promotion of rural development especially as regards to the integration of urban centers into the surrounding rural environment.¹

Of these recommendations, we think the last one dealing with regional development of rural areas can play a very important part in spatial organization of the central places in the developing countries. The organization of rural periodic markets will, according to the recent United Nations Conference on Human Environment,

(a) encourage in each village the planned growth of a network of services for culture, health, education and commerce, (b) transform selected villages into centers of attraction forming intermediary points in order to slow down migration to the large cities and (d) reduce the disparity between rural and urban standards of living by providing villages with social and other modern amenities.²

This can only be achieved by building a scheme that

¹Saifer, The Role of Urban and Regional Planning in National Development for East Africa, p. 11.

²United Nations, Conference on the Human Environment, Basic Paper (b) ii, Rural Development, May, 1971, pp. 8-9.

recognizes the development of periodic markets.¹ In addition, the improvement of infrastructural services will aid in a higher rate of rural to urban migration which has been brought about by the economic and social change.

The periodic market approach as a regional planning strategy is based on several assumptions. First, that the diffusion of innovation filters down the hierarchy of centers from the primate center(s) to the lowest level of central places. They also trickle down the hierarchy of central places with some distance decay. The diffusion of innovation from major urban centers to the lower levels was well summarized by Berry when he said that

. . . the developmental role of growth centers involves the simultaneous filtering of the innovations that brings growth down the urban hierarchy and the spreading of the benefits accruing from the resulting growth both nationally from core to hinterland regions and within these regions from their metropolitan periphery. Regional inequities arise in this scheme because the income effect of a given innovation is a declining function of time and is also subject to a threshold limitation--a minimum size of a region--beyond which diffusion will not proceed. As a consequence, the lowest levels of welfare are found in areas peripheral to small urban centers in outlying hinterland regions.²

This form of diffusion is particularly common in a

¹For discussion of the planning at the urban centers level, see Robert A. Obudho, "Spatial Interaction of Urban Centers and Their Implication for Development Planning: A Case Study from Kenya" (paper presented at the African Studies Association, 16th Annual Meeting, Syracuse, N. Y., October 31-November 3, 1973).

²Brian J. L. Berry, "Hierarchical Diffusion: The Basis of Development Filtering and Spread in a System of Growth Centers," in Growth in Regional Economic Development, ed. by Niles M. Hansen (New York: Free Press, 1972), p. 108.

developing country with very low stages of urbanization and industrialization. The impulses of innovations are transmitted simultaneously along three planes: (a) outward from hinterland metropolis to those regional hinterlands, (b) from centers of higher to centers of lower level in the hierarchy in a pattern of hierarchical diffusion, and (c) outwards from urban centers into their surrounding fields.¹ The diffusion of innovation in Kenya has, therefore, traditionally spread from the Metropolitan centers down the hierarchy of Provincial District, sub-district, and lacustrine bomas up to the level of locational headquarters. Unlike diffusion in other parts of the world, however, the diffusion of innovation in Kenya has not been unidirectional. The spread has been from higher- to lower-order centers and vice versa.

Second, since independence, when the indigenous Africans were allowed to reside in the urban areas, there has been a closer link between urban centers and the rural areas. This link has encouraged rural to urban as well as urban to rural filtering and spread of ideas. The interaction between these two systems has increased to the extent that the urban centers exhibit the indigenous as well as non-indigenous characteristics. Taylor also

¹ John Friedmann *et al.*, "Urbanization and National Development: A Comparative Analysis" (unpublished report, School of Architecture and Urban Planning, University of California, Los Angeles, June, 1970), p. 15. (Mimeographed.)

recently concluded that "if time and distance decay effects, then it would seem logical that to reduce these effects innovations could be introduced at the lowest level of urban center rather than being allowed to filter down."¹ In another study, Taylor emphasized that "the assumption that all innovation [in this case ideas] comes from the larger urban centers can also be challenged. Innovation can take place at the lower ends of urban hierarchy just as effectively as down."² Pred, in a recent study, has convincingly argued that in addition to hierarchical filtering, there is also lateral diffusion between centers of the same level in the hierarchy (the trickle-down), and upward diffusion from lower- to higher-order centers:

The most realistic descriptive mode of diffusion within an urban system would be one that combined the Christallerian hierarchical spread of present models, the lateral and smaller-to-larger place dissemination allowed by a Loschian schema, and a considerable degree of information exchange between very high order places, or between places in the size class just below the largest city system.³

Kenya urban centers have been Africanized to the extent that the local tradition is now being incorporated

¹D. R. F. Taylor, "The Role of the Smaller Urban Place in Development: A Case Study from Kenya" (paper presented at the 15th Annual Meeting of the African Studies Association, Philadelphia, Pa., November 8-11, 1972), p. 15.

²D. R. F. Taylor, "The Role of the Smaller Urban Place in Development: A Case Study from Kenya," African Urban Notes, VI, No. 3 (Fall, 1972), 7-23.

³A. P. Pred, "Large-City Independence and Pre-Electronic Diffusion of Innovation in the U.S.," Geographical Analysis, III (1971), 175.

into the urban way of life. This means that diffusion from the lower-order centers to higher-order centers is also taking place (see Figure 7:1). The change from external modern to internal local ideas of diffusion has been taking place since the indigenous Africans were allowed to reside in the urban areas at the beginning of the national era. The rural-urban linkages, though weak, are developing very fast. Planning at the local level (the periodic market sub-system) will hasten the spatial development of periodic markets into a fixed central place which can aid in the economies of urbanization. Planning at the local level will not only reduce the polarization and backwash effects which result when ". . . the growth centers drain rather than induce prosperity in [their hinterland],"¹ but will also help in reorienting the urban centers to their hinterland rather than to major export enclaves.

The periodic market approach to regional development goes beyond the planning concepts already conceived by Townsend. According to Townsend, the hintertown approach to regional planning will form a bridge between the abandoned rural areas and the overburdened city:

. . . Hintertowns have the characteristics of both rural and urban settlement . . . [and they] would develop industries associated with modernization of agricultural processes and become loci; for the decentralizing of certain functions now crammed into primate

¹ Niles M. Hansen, ed., Growth Centers in Regional Economic Development (New York: Free Press, 1972), p. vii.

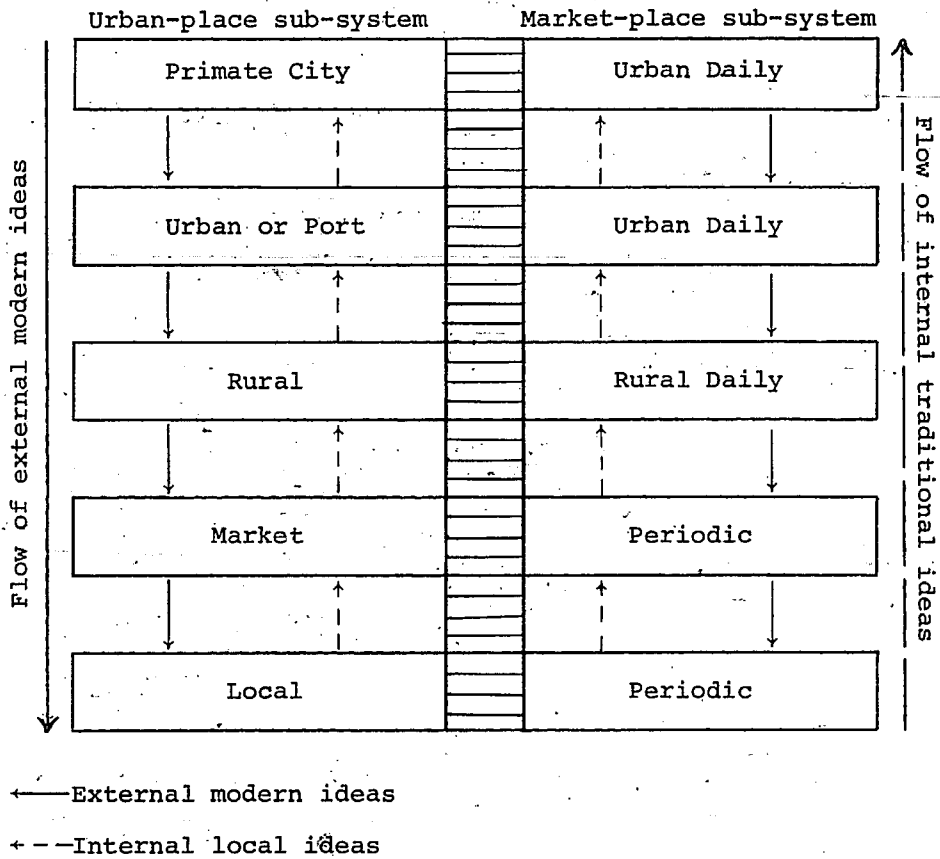


Fig. 7:1--Idealized multi-directional flow of diffusion of innovations among central places in a developing dual economy.

city. They would develop a possible symbiosis or transition point for the development for technical administrative "skill banks" which many interact in either direction to rural or urban settlements.¹

Although the hintertown concept might temporarily lessen the rural-urban migration, in the long run, it will not attack the root of urbanization problems. The hintertown might be used as a planning strategy to reinforce the planning of central places with the market-place sub-system. If such a procedure is adopted, the hiatus between the central places of the market-place sub-system and the urban-place sub-system will be bridged. Development, therefore, should be concentrated at both the local level as well as the intermediate central places. A policy of encouraging development at metropolitan levels without distributing development planning at local or intermediate stages will only aid in increasing rural to urban migration, a situation which all regional planners are trying to mitigate. In addition, the major or intermediate central places will not perform a true function unless the lower centers, with the market-place sub-systems, are organized.

The critical role of development planning should be that of developing towns as marketing centers rather than as administrative centers per se. The organization and

¹Narelle R. Townsend, "Hintertown as Instruments of Regional Development in Tropical Africa," African Studies Association, 14th Annual Conference (unpublished paper delivered on Panel G-4 on "Contemporary African Architecture and Urbanism," Denver, Colo., November, 1971).

planning of the market centers and local centers would hasten the formation of agro-towns in the rural areas because it is in these central places that it would be possible to install the social amenities to serve the rural countryside.

Planning in Kenya should be concentrated at the local level by developing selected local market centers in conjunction with rural agricultural development in order to hasten their entry into the urban economy. The planning of periodic markets will reduce the problem of distance decay, increase the speed of the changing of rural markets into daily markets, and increase the pace of diffusion of traditional or rural ideas up and along the hierarchy of central places in the country.

A recent study by the United Nations concluded that

... the only practicable alternative seems to be to build urban centers and facilities close to the traditional life, through the mechanism of regional development. The principles on which this approach is based are concurrent policies for the improvement of conditions in rural life and for the creation of more job opportunities and urban services close to the rural life and for the creation of cities.¹

The periodic market approach can be used in conjunction with the Special Rural Development Programme (SRDP) in Kenya which was established after the Kericho

¹I. Prion, "Urban and Rural Development in Regional Planning: Israel," in The Role of Urban and Regional Planning in National Development for East Africa, ed. by Michael Safier (Kampala: Milton Obote Foundation, 1970), p. 25.

conference on rural development.¹ While such schemes are aimed at increasing the agricultural production of these regions, they have not attempted to organize the spatial structure of the central places.

The planning of the allocation of resources in Africa should be concentrated in the rural areas because it is these small central places that play a very important role in the lives of Africans. The rural development of periodic markets cannot be left to the slow process of supply and demand to transform the market-place to urban-place sub-systems. According to Johnson:

. . . the transition from village-structured economy to a market-town economy was slow, groping and wasteful. . . . Experience has, therefore, shown that the creation of necessary market towns cannot wisely be left wholly to atomistic market forces. [The process] needs to be guided, assisted, quickened and induced by careful overall pre-planning even as it should be properly implemented by integrating the whole market-town-making programs with a nation's overall planning of patterns, targets and goals. A developing nation must, therefore, make a choice. Its leaders must decide whether they will wait for the slow, hesitant groping, local market forces painfully and planlessly to bring regional market centers into being or whether they will set in motion a systematic rationalization of the market and production structure of their rural economy.²

The planning of spatial organization will be the only way of bridging the gap between the developed export enclaves and the underdeveloped hinterland regions because economic dualism is common to both developed and underdeveloped

¹Sheffield, Education, Employment and Rural Development Report of the Kericho Conference.

²Johnson, The Organization of Space Economy in Developing Countries, pp. 82-83.

countries.¹ In developing countries, we must emphasize the question of narrowing intra-regional or intra-urban inequalities vis-à-vis inter-regional inequality. The aim in planning is to reorient the central places to contribute directly to that hinterland instead of collecting raw materials for export. According to Johnson, the goal of planning in a developing country is ". . . to visualize a process of transformation that will widen the occupational opportunities for millions of village-born young people, increase total employment, and save greater scope for the adventurous and the ambitious without overpopulating the already exploding few large cities."² The main goal in planning in developing regions is to develop the infrastructure of central places, particularly the smaller or emerging central places such as local centers, periodic market centers, and other form centers where agriculture can be planned at the grassroots. The development of central places within the market-place sub-system will permit central places to develop within the Christallian traffic principle thereby reducing the unit of transportation from the rural centers to the urban centers.

Organization and Implementation
of Development Strategy

In proposing the periodic market as a planning approach, we are not suggesting that all the development

¹Johnson, The Organization of Space Economy in Developing Countries, p. 162.

²Ibid., p. 164.

planning should be concentrated on each and every 1,084 periodic and daily markets in Kenya because such a project will be impossible in view of the limited resources of the country. The following are some of the suggested criteria which have been generalized for the whole of Kenya. Some of these criteria could be modified to meet specific regional or local conditions.

The first important basis for selecting a central place of the market-place sub-system as a development (growth) center for planning purposes would be based on the hierarchical importance of that center within the region and locality and perhaps within Kenya as a whole. In understanding the hierarchy of such a center, we have to know the past and present pattern of the urbanization process of that center with its spatial system. This is very important because, as we have indicated earlier, the spatial system of Kenya had been developed by the colonials because of their importance for the extraction and/or bulking of raw materials, and because they were centrally situated for the enforcement of colonial laws. Second, such periodic markets should be ones that offer meaningful services to the people of the area. Periodic markets and their associated dukas usually have a turnover in terms of daily business transaction that could be used as a means of measuring the importance. Third, the periodic market can be picked based on the richness of the hinterland in agriculture production. Since their main idea behind planning

at the local level is to link the urban areas with agricultural hinterland, it is important that only the centers within such a region be tapped for development. Finally, only centers with high and well-organized transportation systems should be picked for development planning.¹

Once these centers have been picked, the improvement and organization of the infrastructural services could be planned in order to improve their hierarchical organization with the Kenya spatial system. It is only by planning at this market-place central place that the spatial system of Kenya can be organized in order to help in the overall development of the country.

In order to reorganize and reorient the urban centers of Kenya, we have proposed planning schemes which are based on the market-place sub-system. Planning at the grassroots level will help the region bring jobs to the rural areas where the majority of the population reside, reorient the towns from parasitic to generative roles, and help in lessening the gap between hinterland and export enclaves. The major goal in regional planning in developing countries is to lessen the disparity between rural sub-systems and the urban composite system while at the same

¹For a more detailed discussion of these four reasons of selecting a growth injection center in Kenya, see Kimani and Taylor, Growth Centers and Development in Kenya, pp. 15-20. Although they both emphasize medium centers, the same approach can be used in selecting the small central places of the periodic markets' sub-system.

time retaining the specific characteristics of each.¹ The immediate fusion of the periodic-market sub-system and the urban-place sub-system can only be achieved by concentrating planning at the local level. In order to reorganize and reorient the urban centers of Kenya, a planning strategy should deliberately emphasize the emerging role and transformation of the numerous periodic markets which are the modest "growth poles of their respective local areas." Taking advantage of and building upon this existing structure of "grassroot" level centers would help to induce development in the rural areas, reorient towns toward their hinterland, increase local participation, ease the pains of transition, and reduce the gap between the rural hinterland and the export enclaves.

¹Prion, "Urban and Rural Development in Regional Planning: Israel," p. 256.

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APPENDIX I

POPULATION GROWTH OF KENYA TOWNS, 1948-1962

Town	Population 1948	Population 1962	Population increase (decrease)	Percent increase (decrease)	Average rate of growth
Nairobi	118,976	226,794	107,818	90.6	5.9
Mombasa	84,746	179,575	94,829	111.9	5.5
Nakuru	17,625	38,181	20,556	116.6	5.7
Kisumu	10,899	23,526	12,627	115.9	5.6
Eldoret	8,193	19,605	11,412	139.3	6.4
Thika	4,435	13,952	9,517	214.6	8.5
Nanyuki	4,090	10,448	6,358	155.5	6.9
Kitale	6,338	9,432	3,094	48.8	2.8
Nyeri	2,705	7,857	5,152	190.5	7.9
Kericho	3,218	7,692	4,474	139.0	6.4
Gilgil	-	6,452	-	-	-
Lamu	5,868	5,828	(40)	(0.7)	-
Malindi	3,292	5,818	2,526	76.7	4.2
Athi River	-	5,510	-	-	-
Isiolo	-	5,445	-	-	-
Fort Hall	2,096	5,389	3,293	157.1	7.0
Thomson's Falls	-	5,316	-	-	-
Embu	-	5,313	-	-	-
Naivasha	-	4,690	-	-	-
Kisii	2,426	4,530	2,104	86.7	4.6
Machakos	2,028	4,353	2,325	114.6	5.6
Kakamega	4,978	3,939	(1,039)	(20.9)	(1.7)
Meru	-	3,308	-	-	-
Londiani	-	3,044	-	-	-
Molo	-	3,028	-	-	-
Elburgon	-	2,891	-	-	-
Magadi	-	2,751	-	-	-
Kiambu	-	2,533	-	-	-
Voi	3,632	2,533	(1,099)	(30.3)	(2.5)
Marsabit	-	2,470	-	-	-
Kitui	-	2,447	-	-	-
Eldama Ravine	-	2,315	-	-	-
Kilifi	-	2,018	-	-	-
Kajiado	-	2,078	-	-	-
Total urban pop.	285,545	670,934	385,389	134.97	6.2
Total Kenya pop.	5,405,966	3,636,263	3,230,297	59.75	3.1

Source: Kenya Population Census, 1948-1962.

APPENDIX II

MAIN URBAN CENTERS OF KENYA, 1962 vs. 1969

Town	Population census 1962	Population census 1969	Population increase (decrease)	Percent increase (decrease)
Nairobi	266,794	509,286	242,492	90.89
Mombasa	179,575	247,073	67,498	37.59
Nakuru	38,181	47,151	8,970	23.49
Kisumu	23,526	32,431	8,905	37.85
Eldoret	19,605	18,196	(1,409)	(7.17)
Thika	13,952	18,387	4,435	31.79
Nanyuki	10,448	11,624	1,176	11.26
Kitale	9,432	11,573	2,141	22.70
Nyeri	7,857	10,004	2,147	27.33
Kericho	7,692	10,144	2,452	31.88
Gilgil	6,452	4,178	(2,274)	(35.24)
Lamu	5,828	7,403	1,575	27.02
Malindi	5,818	10,757	4,939	84.89
Athi River	5,510	5,510	(167)	(3.03)
Isiolo	5,445	8,201	2,756	50.62
Fort Hall	5,389	4,750	(639)	(11.86)
Thomson's Falls	5,316	7,602	2,286	43.00
Embu	5,213	3,928	(1,285)	(24.65)
Naivasha	4,690	6,920	2,230	47.55
Kisii	4,530	6,080	1,550	34.22
Machakos	4,353	6,312	1,959	45.00
Kakamega	3,939	6,244	2,305	58.52
Méru	3,308	4,475	1,167	35.28
Londiani	3,044	2,994	(50)	(1.64)
Molo	3,028	4,240	1,212	40.03
Elburgon	2,891	5,343	2,452	84.81
Magadi	2,751		(2,751)	(100.00)
Kiambu	2,533	2,776	243	9.59
Voi	2,533	5,313	2,780	109.75
Marsabit	2,470	6,635	4,165	168.62
Kitui	2,447	3,071	624	25.50
Eldama Ravine	2,315	2,692	377	16.29
Kilifi	2,018	2,662	644	31.91
Kajiado	2,051	1,755	(296)	(14.43)
Total urban centers	670,934	1,035,543	364,609	54.34
Total urban population (7.20%)	670,934	1,079,908	408,974	60.96
Total Kenya population (3.40%)	8,636,263	10,942,705	2,306,442	26.71

The urban population of Magdi fell below 500 and as such was not enumerated as a town this time.

APPENDIX II (continued)

KENYA NEW TOWNSHIPS AS OF 1969*

Karatina	2,436
Kinango	2,450
Wundanyi	4,385
Galole	3,609
Homa Bay	3,252
Migori	2,066
Lumbwa	2,577
Njoro	3,037
Kapsabet	2,298
Narok	2,608
Wamba	2,650
Maralal	3,878
Baragoi	2,383
Lokitaung	4,090
Bungoma	4,401

*Based on 1969 census.

APPENDIX III

CATEGORY, VARIETY, AND LEVEL OF SERVICES

Category	Sub-category	Variety	Level	
Administration and protection	1 Administration	Provincial Commissioner District Commissioner-Co. Council District Officer	3 2 1	
	2 Judicial	High Court Resident Magistrates' Court District Courts	3 2 1	
	3 Police	Provincial Headquarters Divisional Headquarters Police Station-Police Post	3 2 1	
	4 Fire Protection and Ambulance Service	Fire Station Ambulance Service	3 1	
	5 Health	Hospital Health Centre Sub-Centre Dispensary	3 2 1	
	Social Services	6 Education	Secondary School--Technical College, Teachers' College Primary School	3 2 2
		7 Library	Public Library Visiting Library	3 1
		8 Social Centres	Community Hall-Social Hall	3

(continued)

APPENDIX III (continued)

Category	Sub-category	Variety	Level
Communications and transportation	9 Post and Telecommunications	Day and Night Telephone Exchange	3
		Post Office (Departmental)	2
		Sub-Post Office	1
	10 Petrol Station	Petrol Service Station Outlet	3
		Duka Petrol Outlet	1
	11 Bus Service	100 Plus Bus Trips	3
		10-99 Bus Trips	2
		1-9 Bus Trips	1
	12 Railways	Railway Station	3
	13 Air Transport	International Airport	3
Commerce		Airport	2
		Airstrip	1
	14 Shops	Wholesale and Retail Stores	3
		Groceries and General	2
		Shops--Dukas (more than five)	2
	15 Barter Markets	Grade A Market	3
		Grade B Market	2
		Grade C Market	1
	16 Banks	Full-Time	3
		Part-Time	1
17 Catering Services	Residential Hotel	3	
	Safari Lodges	1	

(continued)

APPENDIX III (continued)

Category	Sub-category	Variety	Level
Industry and Power	18 Manufacturing, Extractive, or Agricultural	More than 500 Employees 100-500 Employees	3 2 1
	19 Electricity		3
	20 Main Water Supply		3
	21 Sanitation	Sewage Disposal Works	3

Source: S. Ian D. McKee, "Towards a National Physical Planning for Kenya: A Case Study," Report of the Proceedings of the Town and Country Planning Summer School, University of Swansea, Royal Town Planning Institute, 1970, p. 68.

APPENDIX IV

KENYA TOWNS: THE URBAN SEX
RATIOS BY REGIONS*

	1969		1962		
	Adult	Popu- lation	Adult	African	Popu- lation
<u>Western Region</u>					
Kisumu	160	126	158	158	133
Kericho	179	141	179	162	146
Kisii	193	151	-	-	-
Kakamega	152	130	-	-	-
Homa Bay	187	133	-	-	-
Migori	185	141	-	-	-
Lumbwa	129	117	-	-	-
Londiani	109	104	-	-	-
Kapsabet	151	121	-	-	-
Bungoma	168	128	-	-	-
<u>Central Highlands Region</u>					
Nairobi	186	147	103	187	149
Thika	187	145	179	151	142
Kiambu	175	139	-	-	-
Fort Hall	160	134	249	204	187
Thomson's Falls	151	126	169	136	133
Nyeri	185	147	188	162	151
Karatina	179	146	-	-	-
Embu	202	154	166	143	140
Athi River	222	162	296	213	202
Meru	202	160	-	-	-
Eldama Ravine	116	106	-	-	-
Nanyuki	134	117	190	152	150
Nakuru	150	124	171	150	140
Gilgil	157	126	239	158	175
Naivasha	165	129	-	-	-
Elburgon	113	105	-	-	-
Njoro	122	110	-	-	-
Molo	132	118	-	-	-
Kitale	161	127	148	133	124
Eldoret	164	131	170	145	136

(continued)

APPENDIX IV (continued)

	1969		1962		
	Adult	Popu- lation	Adult	African	Popu- lation
<u>Coastal Region</u>					
Kilifi	118	118	-	-	-
Malindi	138	127	141	186	129
Kinango	77	90	-	-	-
Lamu	86	92	91	126	96
Mombasa	161	139	1450	151	134
Voi	177	140	-	-	-
Wudanyi	89	91	-	-	-
Galole	84	92	-	-	-
<u>Masai-Northern Frontier Region</u>					
Isiolo	127	119	143	128	128
Kitui	183	195	-	-	-
Machakos	176	138	-	-	-
Marsabit	127	118	-	-	-
Narok	184	138	-	-	-
Wamba	98	101	-	-	-
Maralal	123	110	-	-	-
Baragoi	69	77	-	-	-
Lokitaung'	110	103	-	-	-

*Based on data from 1969 and 1962 Kenya Population Census.

APPENDIX V
ETHNIC CLASSIFICATION IN KENYA

Major group	Ethnic group	
Bantu	Central Bantu	Kikuyu Embu Meru Mbere Kamba Tharaka
	Western Bantu	Luhya Kisii Kuria
	Coastal Bantu	Mijikenda Pakomo/Riverine Tavera Taita Swahili/Shirazi Bajun Boni/Sanye
Nilotes Nilotic	Luo	
Nilo-Hamitic	Nilo-Hamitic (Kalenjin-speaking = K.S.)	Nandi Kipsigis Elgeyu Pakot Sabaot Tugen
	Other Nilo-Hamitic	Masai Samburu Turkana Iteso Nderobo Njemps

(continued)

APPENDIX V (continued)

	Major group	Ethnic group
Hamitic	Western Hamitic (Rendile and Galla-speaking)	Rendile Borana Gabbra Sakuye Orma
	Eastern Hamitic (Somali-speaking)	Gosha Hawiyah Ogaden Ajwan Gurreh Degodia Other Somali
Non-Kenya Africans	Non-Africans	Europeans Asians Arabs Others

APPENDIX VI

KENYA URBAN CENTERS (1969) DATA MATRIX USED IN THIS STUDY*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Nairobi	509286	142	51	14	1	12	2	17	22	12	25	1471	23	65	32
Thika	18387	71	74	6	1	8	2	10	23	10	32	1449	22	68	33
Kiambu	2776	84	77	5	1	4	3	10	27	8	30	1393	45	42	22
Fort Hall	4750	39	83	2	1	3	2	8	21	7	41	1342	0	53	53
Thomson's Falls	7602	55	81	6	1	5	5	4	25	7	15	1260	12	73	27
Nyeri	10004	123	74	4	2	5	3	11	15	10	49	1472	34	100	90
Karatina	2436	10	87	2	0	2	1	7	14	9	55	1460	0	5	2
Kilifi	2662	26	5	2	75	4	3	7	22	24	10	1177	0	88	24
Malindi	10757	6	6	2	55	2	2	30	12	17	44	1268	0	36	13
Kinango	2450	124	34	0	60	0	0	4	21	21	8	901	0	9	2
Lamu	7403	6	2	1	62	1	2	32	22	31	7	921	0	26	4
Mombasa	247073	75	19	6	35	10	1	24	27	17	11	1391	5	57	23
Voi	5313	48	17	6	54	13	2	6	23	10	29	1404	0	50	20
Wundanyi	4385	6	3	2	55	1	0	0	21	13	12	909	0	5	1
Galole	3609	7	0	0	85	0	14	1	20	9	1	921	0	6	1
Embu	3928	51	78	5	1	4	3	8	27	8	29	1549	0	65	28
Isiolo	8201	15	24	2	0	1	68	2	22	12	26	1192	0	19	12
Kitui	3071	31	66	3	10	3	2	15	21	16	28	1589	9	55	24
Machakos	6312	36	78	4	2	3	3	9	25	10	30	1380	27	55	29
Athi River	5343	100	71	7	1	13	3	3	21	8	35	1619	0	63	26
Marsabit	6635	4	5	0	0	0	90	5	12	11	51	1185	0	5	2
Meru	4475	96	74	4	1	2	2	16	21	10	36	1603	62	100	6
Kisii	6080	40	11	51	0	21	4	12	20	12	30	1506	15	60	28
Kisumu	32431	108	6	21	1	44	3	23	21	17	20	1263	78	100	40
Homa Bay	3252	15	2	13	0	78	4	3	20	13	25	1334	0	4	2

(continued)

APPENDIX VI (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Migori	2066	24	5	19	0	65	2	6	20	15	25	1414	0	7	2
Eldama Ravine	2692	13	45	5	5	3	29	2	17	7	25	1061	0	26	7
Kericho	10144	89	31	20	1	15	20	11	26	12	18	1408	27	91	41
Lumbwa	2577	16	43	15	1	16	23	2	17	10	19	1167	0	70	2
Londiani	2994	8	81	6	0	6	6	1	24	10	4	1035	0	55	13
Nanyuki	11624	32	73	4	1	5	8	6	26	10	16	1167	4	55	18
Nakuru	47151	87	44	19	1	18	6	11	26	12	12	1242	12	83	30
Gilgil	4178	37	58	15	1	11	10	4	26	10	16	1263	0	41	15
Naiyasha	6920	44	69	10	1	10	7	2	27	9	15	1289	13	77	27
Elburgon	5343	10	83	8	0	4	3	1	23	9	7	1049	8	29	9
Njoro	3037	8	70	13	0	8	6	3	26	8	7	1096	0	6	1
Molo	4240	41	70	13	0	8	5	2	24	7	13	1177	22	65	23
Kapsabet	2298	22	18	28	0	10	37	5	18	10	34	1212	0	6	1
Narok	2608	19	30	16	0	4	45	8	26	10	21	1379	0	5	1
Wamba	2650	11	3	1	0	2	88	1	11	20	35	1012	0	7	1
Maralal	3878	5	24	2	0	2	71	1	22	10	19	1101	0	5	1
Baragoi	2383	8	4	0	0	0	96	0	15	10	31	766	0	11	1
Kitale	11573	66	18	45	0	10	9	12	14	14	11	1274	0	92	32
Lokitaung	4090	6	1	0	0	0	98	0	6	4	60	1023	12	4	2
Eldoret	18196	119	24	34	1	14	10	14	19	12	21	1313	0	100	51
Bungoma	4401	11	11	58	0	13	9	4	24	14	19	1278	16	3	2
Kakamega	6244	41	9	58	1	14	4	10	20	13	27	1299	0	46	15

(continued)

APPENDIX VI (continued)

	(16)	(13)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Nairobi	40	13	2	1	30	33	68	9	28	5000	81	37	10
Thika	46	9	0	1	29	64	69	7	2	2000	6	2	4
Kiambu	43	12	0	1	27	63	66	8	2	4000	3	2	4
Fort Hall	41	7	0	1	31	61	62	7	2	1000	2	2	3
Thomson's Falls	42	5	0	1	42	60	59	10	3	500	3	2	2
Nyeri	30	6	1	1	27	64	71	6	2	1000	18	3	12
Karatina	50	17	0	1	25	61	82	5	2	500	0	2	3
Kilifi	46	5	1	2	45	54	60	12	2	500	3	2	10
Malindi	24	5	1	2	36	58	56	6	2	200	3	2	10
Kinango	9	2	0	0	54	43	49	10	2	200	0	1	2
Lamu	9	2	0	0	45	47	43	10	2	50	3	2	2
Mombasa	30	9	0	1	33	61	61	12	9	1000	43	16	10
Voi	3	0	0	0	35	63	71	8	2	200	3	1	14
Wundanyi	25	2	0	0	53	46	50	9	2	0	3	2	2
Galole	25	2	0	0	49	43	57	17	1	0	3	1	2
Embu	44	11	0	1	29	65	77	8	2	1000	3	2	3
Isiolo	6	2	0	0	40	55	57	7	2	50	3	2	5
Kitui	33	5	0	0	32	65	61	7	2	50	4	2	4
Machakos	46	8	1	1	30	62	71	8	3	50	4	2	5
Athi River	39	4	0	0	33	68	76	8	3	1000	6	1	3
Marsabit	6	1	0	0	40	85	59	5	2	0	3	1	12
Meru	36	8	0	1	30	62	61	7	2	200	4	2	5
Kisii	40	10	1	2	32	66	66	9	2	200	6	2	5
Kisumu	41	13	1	1	35	60	67	9	3	2000	30	3	11
Homa Bay	4	2	0	0	35	63	83	11	2	50	3	2	18
Migori	3	1	0	0	37	64	72	9	2	50	1	1	30
Eldama Ravine	25	2	0	0	45	53	55	9	2	0	8	1	2

(continued)

APPENDIX VI (continued)

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Kericho	42	9	0	1	34	64	63	9	2	2000	16	3	5
Lumbwa	29	3	0	0	49	56	55	9	2	2000	1	2	27
Londiani	29	2	0	0	52	52	51	9	2	2000	3	2	27
Nanyuki	43	5	0	1	42	57	58	10	3	1000	6	2	3
Nakuru	40	9	0	1	40	59	62	10	3	2500	11	3	6
Gilgil	39	5	0	0	37	61	61	9	2	1500	2	2	3
Naivasha	40	5	0	1	37	62	64	10	2	1500	3	1	2
Elburgon	31	3	0	0	50	53	53	10	2	2000	2	2	16
Njoro	34	4	0	1	47	54	55	11	1	200	2	2	2
Mclo	36	5	0	1	47	57	58	10	2	200	3	2	2
Kapsabet	32	4	0	1	38	60	56	7	2	200	3	2	2
Narok	31	5	0	1	34	64	70	8	2	50	3	2	2
Wamba	6	1	0	0	46	50	51	7	0	0	4	1	3
Maralal	7	1	0	0	45	56	52	9	2	0	3	1	27
Baragoi	6	1	0	0	55	29	78	8	0	0	2	1	1
Kitale	16	8	0	1	40	60	67	12	3	1000	9	2	9
Lokitaung	1	0	0	0	40	13	58	5	0	0	0	0	0
Eldoret	39	9	0	1	39	61	70	10	3	2000	8	3	14
Bungoma	37	8	0	1	38	61	65	7	2	1000	7	2	5
Kakamega	41	8	0	1	39	60	65	9	2	1000	6	2	5

*Numbers 1 to 28 in the column headings correspond to variables as listed in Table 3:11 and the zeros in various columns indicate data which were not available.

APPENDIX VII
THE VARIABLES, THEIR SOURCES, AND RELIABILITY

No.	Variables Name	Source	Reliability
1	TOTUPOPON (Total Urban Population)	Obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statis- tics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
2	ANEPUBRET (Annual Earn- ings Per Urban Residents)	Obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population; and Republic of Kenya, Kenya Statistical Digest 1971, both published by the Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971	Annual earnings were esti- mated for the following urban centers: Karatina, Galole, Wundanyi, Migori, Homa Bay, Lumbwa, Njoro, Kapsabet, Narok, Wamba, Maralal, Baragoi, Lokki- taung, and Bungoma.
3	PERCRPOP (Percentage of Central Bantu to Total Urban Population)	Obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Sta- tistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
4	PERNBPOP (Percentage of Western Bantu to Total Urban Population)	"	"

(continued)

APPENDIX VII (continued)

Variables	No.	Name	Source	Reliability
5 PERCBTPOP (Percentage of Coastal Bantu to Total Urban Population)	5	PERCBTPOP (Percentage of Coastal Bantu to Total Urban Population)	Obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
6 PERNTUPOP (Percentage of Nilotes to Total Urban Population)	6	PERNTUPOP (Percentage of Nilotes to Total Urban Population)	"	"
7 PERHAMPOP (Percentage of Nilo-Hamites and Hamites to Total Urban Population)	7	PERHAMPOP (Percentage of Nilo-Hamites and Hamites to Total Urban Population)	"	"
8 PERNAPOP (Percentage of Non-Africans to Total Urban Population)	8	PERNAPOP (Percentage of Non-Africans to Total Urban Population)	"	"

(continued)

APPENDIX VII. (continued)

No.	Variables Name	Source	Reliability
9	PERHHTPOP (Percentage of Head of Household to Total Urban Population)	Obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
10	PERRHTPOP (Percentage of the Other Relatives of the Household to Total Urban Population)	"	"
11	PERNHTPOP (Percentage of the Non-Relatives of the Household to Total Urban Population)	"	"
12	SEXRATIOF (Sex Ratio Per 1,000 Females)	"	"

(continued)

APPENDIX VII (continued)

No.	Variables Name	Source	Reliability
13	FEWPERAPP (Female Workers as a Percentage of Total Adult Female Population)	Were obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population; and Republic of Kenya, Kenya Statistical Digest 1971, both published by the Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	The number of female workers were not available for the urban centers: Karatina, Galole, Wundanyi, Migori, Homa Bay, Lumbwa, Njoro, Kapsabet, Narok, Wamba, Maralal, Baragoi, Lokitaung, and Bungoma.
14	MAWPERAMP (Male Workers as a Percentage of Total Adult Male Population)	"	"
15	WKPERFPOP (Workers as a Percentage of Total Population)	"	"
16	PERPEDPOP (Percentage of Urban Resident with Primary Education to Total Urban Population)	Were obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	"

(continued)

APPENDIX VII (continued)

No.	Variables Name	Source	Reliability
17	PERSEDP (Percentage of Urban Residents with Secondary Education to Total Urban Population)	Were obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
18	PERFPDP (Percentage of Female Urban Residents with Post-Secondary Education to Total Urban Population)	"	
19	PERMPDP (Percentage of Male Urban Residents with Post-Secondary Education to Total Urban Population)	"	

(continued)

APPENDIX VII (continued)

No.	Variables Name	Source	Reliability
20	PERMCTPOP (Percentage of Male Children to Total Children Population)	Were obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	
21	PERMATPOP (Percentage of Male-Adult to Total Adult Population)	"	"
22	PERMGTPOP (Percentage of Aged Male to Total Aged Population)	"	"
23	PERWHTPOP (Percentage of Wives of Household to Total Urban Population)	"	"
24	NWSSPUCET (Number of Water Supply Schemes Per Urban Centers)	Were obtained from Republic of Kenya, National Atlas of Kenya, published by Survey of Kenya, Nairobi, 1970.	"

(continued)

APPENDIX VII (continued)

No.	Variables Name	Source	Reliability
25	DARTENST (Daily Road Traffic Density)	Were obtained from Republic of Kenya, National Atlas of Kenya, published by Survey of Kenya, Nairobi, 1970.	
26	NMEDFUCEN (Number of Medical Facil- ities per Urban Center)	"	"
27	NPTELECOM (Number of Postal and Telecommunica- tion Facili- ties)	"	"
28	PERUBOKEY (Percentage of Urban Popula- tion Born Out- side Kenya) Printer, 1971.	Were obtained from Republic of Kenya, Kenya Population Census 1969, Vol. II, Data on Urban Population, published by Statistics Division, Ministry of Lands and Settlement, Nairobi, Government Printer, 1971.	

APPENDIX VIII
KENYA URBAN CENTERS: CORRELATION MATRIX
(DECIMAL POINTS OMITTED)

Number vari- ables*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
TOTUPOON -																													
ANEUFURST 437																													
PERCRTPOP 007 254																													
PERWBTPOP 012 135 -253																													
PERCBTPOP -003 -102 -406 -303																													
PERNUPOP -035 102 -270 335 -209																													
PERNATPOP -128 -398 -400 -210 -229 -246																													
PERNATPOP 336 360 -130 100 235 056 -380																													
PERHHITPOP 152 235 425 069 -013 072 -531 047																													
PERHHITPOP 081 026 -497 027 541 101 -138 546 -441																													
PERHHITPOP -064 -004 030 -141 -324 -071 -364 048 -621 -289																													
SEKRNATPOP 197 468 367 232 -355 254 -431 335 240 -200 375																													
FEMPERAFP 130 530 207 059 -232 136 -206 329 161 -081 122 325																													
MMFERAMP 156 673 350 171 -131 030 -461 393 260 -002 -106 484 499																													
HKPERTPOP 166 666 353 110 -173 014 -376 323 154 -097 133 -483 382 773																													
PERPEDPOP 128 355 598 236 -198 -142 -582 184 498 -227 -092 479 353 549 454																													
PERSEDPPOP 351 522 355 336 -267 040 -472 457 264 -064 135 592 496 486 458 752																													
PERFPDPOP 560 356 -051 058 106 072 -209 415 -066 197 148 240 372 324 404 253 371																													
PERMPDPOP 146 289 136 365 -036 -046 392 451 190 043 082 429 325 485 441 651 660 489																													
PERMCTPOP -217 -409 -312 -124 319 -177 299 -427 -120 177 -551 -895 -398 -341 -432 -425 -661 -297 -451																													
PERNATPOP -254 116 -240 230 -236 228 -327 166 299 -030 080 604 089 278 276 319 268 -116 263 -476																													
PERMCTPOP 079 279 128 198 -351 436 -143 002 019 -305 401 602 144 185 308 218 455 150 218 -616 275																													
PERHHITPOP 119 050 -161 109 437 178 -339 -033 397 186 -824 -295 -140 126 -048 058 -089 -050 000 410 -135 -172																													
NWSPUCET 787 445 169 007 -071 -031 -216 275 190 006 -004 295 182 225 236 257 387 464 186 -314 -100 153 005																													
NARDENST 558 576 345 175 -265 071 -321 198 345 -126 -145 264 379 470 410 460 560 323 217 -266 -011 136 062 580																													
NWEDUFECT 943 561 -026 105 -062 117 -167 422 148 110 -061 252 325 314 347 196 443 630 214 -282 -162 128 117 737 588																													
NPTTELCOM 992 441 044 036 -021 034 -166 335 172 078 -068 223 141 173 189 173 381 590 174 -234 -233 090 106 787 579 938																													
PERVBOKEY 065 -060 -118 056 -095 470 -044 -029 -053 072 -124 045 -074 -066 -019 -286 -198 084 -222 115 178 016 074 031 159 070 068																													

*See Table 4:12 for explanation of the variables.

APPENDIX IX

KENYA URBAN CENTERS (1969) FACTOR ANALYSIS OF TWENTY-EIGHT VARIABLES:
UNROTATED FACTOR MATRIX

Variables*		Unrotated factor matrix						
No.	Name	I	II	III	IV	V	VI	VII
1	TOTUPOPON	0.645	0.127	0.575	0.392	0.181	0.140	-0.129
2	ANEPUBRET	0.110	-0.331	0.737	-0.016	0.015	-0.025	0.136
3	PERCRTPOP	-0.396	-0.151	0.412	-0.248	0.662	-0.042	-0.227
4	PERWBTPOP	-0.082	0.447	0.262	-0.174	-0.379	0.333	0.505
5	PERCBTPOP	0.537	-0.038	-0.260	-0.264	-0.282	-0.477	-0.312
6	PERNTUPOP	-0.021	-0.101	0.152	-0.032	-0.540	0.706	-0.041
7	PERHATPOP	-0.065	-0.002	-0.567	0.606	0.145	0.006	0.283
8	PERNATPOP	0.234	-0.035	0.509	0.022	-0.483	-0.379	-0.125
9	PERHHTPOP	0.103	0.112	0.375	-0.646	0.270	0.200	-0.250
10	PERRHTPOP	0.490	-0.050	-0.071	-0.121	-0.572	-0.276	-0.110
11	PERNHTPOP	-0.568	-0.020	0.086	0.755	-0.106	-0.220	-0.067
12	SEXRATIOF	-0.462	0.023	0.734	0.063	-0.187	0.119	-0.309
13	FEWPERAFP	-0.106	-0.271	0.552	0.024	-0.025	-0.126	0.288
14	MANPERAMP	-0.066	-0.410	0.696	-0.292	-0.048	-0.130	0.257
15	WRPERTPOP	-0.164	-0.401	0.687	-0.084	-0.033	-0.158	0.176
16	PERPEDPOP	-0.223	0.275	0.692	-0.400	0.256	-0.189	0.086
17	PERSEDPOP	-0.152	0.293	0.832	-0.045	-0.020	-0.200	0.100
18	PERFPDPOP	0.332	-0.034	0.561	0.290	-0.179	-0.194	0.089
19	PERMPDPOP	-0.118	0.311	0.608	-0.166	-0.212	0.339	0.194
20	PERMCTPOP	0.462	-0.090	-0.717	-0.246	0.191	0.052	0.299
21	PERMATPOP	-0.496	-0.021	0.293	-0.292	-0.278	0.137	-0.239
22	PERMGTPOP	-0.419	0.106	0.431	0.201	-0.176	0.314	-0.104

(continued)

APPENDIX IX (continued)

Variables*		Unrotated factor matrix						
No.	Name	I	II	III	IV	V	VI	VII
23	PERWHTPOP	0.549	0.039	-0.042	-0.624	-0.029	0.203	0.060
24	NWSSPUCET	0.403	0.074	0.596	0.279	0.205	0.106	-0.154
25	DARTDENST	0.229	-0.094	0.677	-0.005	0.296	0.209	0.164
26	NMEDFUCET	0.585	0.010	0.678	0.346	0.065	0.119	0.028
27	NPTFLECOM	0.625	0.139	0.605	0.371	0.185	0.138	-0.125
28	PERUBOKEY	0.119	-0.365	-0.028	0.028	-0.236	0.523	-0.780

*See Table 4:12 for explanation of the variables.

APPENDIX X
KENYA URBAN CENTERS (1969) MATRIX OF FACTOR SCORE COEFFICIENTS

Variables*		Normal varimax rotated factor loadings						
No.	Name	I	II	III	IV	V	VI	VII
1	TOTUPOPON	1.203	1.016	-0.187	-0.656	0.048	-0.216	-0.151
2	ANEPUBRET	0.022	-0.151	-0.081	0.001	-0.001	-0.068	0.050
3	PERCRTPOP	0.181	-0.165	-0.124	-0.236	0.423	0.108	-0.062
4	PERWBTPOP	0.098	0.015	-0.128	-0.042	0.171	-0.057	0.245
5	PERCBTPOP	0.266	0.045	-0.163	-0.254	-0.300	0.091	-0.853
6	PERNTUPOP	0.188	0.040	0.026	-0.174	0.445	0.647	-0.268
7	PERHATPOP	0.277	0.020	-0.358	0.029	0.258	0.133	-0.483
8	PERNATPOP	-0.008	-0.043	-0.015	-0.017	-0.203	-0.010	-0.090
9	PERHHTPOP	-0.287	-0.112	0.264	0.019	0.165	-0.044	0.034
10	PERRHTPOP	-0.057	-0.047	0.087	0.097	-0.211	-0.039	-0.017
11	PERNHTPOP	-0.522	-0.398	0.404	-0.947	0.245	-0.113	0.100
12	SEXRATIOF	-0.261	-0.059	0.422	-0.040	0.025	0.504	-0.189
13	FEWPERAFP	0.130	-0.111	-0.180	-0.000	0.021	-0.052	-0.010
14	MAWPERAMP	-0.089	-0.449	-0.097	0.105	-0.050	0.074	-0.023
15	WRPERTPOP	0.075	-0.169	-0.115	-0.072	-0.004	0.124	-0.112
16	PERPEDPOP	0.239	0.245	-0.050	-0.259	0.051	-0.557	0.221
17	PERSEDPOP	-0.091	-0.101	0.146	0.046	0.008	0.001	0.199
18	PERFPDPOP	-0.043	-0.107	-0.004	0.085	-0.074	0.028	0.119
19	PERMPDPOP	-0.032	-0.066	0.025	0.017	-0.105	-0.130	0.106
20	PERMCTPOP	-0.344	-0.324	-0.276	0.126	0.239	0.409	-0.001
21	PERMATPOP	0.043	0.064	0.048	-0.082	-0.044	0.073	-0.056
22	PERMGTPOP	0.108	0.121	0.034	-0.044	0.050	-0.033	0.039
23	PERWHTPOP	-0.314	-0.164	0.074	0.082	0.125	-0.004	0.267

(continued)

APPENDIX X (continued)

Variables		Normal varimax rotated factor loadings						
No.	Name	I	II	III	IV	V	VI	VII
24	NWSSPUCET	-0.032	-0.049	0.038	0.049	0.036	0.019	0.007
25	DARTDENST	-0.025	-0.192	-0.057	0.008	0.129	0.226	-0.049
26	NMEDFUCET	-0.401	-0.754	0.083	0.418	0.032	0.321	-0.173
27	NPTELECOM	0.269	0.027	-0.044	0.205	-0.069	-0.124	0.115
28	PERVBOKEY	0.004	0.011	0.039	0.002	0.009	0.084	0.011

*See Table 4.12 for explanation of the variables.

APPENDIX XI

KENYA URBAN CENTERS (1969) FACTOR ANALYSIS OF TWENTY-EIGHT VARIABLES:
ROTATED MATRIX FACTOR

No.	Variables† Name	Commu- nality	Normal varimax rotated factor loadings						
			I	II	III	IV	V	VI	VII
1	TOTUPOPN	0.894	0.988	-0.046	0.005	-0.052	-0.060	0.019	-0.012
2	ANEPUBRET	0.684	0.393	-0.698	0.172	-0.104	-0.001	0.052	-0.008
3	PERCRTPOP	0.902	0.010	-0.316	0.317	-0.315	0.561	-0.317	-0.433
4	PERWBTPOP	0.814	-0.000	0.086	0.149	-0.123	0.045	0.071	0.874
5	PERCBTPOP	0.832	-0.039	0.169	-0.259	-0.235	-0.773	-0.123	-0.258
6	PERNTUPOP	0.827	0.036	0.008	0.324	-0.108	-0.043	0.764	0.352
7	PERHATPOP	0.794	-0.077	0.316	-0.426	0.670	0.238	0.041	-0.001
8	PERNATPOP	0.708	0.275	-0.346	0.290	0.020	-0.644	-0.099	0.062
9	PERHHTPOP	0.756	0.115	-0.094	0.210	-0.812	0.143	-0.083	-0.057
10	PERRHTPOP	0.678	0.043	0.016	-0.132	-0.080	-0.798	0.111	0.056
11	PERNHTPOP	0.965	-0.015	-0.026	0.429	0.859	0.126	-0.124	-0.109
12	SEXRATIOF	0.900	0.163	-0.314	0.876	0.001	0.088	0.030	0.025
13	FEWPERAFP	0.490	0.144	-0.658	0.133	0.080	0.043	-0.050	0.088
14	MAWPERAMP	0.827	0.079	-0.863	0.167	-0.214	-0.030	-0.011	0.042
15	WRPERTPOP	0.724	0.118	-0.799	0.262	-0.020	0.012	-0.029	-0.035
16	PERPEDPOP	0.872	0.125	-0.422	0.385	-0.416	0.199	-0.533	0.184
17	PERSEDPPOP	0.827	0.356	-0.427	0.514	-0.118	0.046	-0.364	0.325
18	PERFPDPOP	0.587	0.558	-0.365	0.091	0.159	-0.306	-0.069	0.110
19	PERMPDPOP	0.705	0.115	-0.393	0.362	-0.090	-0.209	-0.446	0.395
20	PERMCTPOP	0.924	-0.219	0.277	-0.865	-0.197	-0.023	0.112	-0.008
21	PERMATPOP	0.570	-0.293	-0.163	0.637	-0.188	0.015	0.117	0.056
22	PERMGTPOP	0.553	0.109	-0.098	0.627	0.146	0.224	0.167	0.198

(continued)

APPENDIX XI (continued)

Variables*		Communi- nality	Normal varimax rotated factor loadings						
No.	Name		I	II	III	IV	V	VI	VII
23	PERWHTPOP	0.739	0.058	0.026	-0.346	-0.722	-0.209	0.158	0.162
24	NWSSPUCET	0.678	0.794	-0.132	0.139	-0.080	0.031	-0.028	-0.061
25	DARTDENSE	0.677	0.574	-0.457	0.051	-0.244	0.265	0.017	0.077
26	NMEDFUCET	0.941	0.921	-0.268	0.016	-0.020	-0.096	0.072	0.085
27	NPTELECOM	0.981	0.985	-0.065	0.029	-0.070	-0.048	0.002	0.001
28	PERVBOKEY	0.484	0.048	-0.033	0.011	-0.058	0.008	0.690	-0.025

*See Table 4:12 for explanation of the variables.

APPENDIX XII
KENYA URBAN CENTERS: FACTOR SCORES

No.	Case	Factors						
		I	II	III	IV	V	VI	VII
1	Nairobi	6.121	-0.250	-0.180	0.186	0.296	0.104	-0.058
2	Thika	0.094	-0.711	1.042	-0.067	0.538	-0.530	-0.629
3	Kiambu	-0.035	-0.770	0.862	-0.300	0.867	-0.754	-0.346
4	Fort Hall	-0.235	-0.487	0.870	0.350	0.585	-0.798	-0.980
5	Thomson's Falls	-0.212	-0.472	-0.319	-1.010	0.839	-0.519	-0.517
6	Nyeri	-0.180	-2.950	0.459	1.616	-0.120	0.329	-1.265
7	Karatina	0.141	1.232	2.291	0.965	0.488	-1.906	-0.241
8	Kilifi	-0.340	-0.516	-0.491	-0.817	-2.369	-0.801	0.072
9	Malindi	-0.266	0.065	0.585	1.342	-2.832	-0.741	-0.364
10	Kinango	-0.286	0.119	-1.597	-0.706	-1.129	-0.069	-1.231
11	Lamu	-0.331	0.486	-0.823	-0.436	-3.096	-0.356	-0.872
12	Mombasa	2.395	0.592	0.494	-1.078	-1.414	-0.054	-0.403
13	Voi	-0.377	0.262	0.756	0.048	-0.946	1.361	-1.588
14	Wundanyi	-0.161	1.088	-1.210	-0.563	-0.993	-0.548	0.073
15	Galole	-0.190	1.150	-1.572	-1.497	-1.003	-0.498	-0.253
16	Embu	-0.443	-0.115	1.693	0.421	0.605	-0.637	-0.458
17	Isiolo	-0.198	0.640	-0.343	0.761	0.349	0.411	-0.591
18	Kitui	-0.360	0.221	1.287	-0.202	-0.494	0.051	-1.358
19	Machakos	-0.050	-0.218	0.935	-0.113	0.181	-1.283	-0.223
20	Athi River	-0.463	-0.345	1.258	-0.004	0.881	0.526	-0.956
21	Marsabit	-0.089	0.939	-0.163	2.275	0.149	0.488	-0.637
22	Meru	-0.371	-1.267	0.855	0.513	-0.052	-0.702	-0.721
23	Kisii	-0.458	-0.322	1.056	0.371	-0.552	-0.324	2.632

(continued)

APPENDIX XII. (continued)

No.	Case	Factors						
		I	II	III	IV	V	VI	VII
24	Kisumu	0.163	-2.823	-0.344	0.406	-0.997	1.244	1.462
25	Homa Bay	-0.093	1.433	1.415	-0.179	-0.104	3.449	0.560
26	Migori	-0.265	1.262	1.372	-0.123	-0.319	3.348	0.367
27	Eldama Ravine	-0.359	0.278	-0.787	0.367	0.599	-0.203	-0.231
28	Kericho	-0.288	-1.575	0.169	-0.241	0.081	0.286	0.573
29	Lumbwa	-0.230	-0.227	-0.879	-0.149	0.794	1.192	-0.023
30	Londiani	-0.183	-0.310	-1.258	-1.240	1.125	0.828	-0.987
31	Nanyuki	-0.369	-0.248	-0.157	-0.740	0.691	-0.716	-0.258
32	Nakuru	0.193	-0.861	-0.286	-0.984	0.321	0.248	0.582
33	Gilgil	-0.004	0.516	0.192	-0.963	0.717	-0.207	-0.058
34	Naivasha	-0.180	-0.396	0.048	-1.045	0.772	-0.252	-0.261
35	Elburgon	-0.120	0.095	-1.109	-1.214	1.257	0.309	-0.687
36	Njoro	-0.352	0.861	-0.442	-1.283	0.874	-0.569	0.206
37	Molo	-0.263	-0.467	-0.792	-0.875	0.884	-0.275	-0.017
38	Kapsabet	-0.018	1.079	0.089	0.675	0.188	-0.805	1.119
39	Narok	-0.030	1.442	0.729	-0.321	0.232	-0.716	0.453
40	Wamba	-0.169	0.585	-1.242	1.889	-0.143	0.222	-0.119
41	Maralal	-0.390	0.771	-0.708	0.395	0.649	0.738	-0.336
42	Baragoi	-0.019	0.638	-2.232	1.657	0.982	-0.173	0.367
43	Kitale	-0.378	-0.955	-0.594	-0.187	-0.417	0.692	1.845
44	Lokitaung	0.023	0.565	-1.291	3.286	0.795	-0.330	-0.157
45	Eldoret	-0.088	-1.330	0.294	-0.188	-0.020	0.253	1.471
46	Bungoma	0.113	1.114	0.334	-0.360	0.190	-0.698	2.343
47	Kakamega	-0.405	0.179	0.336	0.201	0.075	-0.614	2.647

APPENDIX XIII

CENTRAL PLACES IN KENYA BY PROVINCE AND DISTRICT

District	Urban centers	Rural centers	Market centers	Local centers
Murang'a	Fort Hall	Maragua Kandara (Gakarara) Kangema (Gakira) Makuyu Kigumo Kahuro (Muriranjes) Kiriaini Kirwara (Gatanga) Saba Saba	<u>Central Province</u> Githumu Kamahua Kanyeyaini Mugumoini Ndunyu Chege Gaichanjiru (Magunduini) Ichagaki	Karuri Njumbi Muthithi Kabati Kahuti Mitubiri Marira Gatura Kangare Kiria Kinyange Gitugi Kareti Kihumbuini Kinyona Kirere Gibhunguri Kaharati Gathera Gacharage Gitwa Kaweru
Kiambu	Thika Kiambu Limuru Ruiru	Kikuyu Githunguri Gatundu Kalimoni Uplands	Tigoni Kijabe Kirenga (Iari) Kilimambogo Wangige (Muthumu) Karuri	Kagwe Uthiru Ngewa (Nyaga) Muguga Biberioni Kiganjo Thogoto Lusigeti Ngenda Juja Gikambura Miguta Matathia Kamwangi Ngprongo Riara Ridge Ndeiya Karatu Kanyoni Kerwa

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Kirinyaga	Sagana Kerugoya	Kianyaga Baricho Wanguru Kutus	Kimbimbi Kiamutugu Ithareini Kagio Kagumo Mukarara Makutanu	Kibirigwi Karumandi Mururi Kiamwenja Kiamuthambi
			<u>Coastal Province</u>	
Mombasa	Mombasa		Shanzu	Bomburi
Kilifi	Malindi	Kilifi Kaloleni Majiakani Bamba Kakoneni	Gede Ganze Vipingo Gongoni	Chumani Watamu Vitengeni Jilore Kakuyuni Maziwani Marikebuni Mambrui Marara Garashi Fundisha Kibaoni
			Utange	
			Tsangatsini Jaribuni Kibaoni Takaungu Soko	

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Kwale		Kwale Msambweni Kinango	Tiwi Diani Ramisi Ndavaya Lunga Lunga Vanga Samburu	Ngombeni Matuga Gazi Shimba Hills Kikoncni
Taita	Voi	Wundanyi Taveta	Mwatate Bura Mgange Msau	Manyani Ndome Werugha
Tana River		Galole	Kipini Garsen	Mororo
Lamu		Lamu	Witu Faza	Kiunga

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Nyeri	Karatina Nyeri	Kiganjo (Kericho) Mukurweini Othaya Naro Moru Mweiga	Wamagana (Giakanja) Mihuti Gakindu (Indiaini) Tumu Tumu Ruthagati Gatitu Giakaibii	Endarasha Kiwarigi Kamakwa Ithithe Karema Kibiruini Gathinga Gichichi Gaikuyu Kagere Ndonyu Market Gatarakwa Hombe	Gikondi Gachatha Kaheti Ndathi Ihururu Kinunga Gating'ang'a Kalureri Ichamara Mweiga South Laikipia Kinahori Muyogo
Nyandarua	Ol Kalou Thomson's Falls	Njabini (S. Kinangop) N. Kinangop Ol Joro Orok Kipipiri (Miharati)	Wanjohi Ndonyu Njeru Pondo	Ndaragwa Rurii Kenton Oraimutia Gathanji Munyaka Ngano Kahcho Kambaa Ngorika Kangui	Kiriko Mukeo Githioro Weru Sabugo Nyairoko Heni Koinange Kamathi Magumu

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Embu	Embu	Runyenjes	Manyatta	Kathunguri	
		Siakago	Kiritiri	Karingari	
Meru	Meru	Ishiara	Kibugu	Kangethia	
			Kevote	Ngendure	
			Kianiokoma	Gachoka	
			Konyuambora	Mvuvori	
			Rwaika	Gethemu	
					Riakanau
					Kerie
					Kiambere
					Masai Cross
					Ugweri
			Karuruumo		
			Makutano		
Meru	Meru	Chuka	Kanjai	Kibirichia	
		Maua	Karaa	Miathene	
		Egoji	Kangeta	Marima	
		Nkubu	Kirua	(Muthambe)	
		Chogoria	Mitunguu	Kibugua	
		(Kabece)	Timau	(Thoita)	
		Muthara	Mikundiri	Githongo	
		(Tigania)	Gatunga	(Katheri)	
		Laro		Kanyakine	
		Chiokarige		Thimangiri	
				(Thura)	
					Mwira (Kariakomo)
					Tunyai
					Mitheru
					Ksongo
			Kanjuki		
			Kalangachini		
			Giaki		
			Mariani		

Eastern Province

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Machakos	Machakos Kangundo- Tala	Athi River Nunguni (Kilome) Mbooni (Kikima) Makueni-Boma Masii Sultan Hamud Kibwezi Kalawa Matuu	Siadhani Kilala (Kaumoni) Kabaa (Mbiuni) Makindu Uaani (Tawa) Yatta (Kithimani) Kikoko Wamunyu Mitaboni Emali Mito Andei Masinga Mumandu Matiliku Katulani	Mbumbuni Mititumu Nziu Kusyomuomo Okia Kikumini Kivaani Kakuyuni Kianzabe Kasikeu Muthetheni Ngelani Upcie Kinyui Kathonzoeni Gatanji Ekarakara

(continued)

APPENDIX XIII. (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Kitui	Kitui	Mutomo	Migwani	Mutane	
		Mwingi	Tulia	Chuluni	
		Ndooa (Mutito)	Ikutha	Miambani	
		Katse	Matinyani	Usuaeni	
		Kyuso (Mivukoni)	Kisasi	(Mulango)	Kimangao
					Katulani
			Tseikuru	Nguni	Inyuu
			Zombe	Enziu	Iyumbisi
			Ikanga	Tiva	Karitini
			Muu	Maliti	Kyatune
			Miu	Kinakoni	Siamatini
			Mutha		Endau
			Tharaka		
	Kangonde				
	Mitamisi				
Isiolo	Isiolo	Kyosoini			
		Kanugongo.			
		Kanziku			
		Voo			
		Garbatula	Sericho	Kulamawe	
		Merti	Komu	Gotu	
		Madogashi	Kinna	Melka Lorni	
		Moyale	Laisamis	Loyangalani	
		North Horr	Sololo	Ileret	
			Loglog		
Marsabit	Marsabit				

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
<u>Northeastern Province</u>				
Wajir		Wajir-Giriftu	Bura	Habaswein Gurur
Garissa		Garissa	Mado Gashi Mbalambala Bura Walu	
Mandera		Mandera	Rhamu El Wak	Takaba
<u>Nyanza Province</u>				
Kisumu	Kisumu	Maseno Ahero Miwani Muhoroni Chemelil Sundu	Kibigori Kiboswa (Nyahera) Kisiani Paponditi Rabur Kombewa	Nyakach (Nyamarimba) Koru Otongio Songhor Awasi Kusa Katitu Tamu Ombeya Pawakuche Nyalanda Anyuongi Awach Nyang'ande God-Abuoro Chiga

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Siaya		Yala Siaya Ukwala Bondo (Barkowino) Asembo (Raliw)	Nyamweso Ngiya Rang'ala Akala Ugunja (Ambira) Usenge Sega Madiany Aram Sigomere	Ndero Lwak Ndori Bofo Nyalima (Saradidi) Nzola Wagusu Uranga Sidindi Bondo Mogunga Gesusu Igare Nyanturago Magombo Magwaga Kiamokama Marani Ramasha Magenche Etago Masimba Manianku Mosocho	Anyuongi Rera Kambare Bar-Ober Awai Sifuyu Nyang'oma Luanda (Kotieno) Luambwa Ramula
Kisii	Keroko Manga Nyambunwa Ogembo Kibirigo		Nyamache Nyamira Kenyenya (Majoge) Keumbu Nyamarambe Nyamaiya (Rangenyoy) Riosiri Gesima Ikonge Nyangusu Tinga Nyansiongo	Riochanda Birongo Obwari Tombe Riana Ikoba (Tabaka) Mokomoni Manga (Borabu) Itumbe Motonto Mogumo Kegogi Maroo	

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers		
S. Nyanza	Homa Bay	Kendu Bay (Gendia) Migori Rongo (Kamagambo) Oyugis Ndihwa Macalder Awendo Sare Mbita	Rangwe (Asumbi) Raneh Kadongo Karungu Rodi Kopany Rapogi Homa Lime Isebania Taraganya Muhoro Miriu	Kehaneha Mawego Suba Kariye Doho Kosele Ratanga Mariwa Uriiri Ndiru Ikerege Omoya Magunga Dede	Luanda (Mbiti Loc.) Ntimaru Ober Sindo Wagwe Kagaga Sena Acro Chuodho Kadel Mjgoro Ogongo	
	<u>Rift Valley Province</u>					
	Uasin Gishu	Eldoret	Turbo Kipkabus	Kaptagat Soi-Navillus Moiben Timboroa	Hoey's Bridge Plateau Burnt Forest Nabkoj Ainabkoi West Kipkurere Kapseret Sengalo Serengeni	Penon Sabor (Forest) Siwa Leseru Elgeyo Border Ainabkoi East Kiboloss Osorongai Kaptabei

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Kericho	Kericho	Sotik-Kaplong Londiani Litcin Lumbwa Bomet	Kapkatet Tenwek-Silibwet Sosiot (Cheptenye) Longisa Roret Kipsonoi	Sigor Ndanai Kapsuser Kipsitet Ainabkoi Fort Ternan Kimulot (Chebanga) Gorgor Ainamoi (Kipsigirio) Merigi Chepsir Chebunyo Cheborge	Chemosit Kebenet Kiptere Kabianga Kapsongok Kapkoros Kapsotit Kedowa Kaitui Kapkugerwet (Brooke) Kaboson Mogogosiek Siongiroy

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Nandi	Kapsabet	Nandi Hills	Kaptumo Kabiyet Lessos	Miti ya Hunter Mugondo Cheptariit Chepkunyuk Serem Kabiemit Kipiwoni Kipsigak Kapanganani Baraton (Chepsonoi) Chepterwai Kiboswa Ndalat Lolkeringet Ndurio Kabujoy Kipyasi (Sorora) Maraba Kapkerer (Kibwareng) Leimokowo Mutwot Sangalo Kosirai Chepkumia Kemeloi Kapsisiwa Chemnoet Kabisaga
Nakuru	Nakuru Naivasha Gilgil	Molo Njoro	Elburgon Kijabe Rongai Mau Narok Solai Dundori Subukia	Bahati Elementaita Mariashoni (Kiptunga) Mau Summit Mount Margaret Mbaruk Longonot South Lake Turi Eburru

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Trans Nzoia	Kitale		Endebess Kiminini Saboti Kapsara	Kiboswa Nzoia Sekhendu Cherengani Kwanza Chopehoina Sirende Kimothon
Baringo	Kabarnet	Eldama Ravine Marigat	Mogotio Kampi ya Samaki Nginyang Tenges Emening Kabartonjo Kabinoi	Kituro Lolminang Kapeddo Lobo Loruk Radag Olkokwe Talai Mogorwo Sirwa Kinyach Esageri

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Laikipia	Nanyuki		Rumuruti Doldol	North Maxmanet Tura Ngarua Marmamet Lumaria Umamde Mutara Sosian Nyahururu/ Ol Arabel Shamane
Elgeyó Marakwet	Iten Chepkorio Chebiemit		Tambach Kapsowar Tot Kaptarakwa	Sergoit Kessup Karima (Bugar) Kapteren Biretwo Chesoi Nyaru Chesegeon Kapchoirwa Kapcherop Kipsaos Chesongoch Koitila Cheptongei
West Pokot	Kapenguria- Makutano		Ortum (Sebit)	Serewo Orwa Chepararia Chepkobech Kanyarkwat Kachemogen Kongelal Kapgeis Morkwijiit Nasolot Lomut Kaibibich Ptoyo Amaler (Kalossia)

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers
Kajiado	Ngong	Kajiado Magadi Soda Loitokitok		Olenaru Uawaso Kedong Rombo Metu Kemana Oloyangalani Ngorigaishi Torosei Ol Topesi Kisanis Kima Isenya Shambole
Narok	Narok Kilgoris		Nairagiengare	Dissil Mashuuru Kiscriani Bulbul Lassit Lengisim Elangata/ Wuaso Ol Tukai Masimba Mbirikani Ongata/Rongai Selengei Lolgorien Olokurto Ololunga Siyiapei Narosura Emarti Entasikira Enabelibel Mulot Olchoro Olpusimoro Aitong Inalkarra
Samburu	Maralal		Wamba Baragoi	Serolevi Marti Lundonyokwe Kirimun Barsaloi Losuk

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Lokichar	Local centers
Turkana		Lodwar Lokitaung Kalokol	Lokori Kaputir Kakumá Lorugumo		Lokwakangole
		<u>Western Province</u>			
Kakamega	Kakamega Mumias	Luanda (Maseno) Butere Malava Khayega (Mukumu) Khwisero (Mwihila) Mbale (Maragoli) Kaimosi (Shamakhokho) Navakhole Chebuyusi	Vihiga (Majengo) Soy Senende (Hamisi) Kima Sabatia Matete Shianda Chavakali Esibuye (Ebusiratsi) Shinyalu Bukura (Matioli) Lubao Kilingili (Viyalo) Lumakanda	Luandeti (Maturu) Litambitsa (Ighu) Lugari Magada (Madira) (Muhanda) Shiatsala Ingotse Samitsi Malaha Butali (Chebwai) Kipkaren	Lalima Gambogi (Tigoi) Serem (Kapsotik) Eregi Ekambuli Namasoli Kisiru Matungu Kambiri (Shianderema) Lukume Mautuma Mbaraka Likhuyani Mabusí

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Bungoma	Bungoma	Kimilili Broderick Falls Malakisi Chwele Tongareni	Sirisia Lugulu Misikhu Mayanja (Kibabi) Myanga Makatero (Sudi) Bokoli (Khachonge) Kamakoiwa (Chesamisi) Cheptai (Chesakaki) Kabula Natiri Corner Nadalu (Richmonds) Kapsakwany	Sikusi Namorio Chemoge Sitiikho Kaptama Ndivisi Kuywa (Teremi) Sangalo (Iwanda) Bumala (Mateka)	Kaboiywa Nzoia Kimaeti Chebkube Kapkateny Nalondo Mukuyuni Mbakalo Sikhendu

(continued)

APPENDIX XIII (continued)

District	Urban centers	Rural centers	Market centers	Local centers	
Busia	Busia	Mangina (Funyula) Nambare (Bukhayo) Hakati Kacholia	Malaba Port Victoria Amukura Murumba (Khunyangu) Buyofu Bumala (Burinda) Buhuyi Matayos Sio Port	Alupé Chakole Mundika Likoli Mungatsi Lugulu Kwangamor Chamisiri Jairo Kolait Tingolo Mabunge	Luanda Bukiri Igara Lugale Mabinju Bukoma Namurudu Siribo Bukhalalire Kadibwora Machaku

Source: Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printer, 1969), pp. 91-102.

VITA

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- 1962-64 Attended State University of New York College at Cobleskill, New York.
- 1964 A.A.Sc., State University College at Cobleskill.
- 1964-66 Attended State University of New York at Albany, New York. Majored in Geography.
- 1966 B.Sc., State University at Albany.
- 1966-67 Attended University of Nairobi, Nairobi, Kenya.
- 1967 Postgraduate Diploma in Education, University of Nairobi.
- 1967-68 Graduate work in Geography, Temple University, Philadelphia, Pennsylvania.
- 1968-70 Graduate work in Geography, Rutgers University, New Brunswick, New Jersey.
- 1968- Employed by Johnson & Johnson, New Brunswick, New Jersey, as Financial Analyst.
- 1970 M.A., Rutgers University.
- 1970-73 Graduate work in Geography, Rutgers University, New Brunswick, New Jersey.
- 1970 Article, "The Central Places in Nyanza Province, Kenya: A Tentative Study of Urban Hierarchy in a Developing Country," African Urban Notes, V, No. 4, 71-88.
- 1971-73 Instructor in Geography, Rutgers University.

- 1971 Article, "Urban Geography of Kisumu, Kenya: Materials for Research," A Current Bibliography on African Affairs, IV (Series 4), 391-96.
- 1972 Booklet, Urbanization, City and Regional Planning of Metropolitan Kisumu Kenya: Bibliographical Survey of an East African City, co-authored with Constance E. Obudho (Monticello, Ill.: Council of Planning Librarians, Exchange Bibliography No. 278).
- 1972 Article, "Bibliographical Supplement No. 11-- Urban Geography of Kisumu, Kenya: A Bibliography," African Urban Notes, pp. 236-41.
- 1974 Book, Urbanization, National Development and Regional Planning in Africa, co-edited with Salah El-Shakhs (New York: Praeger Publishers).
- 1974 Article, "Urbanization and Regional Planning in Western Kenya," in Urbanization, National Development and Regional Planning in Africa, ed. by Salah El-Shakhs and Robert A. Obudho (New York: Praeger Publishers).
- 1974 Ph.D. in Geography.

74

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