UNCONTROLLED URBAN SETTLEMENTS IN THE RURAL-URBAN FRINGE OF NAIROBI: A CASE STUDY OF KAWANGWARE TOWNSHIP.

BY

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DECLARATION

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

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B) This thesis has been submitted for examination with our approval as Chief University Supervisors.

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UNCONTROLLED URBAN SETTLEMENTS IN THE RURAL-URBAN FRINGE OF NAIROBI: A CASE STUDY OF KAWANGWARE TOWNSHIP.

A B S T R A C T

The problem of uncontrolled urban settlements is one of the major planning problems facing many primate cities in the Third World. The growth of such settlements is a manifestation of a shortage in conventional housing supply and lack of employment opportunities in the formal sector of growing urban areas like Nairobi. This scarcity in housing and employment opportunities is created primarily by the huge influx of population migration from rural areas and small urban centres to the primate cities.

The purpose of this study was: (a) to examine the socio-economic characteristics and environmental conditions of an uncontrolled urban settlement (Kawangware) in the peri-urban area of Nairobi; (b) to analyse socio-economic conditions of Kawangware population as well as data on housing and related social and physical infrastructural facilities and; (c) to evaluate the extent of the problem of the uncontrolled urban settlement of Kawangware with the hope that Kenya planners and policy-makers will take the necessary action in providing solutions.

This study has shown that Kawangware is characterized predominantly by recent migrants who are married, with low educational levels and who are employed in the "informal sector" activities of the economy of the city. It has also been concluded that housing in Kawangware is sub-standard in terms of a number of criteria such as overcrowding and the density of housing structures.

Many of the failings in the housing situation in Kawangware are a result of unrealistic insistence of the Municipal planning and building regulations. Such regulations were originally devised to protect the health of a European minority in "tropical" conditions to the extent of excluding Africans from the city, unless they were housed in the official dormitories - provided by their employers. Since Independence, however, most development in squatter settlements such as Kawangware, although technically unauthorized, is carried out by the legal owners of the plots. Based on the findings of the study a number of policy recommendations are made.

A C K N O W L E D G E M E N T S

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CHAPTER ONE

INTRODUCTION

1.1 Uncontrolled Settlements in Third World Cites.

One of the major planning problems facing cites in the Third World to-day is the problem of uncontrolled urban settlements. There are several factors causing the growth of these settlements, chief among which are lack of housing and the quest for subsistence.[1] This shortage in housing and employment opportunities is aggravated by the fact that there are more in-migrants to cities than there are industries to absorb them.[2] Table 1 shows the effect of migration on the growth of a number of cities in the Third World. These spontaneous settlements not only house the low-income groups of Third World cities, but also provide employment opportunities in the informal sectors. Such settlements are known by various local names:- "barriada" (Peru)[3], "favelos" (Brazil)[4], "ville extracoutumiers" (Zaire)[5], "gecekondu" (Turkey)[6], "ranchos" (Panama)[7], "bidonville" (Morocco)[8], and "Majengo " (East Africa)[9].

Generally speaking, uncontrolled urban settlements in East African cities are located on the peripheries of the cities, whereas in cities like Ibadan in Nigeria, low-income groups are housed close to the city centre.[10] In indigenous cities in West Africa, administrative and land-use planning controls were lax,[11] whereas with East African cities strict controls were employed to to guide land-use patterns within cities.[12]

Some towns such as Kampala-Mengo and Mombasa, had a traditional

TABLE 1: MIGRANTS AS A PERCENTAGE ESTIMATE OF TOTAL POPULATION INCREASE FOR A SELECTED NUMBER OF THIRD WORLD CITIES.

CITY	PERIOD	TOTAL POPULATION INCREASE ('000)	MIGRANTS AS A % OF TOT. POPN. INCREASE
Abidjan	1955-63	129	76
Bombay	1951-61	1,207	52
Caracas	1950-60	587	54
	1960-65	428	65
Djakarta	1961-68	1,528	59
Istanbul	1950-60	672	68
	1960-65	428	65
Lagos	1952-62	393	75
Nairobi	1961-69	162	50
Sao Paulo	1950-60	2,163	72
	1960-67	2,543	68
Seoul	1955-65	1,697	63

Source: Berry, B.J.L. The Human Consequences of Urbanisation. (New York; St. Martin's Press, 1973), p. 81.

core where modern land-use planning could not be exercised,[13] as well as a newly developing (commercial and administrative) area where British town planning principles were applied.

These towns were, therefore, a combination of Southall's types A and B: type A are African towns that are "old-established, slowly growing towns", and type B towns are "new populations of mushroom growth."[14] In Nairobi, one of the prominent features of the occupation of land has been the separation of races during the colonial era. There were distinct African, Asian and European residential sectors, each with distinct environmental and amenity standards, which radiated from just outside the Central Business District (CBD) toward the periphery.[15] There are several factors that may account for such residential segregation. In the early period of settlement, it was the colonial policy of the government to reserve specific areas for certain racial groups. Secondly, the African who could not even afford to purchase an urban site (because of his extremely low income) was throughout the colonial period discouraged from settling in the urban area and his residence in the City was regarded as an essentially temporary phenomenon.[16] In fact, the early urban settlement of Africans was brought about by the necessity to "stabilize" his working life primarily for the benefit of a European colonialist. Even after Independence, the dramatic changes which have occurred have not altered the evolved residential homogeneity of three separate communities - a condition that is very much in evidence today. Thus, the emergence of residential sectors of different qualities, intensity of land use and population densities, and the uncontrolled peri-urban settlements is a result of the same policy which was promulgated during the colonial

period.[17] Moreover, the independent African civil authorities inherited very strict Building Ordinances and by-laws that have been beyond the financial resources of most people. Usually the peripheries tend to be areas which are functionally undeveloped, hence the relative ease of finding unoccupied land. The urban land values, particularly in Nairobi, tend to decline with increasing distance from the city centre,[18] and, therefore, house rents are generally lower on the peripheries.

A number of physical planning problems are associated with these spontaneous urban settlements. These problems are manifested in the lack of a physical infrastructure, such as housing, piped water, and related sanitary facilities; overcrowding, high population and housing densities, unplanned land-use patterns, and a consequent absence of an adequate transportation or circulation system, and lack of open space.

Over the ages, man has always been able to provide shelter in order to fulfil his basic needs.[19] But following the advent of industrialisation, associated with the colossal nature of urbanization, it has become increasingly difficult for man to provide his own shelter.[20] In many cities, land on which to build houses is now scarce, and ownership is in the hands of a few private individuals or institutions. These landowners build houses and sell them in the market at a price like any other commodity.[21] In the cities of the Third world, as in some developed countries, rapid urban growth has been accompanied by the development of slums and uncontrolled urban settlements.

In a number of these countries, property rights are firmly enforced and squatting effectively controlled. Because of these measures, people are forced to live in overcrowded dwellings and the result is rundown neighbourhoods and housing conditions, viz. slums.[22] Where there is little effective property control, people often invade land that they do not own and build their own dwellings on it, usually without services, thus creating slums. In certain Third World cities, such as Ibadan and Nairobi, land in the suburbs is owned by private individuals, often in the form of town plots. These plots are often too small for any viable farming activity and are consequently build up with semi-permanent dwellings, often sub-standard, which are rented by the tenant population working in the city.

Between one-fourth and one-half of the urban population in Third World cities lives either in overcrowded, deteriorating and centrally located slum neighbourhoods, or in mushrooming, unserviced shanty towns on the periphery.[23] The 1969 Kenya Population Census quoted the total population for Nairobi as 509,286 people. A survery carried out later estimated that one-third of this population lived in uncontrolled or "spontaneous housing".[24] The survey also revealed that there are many more families who share single rooms in overcrowded public housing. Today, 1979, that situation has been further aggravated by large numbers of people migrating from the rural areas to the cities. A lot of literature has been written on rural-urban migration in developing countries, with the basic explanation for the flow

centring around the provision of imbalanced economic and infrastructural facilities between the rural areas and the cities. Kahimbaara notes that migration can be broadly explained by "pull" and "push" factors between rural areas and the cities.[25] The superior opportunites existing in urban areas, such as better schools, act as "pull" factors,[26] whilst general conditions of poverty existing in rural areas act as "push" factors. Also significant in rural-urban migration is the lure of urban life, most probably resulting from the innovations peculiar to modern society, exemplified by the bright lights which are virtually absent in rural areas. Hence, the influx of populations to the primate cities of the Third World is an attempt to find sustenance, security, services and urban amenities. As soon as the new in-migrant arrives in the city, he is confronted with the serious problem of securing accommodation. The only alternative open to him is to find a place in locations where house rents are comparatively low. These locations are usually the peripheral areas of the city where shantytowns and slum neighbourhoods are mushrooming at an alarming rate.

1.2 The Research Problem and the Objectives of the Study.

As will be shown in Chapter Two of this thesis, little is known as yet about the specific socio-economic characteristics and physical conditions of uncontrolled urban settlements in Kenya.

However, such data are necessary in order to devise a viable planning strategy particularly for the large urban centres. The general objective of this study is to examine the socio-economic characteristics and environmental conditions of an uncontrolled settlement in the peri-urban area of Nairobi. This study aims at bringing the problem of uncontrolled urban settlements into better focus, with the hope that the authorities concerned will no longer regard it as socially marginal and physically insignificant. The problem should be regarded as one of the most crucial to the future development of the city. The basic objectives of this study may be specified as follows:-

(a) A Socio-economic sample survey of the inhabitants of the uncontrolled urban settlement of Kawangware and;

(b) an examination of the infrastructural base of the Kawangware urban settlement.

The examination and analysis of data on the characteristics of the human population and the physical environment of Kawangware will provide a base upon which the city council of Nairobi could devise alternative long term development strategies not only for Kawangware, but also for other uncontrolled urban settlements in Nairobi.

1.3 The Magnitude of the Problem.

The population of Nairobi is growing at an estimated rate of 9.7% per annum,[27] mainly because of the high rate of rural-urban migration coupled with a high rate of natural population

increase. However, the population resident in the uncontrolled urban settlements is growing at the rate of 14% per annum, a rate almost twice that of the city as a whole. Moreover, it is these heavily populated spontaneous settlements that face serious problems manifested in the lack of physical and social infrastructure.

The relatively recent development of Kawangware settlement (as discussed in Chapter Three of this thesis) indicates the nature of the problem outlined above. Kawangware was annexed by the city council of Nairobi from Dagoretti Location in Kiambu District in 1964. Before then, the settlement had rural characteristics typical of many rural districts of Kenya. When Kenya attained independence status in 1963, the colonial restrictions imposed against migration of Africans into the towns were suddenly relaxed. As a result, an influx of population migration, especially to the city of Nairobi, took place. Housing for the low-and-middle income workers was scarce and the city could not afford to construct enough cheap houses to cater for the high demand that ensued, while the housing available in the private sector was beyond the reach of the people, financially. The in-migrants either squatted on existing vacant land near the city centre or sought accommodation on the rural-urban fringe, where house rents were comparatively low.

Even today, 1979, the City Council of Nairobi lacks adequate resources with which to plan and develop, or upgrade Kawangware and other existing squatter settlements such as

Mathare Valley, Karura, Kibera and spontaneous carton-and-paper settlements along the Nairobi River and on the peripheries of the city. Hence, the development of Kawangware and other urban settlements has fallen into the hands of private entrepreneurs largely individual landowners. The latter have erected wooden room tenements in order to provide rented accommodation to thousands of low-and-middle income earners working in the city. Little by little, aggregatively, the wooden shacks have constituted a huge unplanned settlement that is devoid of the basic minimum physical infrastructural facilities. Although the original motive of the City Council for annexing Kawangware was to enable it to exercise planning control over the suburb it is clear that the city is institutionally under-equipped and lacks the will to act.[28] As a result, squalor characterizes the settlement and poses a growing social and hygienic hazard, particularly, to the rapidly expanding population of Kawangware itself, as well as to the rest of Nairobi.

Another aspect of the problem is the fact that Kawangware has come into existence and will continue to exist because it meets needs; the migrants from the urban hinterland need a place to live and earn an income from a job; the city of Nairobi needs them for their casual labour, particularly as domestic servants and watchmen, in the nearby middle and upper-class residential estates. In the City, modern-sector employment has grown very slowly and mainly absorbs those people with advanced formal

educational qualifications. [29] Hence, because there are few such jobs, most of the young migrants have found work in the "informal sector" of Kawangware and other spontaneous settlements.[30] These "informal sector" employment areas are so-called since they lack recognition; enumeration, regulation and protection by the government.[31] While Kawangware residents, therefore, contribute to the economy of the city by offering employment in the "informal sector", and likewise gain their livelihood from the city, they are simultaneously excluded from participating and fully utilizing the social and physical amenities of the city. In fact, instead of the "informal sector" being encouraged to grow to a maximum, it has been restricted and harassed so that it has almost failed to furnish adequate incomes to the residents of the squatter settlement.[32] Employment in uncontrolled urban settlements appears to supplement the continuity of the formal sector. This assertion has been clearly discussed by Leys who has argued that the "informal sector" provides the "formal sector" with low-priced products which enable the "formal sector" to reap exorbitant profits.[33] This parasitic co-existence between this "dormitory" suburb and the city only serves to underdevelop the former and, meanwhile, maintains and safeguards the interests of the bourgeois class in the city. As Leys rightly observes: "the owners of workshops making shoes out of old tyres and stoves out of old tins, ... all provide cheap goods and services designed for the poverty life-style of those whose work makes the 'formal sector' profitable, and enables them to live on their wages." [34]

In the light of these economic problems affecting the residents of Kawangware and the associated physical infrastructural problems, this thesis proposes some tentative solutions in view of the future development not only for Kawangware, but also other dormitory suburbs of the City. This is in line with an earlier warning that: "unless the initiative and effort of the poor is recognized and guided by the authorities, it is certain that other areas of spontaneous housing, which are already developing on the edge of the city, will deteriorate in the same alarming way as Mathare Valley".[35] The reluctance by the City authority and the Government of Kenya to heed this warning will only aggravate this very serious danger; in the case of Kawangware, such an attitude could lead to a situation similar or worse than that of Mathare Valley.

1.4 The Study Area

Kawangware is an uncontrolled urban settlement on the rural-urban fringe of Nairobi. It is located on the western frontier of the city, some nine kilometres from the city centre (Fig. 1). It has an estimated population of between fourteen to seventeen thousand people,[36] with densities as high as 744 persons per hectare.[37] Until 1964, Kawangware was in Kiambu District, but has since been annexed by the City Council of Nairobi.

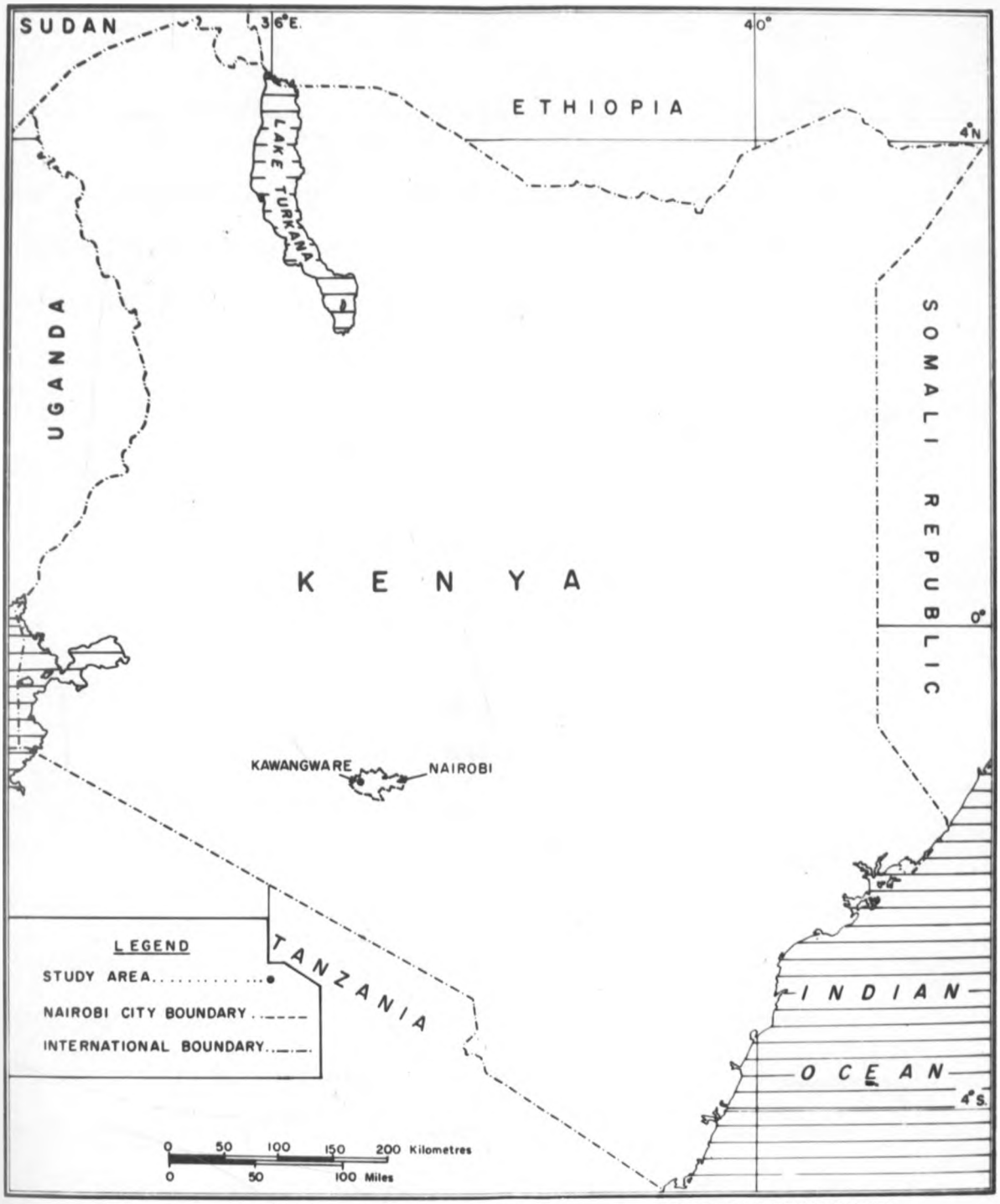


FIG. 1 : THE STUDY AREA — KAWANGWARE

Traditionally, Kawangware was predominantly agricultural and had distinctive rural characteristics similar to many parts of the former "Kikuyu Reserve." [38] But during the last twenty years, the encroachment of Nairobi's expanding urban frontier has led to a rapid conversion of the use of land from rural to urban. Consequently, Kawangware has become a dormitory suburb for a large number of low income Africans working in the city.

1.5 Hypotheses.

On the basis of the research problem and the objectives stated above, it is possible to suggest two main hypotheses which are examined in Chapter Four. A number of probing questions are also investigated in Chapter Five. The hypotheses are as follows:

1. In order to know the intensity of migration the author wanted to investigate the influence of distance on this variable. Traditionally, there is a belief that distance has a strong influence on population migration by the fact that people's knowledge of opportunities available declines with distance from the opportunities. Thus the null hypothesis is that there is no significant relationship between the volume of migration to Kawangware and the distance to Kawangware.

2. In terms of housing structures and the average length of stay by the residents in Kawangware; the settlement appears homogeneous. It was necessary to investigate whether the decision by residents to reside in a certain zone was dictated either

by differences in the housing quality or whether it was a random one. Hence the second hypothesis is that there is no significant difference between Kawangware sampling wards (Zones) in terms of the length of stay in a house.

The probing questions analysed in both Chapters Four and Five include the following:-

1. What are the marital status and sex ratios of the population of Kawangware? These data are analysed in order to grasp the structure of the population which tends to have a strong influence on economic productivity and general ways of life in such a settlement. Generally, a young population with most of its members unmarried tends to be more productive economically. Also, male predominance in occupations requiring strenous mannual work tends to have an advantage over female workers.
2. What are the educational standards and types of employment of the residents of Kawangware? These data were sought in order to furnish planners with information regarding labour participation in the formal and informal economy of the city.
3. What is the quality and quantity of housing in Kawangware? This information is provided in terms of analysis of occupancy rates per house and the density of housing structures per plot. This information would enable planners to upgrade present housing structures or to devise alternative housing for the residents depending on the situation presently.

4. Is there a satisfactory provision of other basic infrastructural and social amenities in Kawangware? These infrastructure include schools, clinics, shopping centre, access roads, street lighting, piped water, sewage and refuse collection facilities. In a high density settlement like Kawangware these facilities must be provided for in order to promote social development as well as safeguarding the health and security of the residents.

1.6 Procedures in Collection of Data

Data were collected using four methods, namely: the questionnaire schedule, in depth-interviews, archival research and secondary sources.

A questionnaire survey of 250 heads of households was undertaken in June, July and August of 1976. A copy of this questionnaire is enclosed in Appendix A. It is divided into three sections. The first section seeks information on the socio-economic characteristics of the population; the second section poses questions on tenureship of houses with regard to tenants - on the one hand, and owner-occupants on the other; the final section looks into the housing and environmental quality as well as into the attitude of the residents towards Kawangware. In this final section a record of built-up plots was made together with the condition of up-keeping of the plot compounds, the maintenance of buildings and use of neighbourhood environment.

The nature of access roads to the plots was also noted as was the distance from the living quarters to sanitary facilities. The questionnaire itself was drawn up in English, but the interviews were conducted in three languages, viz., English, Swahili and Kikuyu. This was necessitated by the fact that some respondents preferred to be interviewed in the language they understood best. It was, therefore, important that the interviewers had a good command of both Swahili and Kikuyu. The writer was assisted in the exercise by two assistants both of whom were fluent in the three languages.

During the survey, a number of problems were encountered. Translating the questions into either Swahili or Kikuyu sometimes raised comprehension difficulties. The time for carrying out the actual field study was too short. There were only about three months in which to finish the field work.

A serious problem was how to find the people to interview at the right time, as some people who were employed were available only after 5.00 p.m. so, most of the interviews took place during the evening hours and week-ends.

It was noticed that some of the answers given, especially on incomes were not reliable. This was true of the statements by self-employed people who feared that their information might be used to assess them for higher taxes. Many of them just quoted any figure that was obviously low enough.

Even the landlords denied having tenants, although it could be clearly seen that one household alone could not fill a certain number of rooms in a building or buildings.

In spite of these problems, the people were very co-operative and willing to give information as required. This was partly due to the fact that they thought the information would be used to provide them with the badly needed houses, and partly because they believed that certain services would be brought to the area immediately, if they give prompt information.

For the purpose of obtaining data on the acquisition of land by the pioneer Kikuyu settlers, and on the evolution of land uses in Kawangware, in-depth personal interviews were conducted on a limited scale. The writer selected ten elderly persons and conducted a group interview. The choice of the interviewees was arranged with the assistance of the sub-chief of the settlement. The interview was conducted in a non-directive manner, that is, it did not follow a system or a list of predetermined questions. The interviewees were encouraged to relate their personal experiences. They were also asked to dwell on significant events in the past and what they deemed to be the future trends of growth of the urban settlement.

Apart from the data obtained through the questionnaire survey and the in-depth interviews, the writer also collected information from the Kenya National Archives (KNA) and from the Kiambu Land Office.

These data were used to cross-check and substantiate the information collected by in-depth interviewing on the evolving settlement geography of the study area.

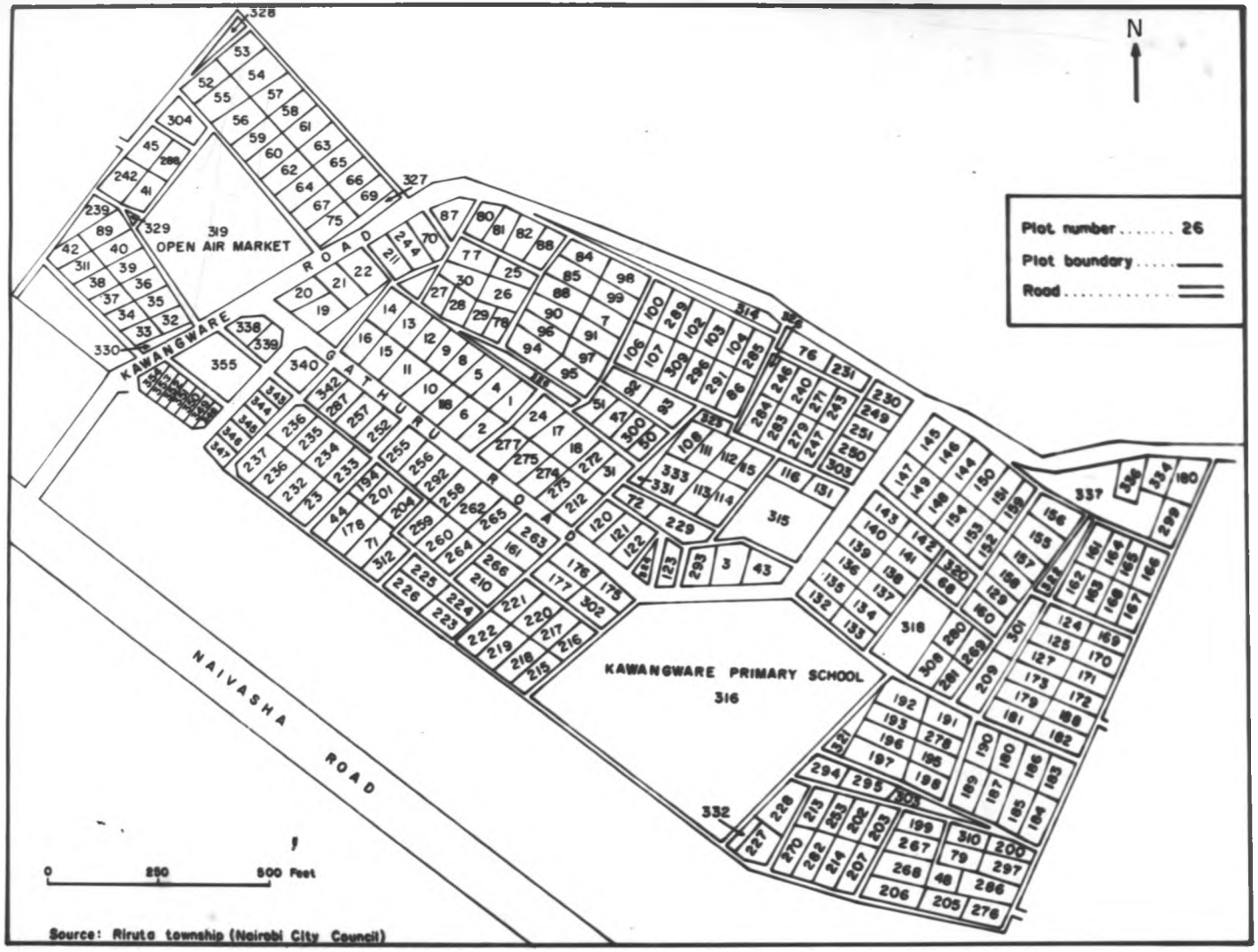
Secondary data on the relevant literature about the study area was collected from library sources and from written reports of the City Council of Nairobi.

1.7 Sampling Method.

In order to draw out the sample to be interviewed, an up-to-date base map of the area on a sufficiently large scale was necessary. A map (Fig. 2) was available on a scale of 1:2,500 showing plot numbers and access roads. Using this base map, it can be stated that Kawangware has 331 town plots of various sizes, but on average the sizes are 0.25 of an acre. These plots were spread out over an approximately rectangular section, and five access roads run through and around the settlement.

Assuming an average of six households per plot, this gave an approximate population of 1,800 households in Kawangware. Following the estimate of the Nairobi City Council,[39] which indicated that Kawangware had a population of 10,000 people, then the average number of residents per plot might have been as high as thirty. Taking an average composition of five people per household, this added up to six households per plot and 1,800 households altogether.

FIG. 2: KAWANGWARE BASE MAP



It was decided to take a 14% random sample consisting of 250 households.

The method used for selecting the 250 heads of households was as follows:-

(a) The settlement was divided up into six wards with the access roads acting as boundaries (Fig. 3). A random selection of plots, using numbers on the base map, was done from each of the six wards. The number of plots selected in each ward was proportional to the total number of plots in that ward. Thus, thirty plots were selected from ward one; forty-nine plots from ward two; fifty plots from ward three; thirty-nine plots from ward four; forty-nine plots from ward five; and thirty-three plots from ward six.

(b) From each of these sampled plots, one household was selected randomly for the interview. This last selection was done in the field using the lottery method.

1.8 Data Analysis

The analysis of data necessitated a number of steps after administering the questionnaires. These include the editing operation, devising a coding manual and preparing coding sheets, and, finally, summarizing the data, mainly, in forms of tables.

The editing operation included the inspection of questionnaires (at the end of each day of interviewing) for the

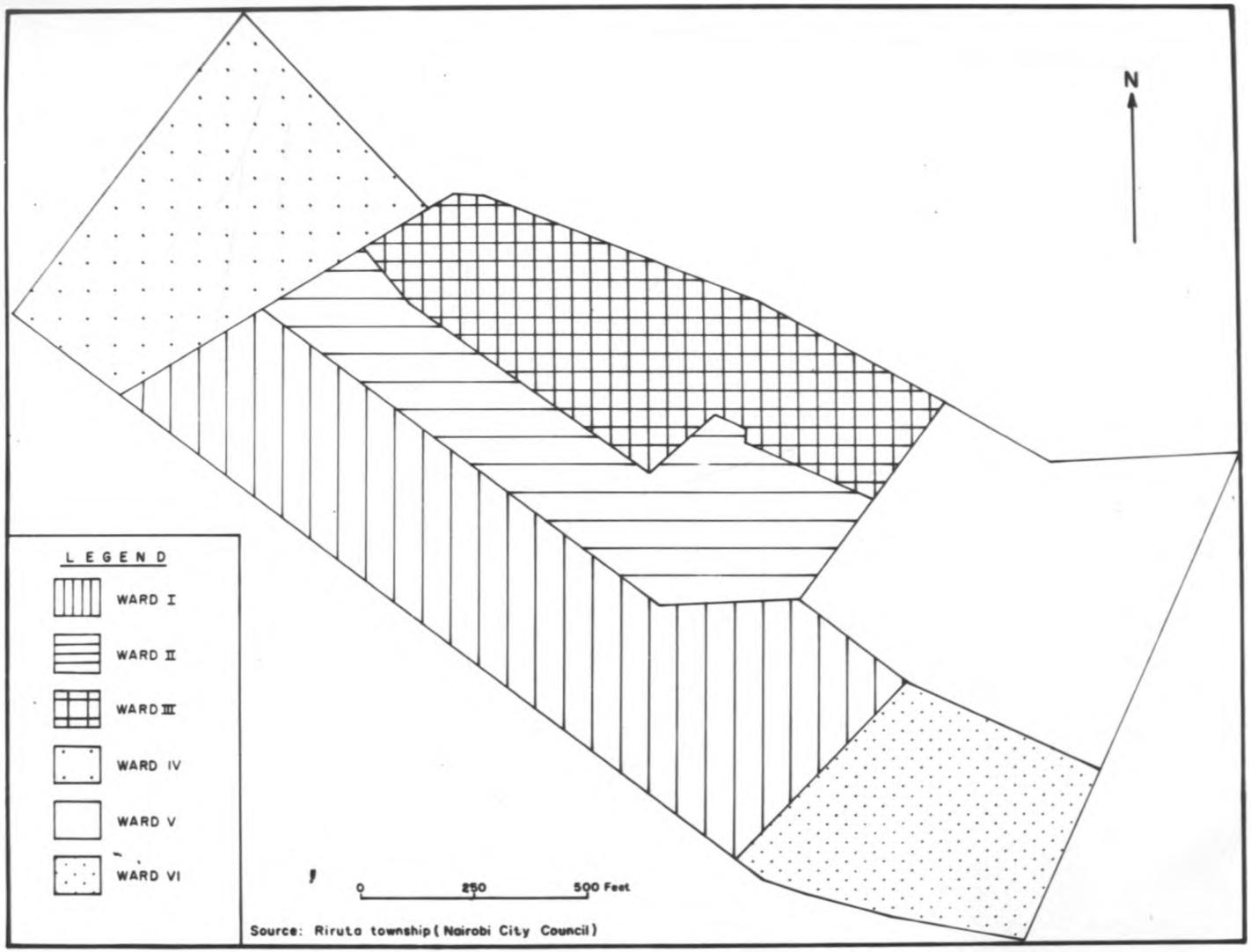


FIG. 3 : KAWANGWARE TOWNSHIP : SAMPLING WARDS

purpose of detecting omissions and inadequate entries, and for making relationship checks for consistency.

The coding process involved preparing a coding book and coding for each questionnaire. The data from the coded sheets have been tabulated by frequency tables, cross tabulations and, where appropriate, measures of central tendency have been calculated. In Chapters Four and Five of this thesis, the Chi-square test, the Pearson's correlation coefficient (r), and the students "t" test have been utilized to analyse relationships between various variables.

1.9 Organization of the Study

This thesis is divided into six chapters. The first chapter is the Introduction, which deals with the context and significance of the problem of uncontrolled urban settlements, the scope and purpose of study, and the study design.

The second chapter reviews the literature on uncontrolled urban settlements in both the western city and the city of the Third World.

In Chapter Three, the broader historical and socio-political context within which the city of Nairobi has evolved, and the evolution of African housing in Nairobi is discussed.

The Fourth and Fifth Chapters analyse the socio-economic characteristics of the population of Kawangware, and the nature

of the problem of housing and related infrastructural facilities.

The sixth and final chapter gives a summary of the main findings, recommendations for further research and implications for further policy.

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CHAPTER TWO

UNCONTROLLED URBAN SETTLEMENTS: A LITERATURE REVIEW

2.1 Introduction.

The literature on uncontrolled urban settlements in Third World cities is replete with a number of concepts which are often vaguely defined or not defined at all. In this chapter, an attempt will be made to clarify the definitions of some of these important concepts and related planning problems.

Among the concepts to be discussed are:-

(a) slums and uncontrolled urban settlements;

(b) squatter settlements;

(c) the ghetto and;

(d) peri-urban settlements.

Following this, an attempt will be made to review the literature on uncontroleed urban settlements in Kenya.

2.2 Slums and Uncontrolled Urban Settlements.

Uncontrolled urban settlements comprise of conglomerations of dwellings built on land to which the inhabitants have no right of occupancy.[1] Usually in the Third World cities, these settlements are located on the periphery where land has not been surveyed or legally sub-divided.[2] Physically, an uncontrolled urban settlement is usually unplanned and has in most cases substandard housing. In this thesis, the term refers strictly to urban areas of the Third World where the layout and design

of housing is unplanned. It is a settlement similar to a squatter settlement in many respects, except for the degree of de facto recognition and toleration by civil authorities. A squatter settlement is generally considered a temporary unit and it, therefore, receives de jure toleration from city authorities.[3] An uncontrolled settlement, on the other hand, is a permanent unit whose "planlessness" becomes the major concern of the civic authorities.

A distinction is usually made between uncontrolled urban settlements and slums. The word "slum" incorporates poor housing in any form as well as the physical and social surroundings therein.[4] Usually the slum-dweller is a legal tenant paying rent to a landlord who legally owns the housing unit. Slums are characterized by squalor, lack of privacy and overcrowding.[5] Uncontrolled urban settlements tend to be unplanned and housing structures are illegally constructed. Since they are illegally constructed they have for a long time been threatened with demolition which has precipitated uncertainty leading to poor maintenance and consequent dilapidation of the housing in these settlements.[6] The growth of these settlements largely reflects a gross inadequate supply of acceptable housing. Although most uncontrolled urban settlements eventually drift into slums, the two concepts are not synonymous.

In this thesis the concept of "slum" is applied in the sense that Abrams defines it; " a catchfall of poor housing

of every kind as well as a label for the environment. The same word denotes a chicago mansion turned into furnished rooms, and a cardboard carton sheltering a human being in Lima." [7] This is a universally acceptable definition since in most of the literature the word "slum" is essentially an evaluative concept rather than an analytic one. Van Zwanenberg, in his paper on the problem of slum development in Nairobi, rightly observed that a "slum" is a euphemism with little precise meaning, but which generally applies to that part of an urban area which is considered to have qualities of untidiness, dirt and smell which the user loathes.[8] A slum varies in its usage according to history and culture. The term describes an urban condition and, specifically, refers to conditions of housing, sanitation, rents, wages and occupations of the residents of a city.[9] Solzbacher [10] views the slum problem in East Africa in a more elaborate way. Like Zwanenberg[11], he observed that slums are products of the cultural, social, economic and climatic conditions of the larger society which encompasses them. Thus, what qualifies as slum conditions in one culture may be quite adequate in another.

Slums are often characterized by certain degrees of obsolesence of one type or another. A planned area once left uncatered for, may eventually become obsolete and, hence, lead to the formation of a slum.

Slums take on different forms in different countries. Abrams asserts that "they emerge from marshes and hillsides in Philippines, in old forts in India.... in Karachi they dot cemeteries and roadsides..... in Spain they appear as holes in ancient caves". Slums may be occupied by owners or rented, but generally they are manifestations of poverty.

Uncontrolled urban settlements assume a connotation of "free" development:- "free" in the sense of existing outside the regulations laid down by planners for building and settlement. The resultant type of development is spontaneous and haphazard and civic authorities view this type of development as illegal. Although it has already been observed that uncontrolled urban settlements may eventually revert into slums, it does not follow that all slums are the product of illegal settlements. In fact, slums can also be the product of planned areas.

2.2.1 Some characteristics of slums and uncontrolled urban settlements.

Slum life is not always a symbol of retrogression - it may be a stepping stone from homelessness to shelter[13], or it may generate income in the so-called "informal sector". Slum areas are often places of residence of new unskilled or semi-skilled immigrants. Such places where these people settle down are usually characterized by various occupations,

These occupations often enable migrants to acquire new skills that they would have missed otherwise. There is a chronic lack of Privacy and public amenities in slum areas[14].

Uncontrolled urban settlements are usually associated with poor standards of infrastructure. The disposal of human excrement is poor and is either left to decompose between shacks or hundreds of families may share pit latrines which are rarely cleaned. This situation has enhanced various diseases and epidemics as has been observed by Abrams in Lagos, Nigeria[15]. Uncontrolled urban settlements, therefore, tend to pose a potential health hazard to the rest of the urban population because of their squalor and the high population densities.

Commonly associated with uncontrolled urabn settlements are certain social by-products. Among these are illiteracy, juvenile delinquency, a high incidence of mental disorder, high rates of family dependence on public assistance, etc [16]. However, poor housing is not the sole cause of these phenomena because the impact of slums is not the same everywhere.

Uncontrolled urban settlements are very often characterized by varied activities that are also incompatible. At times it may not be easy to draw a line between one land use and another. However, to some people, the haphazard nature of development of uncontrolled urban settlements is of some aesthetic importance[17]. The attraction is often caused by the fact that such areas do not offer the monotonous scenery often associated

with planned neighbourhoods. Others refer to slums areas as eye sores and hence advocate their rebuilding irrespective of the negative consequences that may result from such an action.

2.2.2. Squatting and slum-dwelling

Squatting is an illegal occupancy of land or building without the permission of the legitimate owners[19], while slum-dwelling signifies squalid housing[20]. As already noted, any type of housing whether unplanned or well-planned may drift into slum conditions if not maintained.

All over the World, squatting and slum-dwelling tend to be twin aspects of the housing problem. They are indications that the supply of housing has been greatly outrun by the growth of population in the city. Squatting and slum-dwelling cannot be solved merely by making houses available. The two are only symptoms of a greater social, economic and political problem accompanying the urbanization process.

In Third World countries, squatting has been a major problem connected with the rapid process of urbanization. Abrams observed that squatters constituted about 45% of Ankara's population, 21% of Istanbul's and 20% of Manila's population[21]. Writing about squatters in Dar-es-salaam, Hayuma defined squatters as: "those persons living in non-permanent structures often made of mud, pole and thatch materials, with no sanitary facilities, built without permission and not according to a lay-out."[22]

Thus, Hayuma's definition of squatting embraces both squatting and dwelling as one aspect of the problem. Abrams, on the other hand, views squatting in the city as a "forcible pre-emption of land by landless and homeless people in search of a haven".[23] But both Hayuma and Abrams conceptualise squatting as an expression of urban landlessness and housing famine.

The conceptual distinction made in this thesis between squatting and slum-dwelling is an attempt towards finding a solution to the problem of uncontrolled urban settlements. As already noted, squatting is primarily a legal concept, and it involves violation of property rights. It is, therefore, punishable under Kenyan Law. On the other hand, slum-dwelling is a socio-economic concept. It is occupation of housing that is so dilapidated and congested that its condition poses not only a health hazard, but also encourages crime, vice and other related social by-products. Ultimately, these hazards may no longer remain confined to the population of the uncontrolled urban settlements, but spread to the whole urban community.

2.3 The Ghetto

The "Ghetto" is the American slum area found adjacent to the city centre or the Central Business Disctrict (CBD)[24]. Berry and Horton have observed that the ghetto is always in a zone peripheral to the CBD, usually containing houses that were once elegant, but are now intermingled with commercial and light

industrial uses[25]. The ghetto is common to all large urban areas in America, notably, Chicago and New York. It is commonly the residential area for the minority groups particularly, the Black Americans or the Negroes.

The ghetto originated in the 19th century when the newest migrants with low incomes settled near places of work in the CBD of New York, Philadelphia and Boston. The migration of the Negroes, however, started en masse after the First World War, when a remarkable social upheaval took place in the South, and employment opportunities were only available in the urban areas of the North. The influx of Negroes to these areas was, however, greater than the cities could cope with. As a result, Negro populations doubled up in slums on the periphery of business and industrial districts. Since then, the pattern has been unbroken because of pressure on limited areas for settlement. The ghetto, consequently has expanded and adopted itself to a dualistic system, viz: The Negroes are excluded from White areas, and whites are largely absent from Negro areas; ghettos, irrespective of regional differences, are always sharply inferior to white areas. In the ghettos, fewer people own houses and the houses are usually older, more crowded and more likely to be substandard.[26]

The typical ghetto has been perpetuated mainly by one underlying factor - that on the average, Negroes and other minority groups are much poorer, owing partly, to the much inferior educational opportunities and to systematic discrimination in employment[27].

A sudden influx of migrants also puts pressure on limited housing supply and, therefore, creates the ghetto. This situation is prevailing in the urban areas of the North, where once elegant houses, abandoned by Whites, were redivided to accommodate the newcomers. The maintenance of such houses was made impossible, largely, because of absentee owners.

Four kinds of barriers operate to perpetuate the ghetto system[28], viz:-

(a) the racial prejudice of whites against Negroes;

(b) the pervasive agglomeration characteristic of Negroes

(c) the discrimination by real-estate industry and associated financial institutions, in the belief that, if a Negro acquires property in a White neighbourhood, property values will drop as a consequence and;

(d) the legal and governmental barriers by which residential segregation is encouraged.

These barriers are largely based on racial prejudices and political discriminiation.

Glazer[29] asserts that social surroundigs are more important than physical surroundings in delienating slum areas. He compares cities of Tokyo (Japan) and New York. He notes that the proportion of dwellings listed as slums is considerably smaller in Tokyo. However, the average Tokyo dwelling designated as non-slum is physically inferior to the average New York slum-dwelling in terms of construction, sewer and bathing facilities,

and a central heating system. The comparison made by Glazer is between two cultural groups or societies with different levels of wealth and different ideas about minimum requirements for decent living. In Japan, minimum decency is more easily achieved than in America.[30] But one wonders whether this argument is not a parochial justification for the existence of the ghetto system in America. Notable, however, is the fact that Tokyo does not have as large a socio-political problem as New York. To some extent it is true that the slums of any city will tend to equal the number of people defined as social problems, regardless of the quality of design or architecture of the dwelling structures.

It appears that the chief problems of the ghetto are more social than physical. While the uncontrolled urban settlements in most Third World cities are preoccupied with the improvement of the physical dwelling environment, the concern with the ghetto is one of social renewal. The major problems in the ghetto include poor education, unemployment, broken families and crime.[31] These are problems that least catch the attention of urban planners in Third World cities, nor are they amenable to physical solutions, whether by urban renewal projects or even by programmes that assist in building houses directly for the poor. The major solutions to the ghetto problem, therefore, lie in the integration of Negroes and other minority groups into the American city and the American

society at large.[32] This involves a socio-political re-orientation of both the Negroes and the Whites.

2.4 Peri-Urban Settlements

Peri-urban settlements may be understood in terms of the concenpt of rural-urban fringe which has been vaguely defined by many authors. The concept of rural-urban fringe is used synonymously with "surburb", "satellite", "urban fringe", "outlying adjacent zone" and "rurban fringe".[33] However, all these terms denote one common factor, namely, that the rural-urban fringe is a transitional area between the city and its adjacent rural area.

In the global context, the rural-urban fringe varies greatly in the functions that it performs. In some regions, as for example, in the cities of the Third World, it houses the very poor, while in North America and Europe, it is the home of the upper class and the affluent. The apparent confusion in defining the concept also stems from the varied functions of the rural-urban fringe. The "fringe" connotes odd and contrasting uses-from the fancy to the dirty, from urban to the rural, and from dormitory developments to nucleations of settlements.[34]

Eaton[35] notes that the history of the suburb in America goes back to the Medieval times, but that its most characteristic development occurred in the 19th century.

He observes that the typical suburb was an attempt to escape from the crowded conditions of the CBD.[36] The western city suburb of the 19th century had the qualities of openness and greenery and was gradually connected to the Metropolis by rail and most male inhabitants became commuters. Thus, the suburb was preferred because it had the physical qualities preferred in country living. The western city was no longer isolated as an entity surrounded by a wall. It interacted with the rural hinterland on the commercial socio-cultural and political levels. The obsolescence of Medieval city wall expanded the city and the rural-urban fringe became the boundary between the city and its hinterland.[37] The upper class and the elite worked and lived in the city centre, which was the most accessible and prestigeous part, while the poor had to accept the inconvenience of living farther away from the centre.[38] The only available quarters were in the rural-urban fringe where they could also supplement their low incomes with farming.[39] Meanwhile, the rural migrants did not consider themselves part of the city, nor did city people consider them as such. They maintained strong ties with their original homes and older traditions. This is largely the practice and order in Third World cities today.

Later on, improved transportation and better wages caused the elite and upper class population in the western city to move towards peripheral locations.

They did this in quest for more land and open space and, therefore, to escape the increasing congestion, deterioration and declining prestige of the city centre.

Today, the suburb in both the western and the Third World city is a "transitional area" acting as a bulwark between the rural folk and the urbanites. However, the biggest contrast between the two cities is that the suburb in the western city has become the residence of the upper-and middle-income groups while the poor live close to the city centre. The fringe in the Third World city tends to house the poor in the spontaneous settlements.[40]

In this thesis the concept of rural-urban fringe will mean that zone which is located between the rural and urban settlements. It is the transitional zone between the countryside and the city proper, and it is, in fact, a "rural-urban" area. The fringe combines the characteristics of country life and the town, but there is no clear-cut dividing line between the two. The peri-urban settlement on the fringe of the Third World city is undergoing rapid changes. Farmers sell their smallholdings to city authorities or they sell small portions of their farms to private developers, while they retain the rest and continue with agriculture. The transitional areas of this nature are usually penetrated by urban roads, piped water, electric power lines and telephone cables.

But very few homesteads in the peri-urban settlements have connections to these infrastructures.

The rural homesteads are the immediate hinterland for the urban area and, therefore, land speculators and private developers tend to acquire plots of land there. Such plots may be left vacant and undeveloped for speculative reasons. If developed, the main user is residential and the houses are largely of poor quality. In the Third World City, this area functions as a "dormitory" for thousands of urban workers who cannot afford the high house rents in the city. In the peri-urban settlements, the emergent layout of structures is unplanned and informal, with concentrations on major access roads. Development there is uncontrolled, and does not comply with laid down Municipal by-laws.

2.5 Uncontrolled Urban Settlements in Kenya

The literature on uncontrolled urban settlements in Kenya is already large and growing rapidly. The existing studies are based mainly on the capital city, Nairobi, and the chief sea port of Mombasa. During the first twenty years of the colonial period almost all Africans in Nairobi lived in unregulated settlements that were more like rural villages than urban settlements.[41] These settlements were gradually demolished and both landlords and tenants were obliged to live in a demarcated "Native Location" - Pumwani - which was built with

traditional materials of mud and wattle and thatched with grass.[42] A few Africans lived here, but the majority were housed in Pangani.[43] The oldest settlement built with traditional materials that still exists in Nairobi today is Kibera, an unplanned peri-urban settlement, founded in 1912 for Nubian ex-soldiers.[44] The other non-African residential areas in Nairobi were planned by the colonial administration, and the migration of Africans to the city was controlled. Compared with Nairobi, Mombasa restricted the movement of indigenous people much less, administratively, because it existed before European colonialism and would have been very costly to re-develop. Mombasa, therefore, evolved along the lines of village layout according to which private plot owners could construct dwellings in an approved fashion in keeping with Swahili house planning and using traditional materials.

Generally speaking, official colonial policy in Kenya regarding African urban housing involved both the regulation concerning "sub-standard" buildings and the establishment of more and more housing estates.[45] By the time of Independence, however, class groups (based mainly on income and educational levels) of Africans had emerged and led to a more heterogeneous lower-income group that was largely in the informal sector and lived in the "temporary" housing areas such as Kibera, Pumwani,

Mathare Valley, Majengo, Kariobangi and Kawangware.[46]

By the 70s, two policy issues were receiving the most attention in the literature on uncontrolled urban settlements: (a) re-development of "slum" and squatter communities and; (b) the apparent bias of the upper-and middle-income groups on the matter of public housing construction.[47] The highlights of government policy regarding housing for low-income areas have been covered by Bujra[48] in her study of Pumwani. In the course of the social history of Pumwani, Bujra discusses how the local petty bourgeoisie class, mainly Muslim landlords, consolidated its control over property and commerce. Her account is rich in its exploration of the themes of class, ethmicity and religion. McVicar, in an earlier study of Pumwani, also stresses the function of Islam in reducing tribal tensions and forstering a sense of community loyalty among the residents.[49] Both Bujra and McVicar were critical of the re-development of Pumwani, although for different reasons. Bujra focussed her study on the temporal developmental aspect of class differences between landlords and poorer tenants in Pumwani. She objected to re-development not only because it would break up the community, but because the beneficiaries would be mainly the wealthier landlords. McVicar stressed the freedom from formal controls and recommends greater inter-ethnic interaction in all aspects of life.[50]

He implicitly criticized governmental attempts to re-develop the areas as this would aesthetically degrade other low-income settlements.[51]

Ross[52] has also cast light on the question of community integration in low-income areas with reference to Mathare Village II. He ranks the village with a high grade in terms of sense of community, social and political institutions as devices for solving local problems in the settlement.[53] He views rapid integration in Mathare Valley as enamating from a development of "sense of community" rather than community institutions.[54]

Stren[55] has discussed conclusively that the level of education, among other factors, is a power stimulant to political participation in 'Majengos" of Mombasa.

The above suggestions and findings lead to a number of conclusions regarding re-development strategies for low-income settlements in Kenya. Firstly, housing re-development (i.e. the demolition of existing low-income housing settlements and replacement of these with publicly financed modern estates) is unlikely to re-create the sense of community spirit and participation that has grown up over the years in such settlements. Site-and-service schemes, for example, would mean moving existing populations and re-distributing tenants and landlords. In the process, old community ties would be broken and new ones would take a long time to establish.

Secondly, community leaders should be informed well in advance of the intentions of the government, particularly, if demolition is contemplated. If the community is kept unaware of government policy, then it is subjected to anxiety and a lot of uncalled for uncertainty as Temple[56] rightly concluded in his study of Kibera. In dealing with the affected community towards improvising low-cost housing the residents should participate in deciding on the best possible solutions. This would alleviate the problem of upgrading slum areas and suppress the inherent fears expressed by Bujra[57] when she remarked that it would be impossible to provide ideal solutions for slum housing.

Today, in Kenya there is a clear bias in national public housing programmes towards building more and more dwellings for upper-middle and upper-income groups. This appears to be in clear contradiction with government policy. For example, the 1970-74 Development Plan recognizes an "imperative need to accelerate the creation of inexpensive urban housing for the low-income groups."[58] Four years later, the 1974-78 Plan enumerates eight main reasons why sufficient low-cost housing units have not been built during the previous plan, notable among them being lack of capital.[59] Temple,[60] however, argues that this bias stems from official insistence on maintenance of hgih

building standards and the inherent fear that low-cost urban housing schemes might be obsolete and eventually become a financial liability. Werlin,[61] has concluded that City Council housing is expensive because of scarcity of qualified planners and inefficient administration by the City Council. However, this is a very simplified explanation to the housing shortage because the city building by-laws dictate very high standards particularly in terms of building materials and to a large extent these requirements are financially beyond the capability of the emerging private house developers.[62]

There is also a large body of literature on the urban poor in Kenya. Two interrelated problem areas appear to dominate this literatute[63]:- (a) class formation and urban stratification and (b) rural-urban migration and unemployment. The theme of urban stratification is that group differentiation occurring in Kenya is based on unequal distribution of political power and wealth and is based largely on place of origin. This state of affairs is not conducive to the provision of housing for the urban poor. The labour force is similarly structured and one can delienate two classes consisting of the peasantry and the urban unemployed at the bottom and the "political class" at the top.[64] Elkan[65] has examined social and demographic structure of Nairobi's population with a view to verifying whether or not a proletariat is emerging and

he comes up with a negative conclusion. However, the majority of Nairobi residents derive their incomes from wage employment or from the "informal sector" of the economy of the city. Thus, although there have been notable contributions towards a theory of class structure in Kenya, no full-scale study has yet appeared. The existing studies analyse the socio-economic characterisitcs of the urban target groups centring mainly on neighbourhood studies.[66]

Ross[67] has shown that there is some relationship between class and cultivation of ties with rural areas. Similarly, in his study on the Luo community of Kaloleni Parkins[68] concludes that there is a positive attachment to the rural areas particularly with regard to financial investments.

Another class-oriented variable which has emerged from local studies is the landlord-tenant distinction with the landlord occupying a more wealthy position especially in property ownership.[69] The tenants are a more heterogenous group and do not emerge as a self-conscious and well-organized group.[70] The study on old Kibera by Temple has concluded similarly.[71] The landlord-tenant dichotomy is related to the kind of housing that should be planned, if re-development is contemplated upon.[72] The observation here is that if tenants are to be protected, and if communities are not to be destroyed

by re-development, then low-cost housing schemes should be designed in an ideal way that would benefit both groups.

Among the most important works on migration in the Third World are two papers by Harris and Todaro[73] which have analysed the Kenyan situation. The studies conclude that in Kenya rural-urban migrants are predominantly young, educated and landless persons.[74] However, the existing literature has not verified where different kinds of migrants are likely to live when they arrive in towns. Generally, fresh migrants would live in areas, where house rents are low, and these are often squatter or uncontrolled urban settlements.

Ominde[75] and Rempel[76] have analysed national migration flows relating them to know demographic variables. The causes of migration have been discussed accordingly and basic findings reflect dispacity in development between the rural and urban facilities. Amin[77] has analysed Kenya census data in aggregate and has similarly shown that migration is strongly related to economic disparities, most of which were established during the colonial period and are being perpetuated. Other studies done in a number of urban centres in Kenya show that rural-urban migration is only one aspect of a general socio-economic structure in which urban dwellers are linked to their regional areas of origin.[78] As a result of these various migration studies, a more clear picture of rural-urban migration and demographic characterisitics has emerged.

Alongside massive urban migration in Kenya, there has been acute unemployment. The urban poor and unemployed are most likely to live in low-income settlements, where they may scrape a living. The ILO study in Kenya has notably dealt with "informal sector" activities.[79] The Report emphasizes the need for putting concerted effort in order to facilitate employment and raise incomes in the "informal sector" of the squatter settlements.[80] The Report countemplates non-demolition of slums, encouragement of small traders, development of labour-intensive technology, income re-distribution and increased government expenditure on informal sector activities as measures that would alleviate the poverty in these settlements.[81] In principle, the Kenya Government accepted the ILO recommendations, but there have been criticisms about the determination and ability of the government to implement them. Werlin,[82] for example, questioned the effectiveness of implementing these recommendations in the absence of organized disadvantaged groups. Leys[83] notes that labour employed in the informal sector is both underpaid and exploited because of the demand for the work from the "reserve army" of job seekers. He, therefore, argues that the ILO recommendations cannot operate within a political system of reformed capitalism, but that there is a fundamental need to overhaul the system in order to avoid contradictions when implementing these recommendations.[84]

Basically, the "informal sector" serves important and politically powerful interests, since both foreign investors and the Kenyan elite depend on the formal sector which is rather narrow. But even if a strategy on the informal sector were contemplated, the unfortunate thing is that little is really known about the dimensions of the sector. There exists, however, some data on economic activities within the slum and squatter areas. McVicar presents some fascinating descriptive materials on economic activities in Pumwani.[85] He distinguishes between skilled and unskilled wage-earners and self-employed and discusses types of illegal employment such as the selling of miraa and bhang, brewing and selling of chang'aa and prostitution.[86] The major conclusion from McVicar's description is that individuals often work in both the formal and informal sectors, and that many who derive their income almost exclusively from the informal sectors as producers of goods and services are still very much dependent on the formal sector for clients and/or provision of services, such as primary education.

Ross[88] paid special attention to women's small-scale enterprises in Mathare's population, which were similar to those documented by McVicar in Pumwani. However, Ross found out that in Mathare Valley, the brewing of beer was the most important single activity in the community.[89]

Nici[90] has also analysed socio-economic characteristics of women in Mathare Valley and came up with conclusions similar to those by Ross. King[91] has described how urban informal sector profits are remitted to the rural areas for the upkeep of extended families and makes conclusions similar to those by Parkins on the Luo community of Kaloleni.[92]

From the above studies, it appears that there is a close interdependence between the "formal" and "informal" sectors. Hence it is imperative that guidelines and policy for one sector should not overlook its effect on the other. In fact the two sectors should be complementary as illustrated above.

2.6 Conclusion

The literature dealing with low-income urban housing in Kenya and substandard housing in uncontrolled urban settlements, focusses on a number of central issues which have been reviewed above. Redevelopment strategies and improvement schemes for slum and squatter areas should take account of these issues, However, more data are needed on origin, numbers, locations, and socio-economic status and attitudes of residents towards their settlements. Pertinent information on income, employment and education among others, should be sought. The overall goal on the part of planners sould be to provide more housing with better services for the maximum benefit of the communities

affected by the planning. Interference with existing social and economic patterns must be kept to a minimum, and the required information postulated above must be sought before embarking on programmes of action. Chapters Four and Five of this thesis improvise this information for Kawangware.

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CHAPTER THREE

UNCONTROLLED URBAN SETTLEMENTS OF NAIROBI IN A HISTORICAL PERSPECTIVE

3.1 INTRODUCTION

The relevance of seeing uncontrolled settlements of Nairobi in an historical perspective is based on two facts. First, it is essential to remember the alien nature of urban life for most Africans. Prior to the arrival of Europeans, the people of East Africa rarely emerged from a relatively simple rural existence, involving a small cluster of huts of temporary material associated with subsistence agriculture, unsophisticated techniques, and rudimentary political organizations. It is, therefore, broadly true that in inland East Africa, towns are creations of the present century and that the great majority of the African population has been until recently, quite unfamiliar with town life. The second fact, is the necessity to keep in mind the point that Africans were for long time thought of as not really belonging in the towns by Europeans who came to settle in East Africa. This fact tends to overwhelm the subsequent development of land-use patterns which was largely governed by the attitude(s) of the colonial administration.

The attitudes of the politically dominant Europeans discouraged the colonial civil authority from providing many services to Nairobi's African population. However, the goals of the Municipal authorities with regard to Africans were in fact fundamentally contradictory. They wanted cheap, efficient labour, segregated residential areas, and protection against public health threats - all while keeping expenditure on Africans to a minimum level. However, at the existing low wage rates, Africans could not afford hygienic housing; the overcrowded slum developments which resulted from this situation were hardly conducive to high standards of public health. Moreover, the low wages did little to encourage the growth of a permanent urban labour force with adequate skills. In spite of their awareness of these relationships, most employers were unwilling to meet their statutory obligation to house workers, and the Municipal Council was reluctant to spend money on social, health services, and housing for Africans.

Cheaper methods resorted to by colonial authorities in their attempts to segregate Africans, regulate the flow of "undesirable" Africans into Nairobi, and protect European Public health were pass laws requiring Africans to carry registration certificates, "Kipande", (which were in a small metal container usually hung around the neck of its owner with a string).

The underlying rationale for these laws was that Nairobi was a "non-native area". A variety of laws were passed, usually with the goal of reserving Nairobi residence only to those Africans with jobs. The regulations were difficult to enforce. Employers were often not very co-operative because they recognized that surplus labour would keep wages down. Africans resented these regulations bitterly, and even those Africans with jobs found themselves restricted to their locations at night.[1]

Regulation of movements of Nairobi Africans reached a high point during the Mau Mau Emergency especially under "Operation Anvil" in 1954 when some 27,000 Kikuyu were detained.[2] Strict control during the Emergency greatly reduced the number of Kikuyu, Embu and Meru in Nairobi's African population. But the basic problems of urban Africans remained unsolved as was revealed by the East African Royal Commission Report as late as 1955.[3] The writers of the Report commented at some length upon the problems of urbanisation in the area and it was quite manifest from their findings that the following were crucial issues: the lack of housing and bedspace, the lack of urban family life, the low wages in comparison with the high costs on urban living, the high rents, and the general poverty and instability of urban life were still constant factors of the African urban experience.

The Report also brought out a new point, which had been ignored hitherto, namely, that land occupation opportunities for Africans in the urban area were very minimal. There was no security of tenure, with the result that entrepreneurs were unwilling to invest in housing. The few Africans that owned land in the city could not be able to build because of the high standards laid down by the Building Code. The most favourable conditions available offered a lease for only twelve months, with the natural result of a high incidence of urban squatting in and around the city.

Finally, in the Post-Independence period there has been a huge influx of rural-urban migration mainly to Nairobi prompted partly by relaxation of colonial restrictions on movement to towns and partly by the existing economic differentials between the rural areas and the city. Nairobi is a magnet for the rural-urban migrants who apparently imagine that employment opportunities exist in the city. The lure of the city is short-lived because soon the migrants are faced with a serious problem of unemployment and housing consequently they seek accommodation either by squatting on unoccupied land in the city, or reside in the uncontrolled settlements like Kawangware, where house rents and the general costs of living are lower than anywhere else in the city.

3.2 The Development of Towns in Kenya.

Except on the East African coast, there were virtually no towns in mainland East Africa prior to the establishment of European administration. Thus, towns as centres of social and intellectual life, of economic enterprise, and of political activity developed in East Africa as a result of non-African enterprise.[4] In Kenya, for example, there were two chief reasons behind the establishment of colonial towns, namely: a) as centres of colonial authority and rule, from which the colonial administrators could bring under effective control the surrounding people; and b) as "islands of health" and security from which the colonial rulers could reside for commercial purposes.

Between 1902 and 1945 more than 300,000 Europeans came to Kenya alone. They secured land in the Central Highlands which became euphemistically known as the "White Highlands". The Africans were restricted to the "Reserves" - special areas for tribal units - where they were supposed to continue without interference, with their customary way of life including the practice of subsistence economy. Africans were to come out of the Reserves only if they wanted to work on European farms or in the towns as labourers.

In Kenya, the establishment and growth of trading centres was closely tied up with the then prevailing colonial policy for stimulating production of saleable crops in African

Reserves through the development of trade, with the twin objectives of intergrating the colonial mercantile network and deriving increased government revenue through the institution of the hut tax to support the expanding colonial establishment.[5]

In order for the trade to occur three distinct class of urban centres were established, namely; the townships, trading centres, and traditional markets. The establishment of these urban centres reflected the prevailing colonial policy of territorial exploitation with the imperial power standing to gain.

The internal arrangement of land uses in these towns was to a large extent determined by the colonial policy of spatial segregation of different racial groups. For a long time, Africans were not accepted as permanent urban residents. The urban employer of cheap African labour did not worry about where to house the labourer. Housing was, therefore, scarce and the African labourer either lived in traditional huts outside the township boundaries or inside the township boundaries as a squatter. All the land in the urban areas belonged to either the government and the railway authority or the Europeans and the Asians who claimed to have bought it. The squatters in the urban areas were evacuated in the same way as those on European farms whenever land was needed for other purposes.

Since Africans were regarded as temporary inhabitants in urban areas, they could not bring their families to live with them in the towns; they were, in fact, forbidden to do so and if found were severely punished. Until Independence, towns in Kenya had thus come to be regarded as the preserve of the Europeans and the Asians.

Because Africans were regarded as merely temporary residents in the town, doing unskilled work for short periods, leaving their families in the rural areas, to which they would periodically return and eventually retire, very little public accommodation was provided until the end of the Second World War. As late as 1955, the East African Royal Commission Report could declare: "They are still, however, regarded socially and financially as liabilities for whose housing and welfare the urban authorities are responsible."[6] It was often argued that extensive public housing elaborate enough for African family life would encourage an excessive influx into urban centres such as Nairobi, resulting not only in additional crime and disease, but also in an undesirable economic burden on the city. For this reason, the earliest public housing for Africans consisted of dormitories suitable only for single men.

3.3 Nairobi: The Growth of a Colonial Capital.

Nairobi is a colonial creation, its site not having been continuously occupied prior to the arrival of the Europeans.

Nairobi's colonial heritage, both in terms of patterns of urban development and governing structures, continues to have a strong impact on the nature of the problems of the city and the kinds of responses which are made to them.

Nairobi is situated at the edge of the plains over which the pastoral Maasai roamed and at the base of the higher agricultural lands inhabited by the Kikuyu, an area which was part of a broader region over which both tribes were trying to establish hegemony during the last half of the ninteenth century. The first European settlement there was a transport depot established by the Royal Engineers in 1896. The real impetus for the future growth of Nairobi, however, came in June, 1899,when the railway being constructed between Mombasa and Uganda reached the site. An encampment was established as a base for the difficult task of descending the steep walls of the escarpment into the Rift Valley. The following month the railway headquarters were moved from Mombasa to the new settlement, which had been named "Nairobi" after the Maasai word "Engare Nyarobe" or "Uaso Nyarobe"- respectively meaning "watering place" and the "cold river" for its major river.[7]

At the same time the government administration headquarters for Ukamba Province were transferred to Nairobi from Machakos, roughly forty miles to the South-east.

During the first few years of Nairobi's existence, the railway administration was more prominent and better established than the government. By 1905, when the headquarters of the government of the Kenya Protectorate were moved from Mombasa to Nairobi, that situation no longer prevailed.

Within a few years of its establishment, doubts began to be raised about the suitability of Nairobi for large-urban settlement. Poor living standards, bad housing condition, an inadequate water supply, and improper drainage all contributed to an unhealthy environment and there were outbreaks of plague in 1900-02 and in 1904. The Indian bazaar was burned down after the first outbreak, and after the second there was talk of moving the town up into the highlands. The debate was ended in 1906, however, when a government commission decided that to move the town to another site was "outside the bounds of practical politics."[8]

By the first decade of the twentieth century, definite land-use zones, particularly the nuclei of future residential patterns, had emerged in Nairobi as fig. 4 illustrates. These zones were not brought about by articulate planning, but were largely a result of laissez faire development. The centre of railway activities comprised the station, marshalling yards, loco sheds and offices. The government offices were located to the south of the swamp; and the European business area occupied plots along the length of the new Government

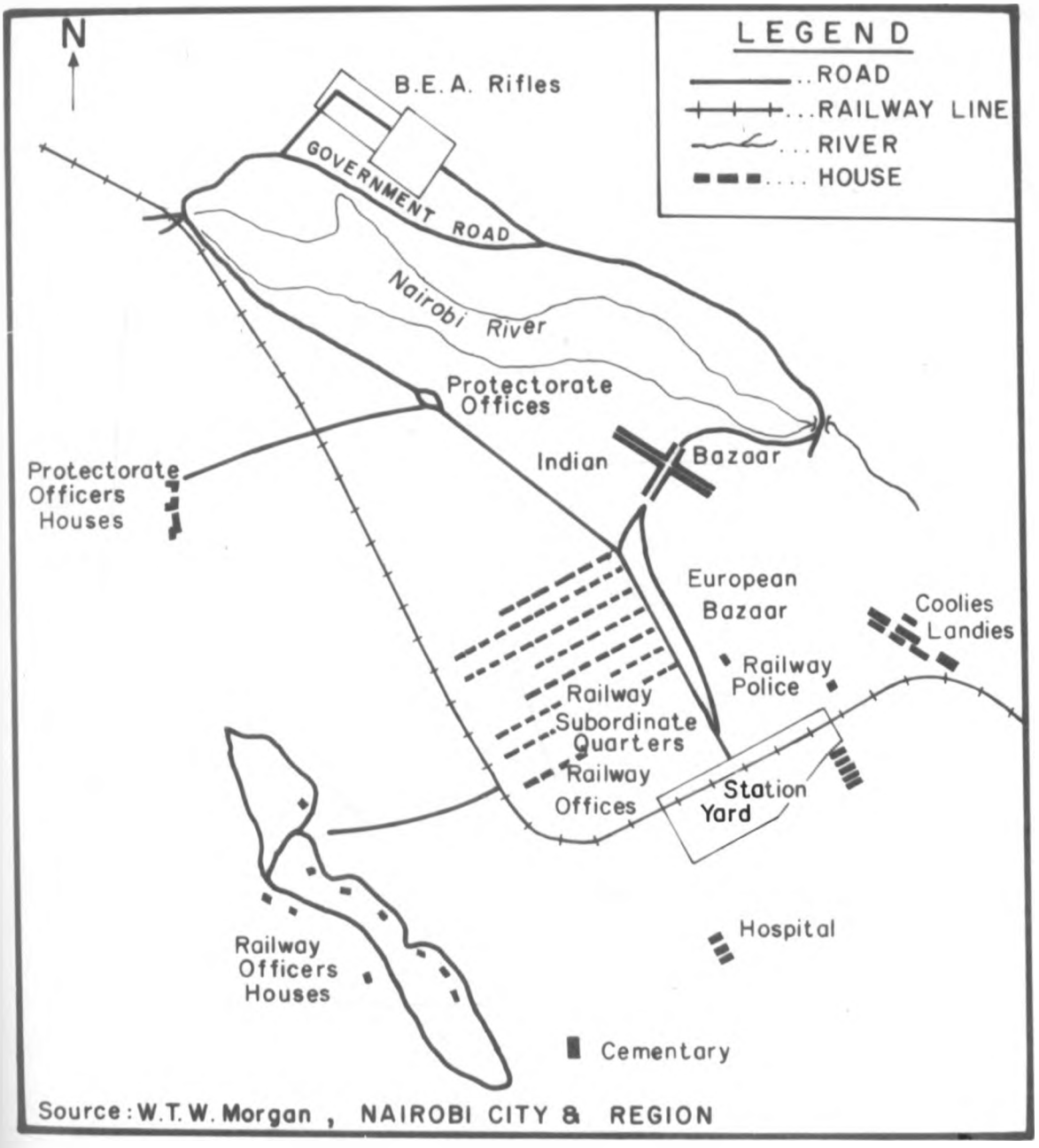

FIG. 4: NAIROBI, 1901.

Road and present day Tom Mboya Street (formerly Victoria Street); the Indian bazaar had been moved to a site south of Government Road. Residential areas were still very dispersed. The officers' quarters of the railway and government were still located on "the Hill" and Parklands had emerged to the north of the Swamp as a European Suburb. The military barracks were located to the south-west of the town.[9] These patterns had emerged in the absence of any well defined planning guidelines for the city. A team of Planners observed in 1948 that "from the beginning there had been want of supervisory control of land usage. At first there was a duality of control (between the railroad and the government); later there was evidenced an enormous respect for the sanctity of private rights of property, including the right to do wrong"[10]

By 1905, government and railway administration offices, the railway station yard, and Indian and European bazaars had established themselves in distinct areas of the centre of town. Europeans had begun to build comfortable residences on large plots in the Nairobi Hill area, to the west and north-west, and in Parklands to the north. The Asians were concentrated more densely in the city centre and on its northern and northeastern perimeter. Africans were living in crude housing in the eastern section of town, as well as in several uncontrolled peri-urban villages. The broad land-use patterns

which emerged during the first decade were maintained to a considerable extent and expanded outwards during the course of Nairobi's later development.

The early land-use patterns in Nairobi were also indicative of the City's economic role within Kenya. From its inception Nairobi has been mainly an administrative centre which has provided governmental and commercial services to its own residents and to the rest of the country. Before the Second World War, Nairobi was only one among several urban centres which served Kenya's settler-dominated agricultural economy. Before the War, Nairobi's role was seen in terms of the East African territory and in fact from about 1926 onwards it was intended to be the capital of federated East Africa.

Since the Second World War, however, the economic role of Nairobi within Kenya, and indeed East Africa, has undergone considerable expansion, both in absolute and relative terms with regard to the other urban centres. As her economic role expanded, so did the relative concentration of Kenya's wealth and urban population. This wealth has always been shared unequally among the inhabitants of the City.

Nairobi's economic structure reflected the City's racial divisions. It corresponded roughly to a pyramid with Europeans at the top, Asians in the middle, and Africans at the bottom.

Members of different races were paid different wages for doing the same job. Throughout the colonial period many Africans were paid exceedingly low wages. The insufficiency of African wages to provide for "basic essential needs of health, decency and working efficiency" for even single workers was reiterated by the East African Royal Commission in 1958. Given the inadequacy of wages, it is not surprising that most African men left their families at home in the rural area when they came to Nairobi, creating a very sexually imbalanced urban population.

As the number of African labourers in towns increased, especially those from distant parts, who could not find accommodation outside the township boundaries, the urban authorities began gradually to accept them as an element in town life. The best the urban authorities could do was to define a special native location within the town where Africans could build their own houses and live as well as rent them out to fellow Africans. The land for residential and other facilities available to Africans, however, was both unsuitable and inadequate as evidenced by the poorly drained black cotton soils and the lack in both health and educational facilities.

Thus, the colonial administration practised racial discrimination in urban centres in order to maintain a high standard of living for the European community.[11] They feared competition from non-Europeans lest their notion of racial

superiority was challenged. The worst discrimination was found in the wage structure. As late as 1944, the average wage for an African employee was between eleven and twenty shillings per month whereas the lowest paid European worker earned four hundred shillings per month.[12] The minimum wage for an African was calculated according to the requirements of a single male adult worker with a very small margin above physical subsistence that even if an African worker wanted to live with his family in town it was beyond his financial capability to do so. Similar discrimination was practised in commerce where Africans were restricted as to where they could engage in business.[13]

3.4 The Emergence of Squatter Settlements in Nairobi

Several reasons account for the emergence of squatter settlements in Nairobi. Firstly, the colonial administration reflects negative policies towards the growth of an African urban class. The colonial policy discouraged Africans from staying in the towns and this policy was based purely and largely on racial prejudice and discrimination. Secondly, the Africans were not allowed to own land in the towns. The policy of disregarding peoples' rights to land was particularly unfair because Africans did not have a right to claim urban land, however justified

they were in their indigenous country. Finally, the emergence of squatter settlements may be seen in the light of the housing by-laws and the building code. The colonial building code, which has largely been inherited by the Independent Government, was particularly strict by the fact that it laid down very high standards for any dwellings built in the urban centres.

Hence, squatter settlements in Nairobi emerged in the peri-urban zone where they remained temporarily immune from harrassment by the colonial policies. The high cost of urban living led directly to the growth of sub-urban villages on the perimeters of Nairobi. The development of peri-urban setttlements has a long history. It began as early as 1914. M. Parker has pointed out that by the time there was a noticeable growth of African villages around the town. She notes that "there was one village at Parklands, another on the Fort Hall Road called Maskini, a third was called Mombasa Village,and there was a fourth one to the west of Nairobi named Kileleshwa".[14] Fig. 5 illustrates that all these villages were outside the boundary of Nairobi at that time.

Apart from the African railway workers, who lived in dormitory barracks near the railway station, the town also contained hundreds of Sudanese and Somali soldiers, together with Somali and Swahili traders, Nyamwezi and Digo porters,

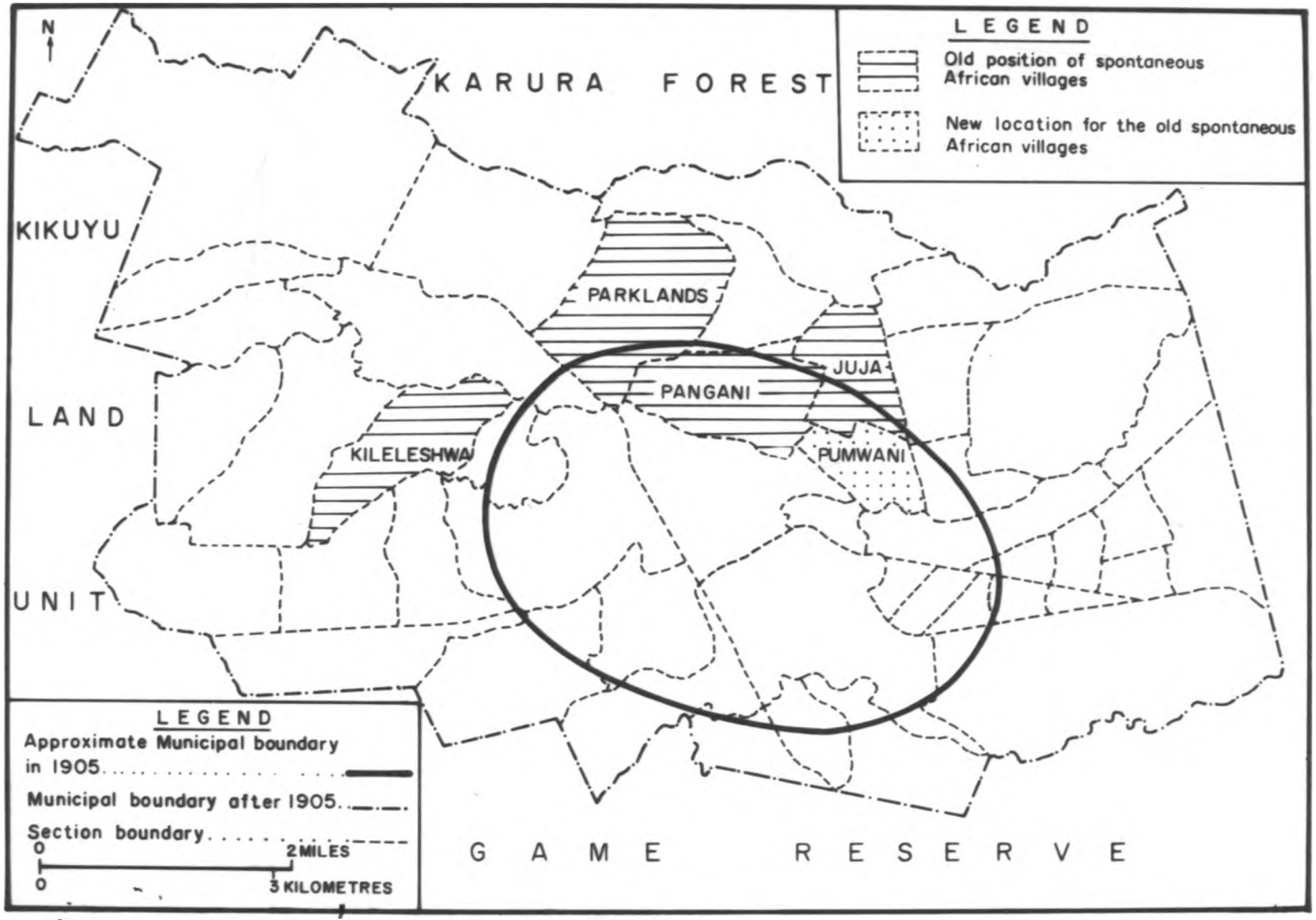

FIG. 5: SPONTANEOUS AFRICAN VILLAGES AND THE FIRST OFFICIAL LOCATION OF PUMWANI

Ganda, Nandi and Maasai camp followers. Accordingly, some distance away from the neat railway quarters various unplanned villages grew up to house the different groups such as Kibera for the Sudanese and two Somali settlements.

By 1921, eight unplanned villages had become well established and accommodated most of Nairobi's African population, then estimated to be 12,088.[15] These villages inluded Mombasa (whose inhabitants had originally been moved from some huts in Hospital Road) and Maskini, both near Forest Road; Kaburini, Kariokor, Kileleshwa, to the west, and Kibera. But the most important was Pangani.

Pangani had grown rapidly as the major African residential area during the early decades of the century. First used by porters in 1890, even before the railway reached Nairobi, it soon absorbed a nearby hamlet known as Unguja (Zanzibar). Numerically the Kikuyu and the Kamba soon dominated Pangani's expansion. While few Kikuyus owned houses there, even by 1913 many must have been renting lodging rooms. Pangani remained a stronghold of the Muslim faith until its final demolition in 1938. By about the Second World War, Pangani's inhabitants thrived on providing lodgings for Africans working in the City, and by supplying other urban amenities such as home-brewed beer, brothels and hotels.

Thus, when the Municipality took over the management of Nairobi in 1919 (from the Protectorate Government) the question of a native location was one of the important issues they took up. It was feared that the native villages that had grown spontaneously in and around Nairobi were breeding places for disease which could spread to other areas. These native villages were insanitary and built on other peoples' land. It was, therefore, felt necessary to define a native location where roads, drains and clean drinking water would be provided. Africans could be provided with plots in this area to build for themselves proper huts and take in some lodgers. The Council decided that Pumwani (lying on both sides of Nairobi stream) was ideal for the purpose and consequently the native villages were cleared and the population moved to Pumwani. By 1921, however, only a few plots had been allocated. One of the villages still existed in 1928 and another was still vexing the authorities in 1938.

The Council realized that the system of allocating plots and letting the Africans build houses for themselves did not provide enough accommodation for all who needed it. As a result it was planned to extend Municipal housing. The first African Public housing was Kariokor and the quarters provided were only dormitories. The Estate remained fairly empty until 1928 when the dormitories were portioned into small cubicles and it was

filled to capacity only because of lack of alternative accommodation. Shauri Moyo was built in 1938 for the residents of Pangani village. Other suburban developments like Kariobangi, Dagoretti Corner (located very near the present site of Kawangware) and Kabete had grown fully by 1944.[16]

After the Second World War, the colonial administration and the European settlers began to change their attitude towards urban housing for Africans, primarily as a result of the recommendations made by the Senior Medical Officer of Health and Municipal Native Affairs Officer in 1941.[17] On account of the severe African housing problems in the City, the writers of the Report recommeded "Sub-economic housing (i.e. subsidized housing), enforcement of provision of housing by employers, permission to natives to build in temporary materials, and establishment of a semi-rural village on garden city lines."[18]

Ziwani housing estate was consequently built in 1942 to house some 2,000 to 3,000 people. In 1943 Makongeni housing estate, the present Kaloleni estate, was built to house some 3,000 people. House rents were to be subsidized. Thus, compared to the earlier years there was a "progressive Policy" up to the 1950s towards African housing in Nairobi. However, when it was finally deemed necessary to furnish lodging for African employees in Nairobi, together with the

required social, health, and recreational facilities, the costs were partly recovered from the poorly paid Africans through their beer and trust funds.[19]

3.5 PERI-URBAN VILLAGES IN NAIROBI

The Mau Mau uprising disrupted this apparent "progressive policy" in 1952. The urban housing pressure was temporarily controlled during the Emergency when many Kikuyu, Embu, and Meru were deported to their respective rural areas. But after the Emergency these controls were dropped and consequently the African population of Nairobi experienced a rapid expansion. At the same time the available public housing could not cope with the demand, nor were there sufficient employement opportunities. The colonial government embarked on a programme of building permanent villages in rural areas, particularly north and west of Nairobi, to replace the Emergency villages. The aim of the new villages was to absorb surplus Kikuyu population by providing scope for commerce, cottage industries and skilled trades, as well as provide homes for the landless.[20]

In 1958, the declared aims of the new villages were tested in Dagoretti on the western frontier of Nairobi. Two new permanent villages appeared at the edge of the western boundary of Nairobi in the sub-locations of Kangemi and Riruta;[21] the sites are six and eight miles from the centre of Nairobi respectively.

Some eight others were to lie within reasonable distance of the city. The programme was to be called Dagoretti Scheme. The objective of starting the Scheme was to ensure effective planning control in the peri-urban zone lest similar processes pertaining to the pre-Emergency period manifested themselves again. It was feared that would-be Nairobi workers and some criminals would settle themselves in Dagoretti in uncontrolled and insanitary conditions until a low class urban slum was created.[22]

The City authorities wished to see a "greenbelt" of three miles around their boundary where probably some 40,000 people would live inside that radius within the Kikuyu Reserve, and who would shortly have freehold title to their land. Dagoretti Scheme located in this green belt, was to cover some 150 to 170 buildings in the first phase and this was hoped to set a new housing standard in the area and to create the beginnings of small garden villages on Nairobi's borders.

Although these buildings were proposed for owner-occupiers, the question of lodgers and tenants was considered. The colonial government wanted to avoid creating a "rack-renting slum" in the area, and the city authorities would have liked to ban lodgers altogether.[24] The African District Council, therefore, passed

by-laws strictly limiting the number of lodgers allowed, and laid down standards of construction, space and sanitation, before licence to have lodgers was granted. Thus the ambition was to create garden villages rather than groups of lodging houses. But a lot of people began to sublet at considerable profits, and the poorer migrants from rural areas could not cope with this housing.

The urbanization pressure however has since been extended outwards from the City and peri-urban settlements like Kawangware, Kangemi and Karura among others have emerged to house large numbers of these migrants who could not afford housing in the city. Kikuyu landowners in these villages have built wooden tenements for rental housing.

On the eve of Independence in 1963, the boundaries of the City were enlarged from the "Old City" area of 90 square kilometres to embrace an area of 690 square kilometres including Nairobi's peri-urban settlements and certain other important features such as the Game Park, Nairobi Airport (Embakasi Airport) and a large area of ranching land in the east. The boundary extension was aimed at giving the City adequate reserve land for future expansion and at the same time acquire planning control on these peri-urban settlements.[25] Thus, although the colonial government had planned the peri-urban settlements to evolve as ideal "garden villages" this did not materialise as these

have become dormitory settlements housing people working in the city. With Independence regulations imposed formerly on Africans restricting them from migrating to Nairobi were suddenly relaxed. The result was a huge influx of population which is housed largely in the peri-urban settlements and is today confronted not only by unemployment problems, but an acute scarcity of adequate accommodation.

3.6 Concluding Remarks

Although Europeans and Asians established and settled in Nairobi, it was the African population that peopled the City. Subsequently, the City of Nairobi developed spatially and socio-culturally into three distinct residential areas, namely: the African, the Asian and the European. These distinct residential areas reflected and contrasted the socio-cultural and socio-economic differentiation created by the colonial policies. The settlement patterns were the result of the colonial policy of institutionalized segregation, discrimination and controlled grouping based on the three racial groups.

The attitudes of the politically-dominant Europeans discouraged them from providing many services to Nairobi's African population. However, the goals of the Municipal authorities with regard to Urban Africans were fundamentary contradictory.

The significant aspect of Nairobi's historical development has been the separation of the various communities. The European sector has always been characterized by its wealth and by the luxurious "garden city" aspect of its layout; the Asian area has had an intermediary character; while the mass of the population, particularly Africans, has lived in substandard and slum housing.

With the attainment of Independent status, the devices employed by the colonial administration to keep Africans out of towns were suddenly relaxed. In the post-independence period there ensued a huge influx of rural migrants mainly to Nairobi prompted by existing economic differences between the rural areas and the towns. The lure of the city held by the in-migrants becomes a myth when economic circumstances force them to reside in uncontrolled urban settlements with substandard housing. As for the rest of the city, with regard to residential patterns, racial discrimination has largely been replaced by economic discrimination.

Finally, there have been few major changes in the guidelines of housing policy since independence. Provision of housing for the low-income groups in the city is still largely in the hands of private enterepreneurs. The high standards laid down in the building code by the colonial government have been inherited by the Independent government and this situation has perpetuated substandard and slum housing mainly in the peri-urban areas.

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CHAPTER FOUR

DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF KAWANGWARE POPULATION.

4.1 Introduction:

This chapter examines the socio-economic and demographic characteristics of Kawangware residents. The main variables analysed include the population structure and its dynamics, types of occupations, migration, ethnicity and educational levels. Wherever possible, the analysis is done in a broad comparative manner with other low income settlements in the city, notably Mathare Valley.

4.2 Composition of the Population and length of Stay in Kawangware.

A basic distinction is made here between the family and the household. The concept of the family includes members of a population who have blood relationship particularly the children and their parents. The concept of the household is defined as a group of two or more persons who jointly occupy the whole or part of a housing unit, and provide themselves with food and other essentials for living. The group may pool their incomes and have a common budget to a greater or lesser extent in different circumstances.

The group may be composed of related persons or unrelated persons or a combination of both.

The concept of the family is easy to grasp because of its biological significance; that of the household, especially in an African context, with its social rather than biological content is more relevant for the purpose of this study.

On the basis of this definition, the household size constituted of a minimum number of 2 persons and the biggest observed household had 22 members. However, the mean size of household consisted of 4.6 persons and this figure gave a rough indication of the number of people living in Kawangware. It was observed that there were on average about 10 households per plot and since there were a total number of 331 plots in Kawangware, this estimate was used to establish the total population of Kawangware as more than 15,000 people.

The sample population of heads of households was analysed in order to determine its age-sex structure. Table 2 summarizes the age-sex distribution of the sampled population while fig 6 shows the population pyramid of the sample population.

The age-sex distributions of both Kawangware and Mathare Valley (Tables 2 and 3) illustrate that young people (age 0-19) are in the majority with a predominance of females.

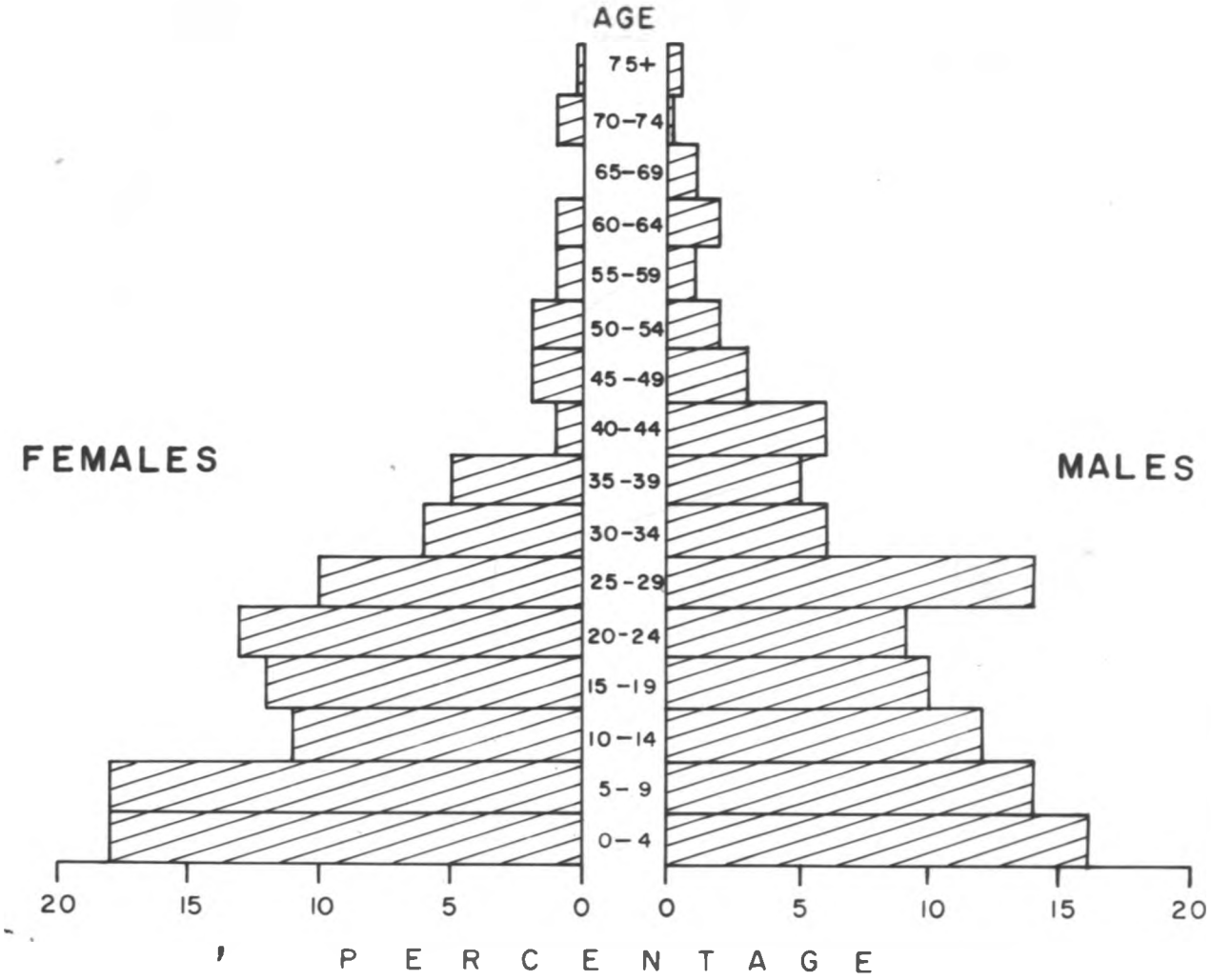


FIG. 6: AGE AND SEX PYRAMID OF KAWANGWARE POPULATION

However, the economically active and productive adult population (age-group 20-39) of Mathare Valley

TABLE 2: SAMPLE POPULATION OF KAWANGWARE BY AGE AND SEX:

Age-Group	Male (No)	Female (No)	Sex Ratio
0-4	92	105	87.6
5-9	78	105	74.3
10-14	69	63	109.5
15-19	58	66	87.9
20-24	51	77	66.2
25-29	81	52	155.8
30-34	37	36	102.8
35-39	27	31	87.1
40-44	33	6	550.0
45-49	17	10	170.0
50-54	11	9	122.2
55-59	8	4	200.0
60-64	9	4	225.0
65-69	3	0	0.0
70-74	1	3	33.3
75+	4	2	200.0

has a predominance of males whilst there is an even balance

for the same population in Kawangware. This observation agrees closely with the typical structure of a town population in many parts of Africa which is marked by an excess of men, and by the overall predominance of young people.[1] These observations about the population structure of both Kawangware and Mathare Valley are of great importance in the social and economic development of any urban settlement. The African social set-up dictates that the male is the household head and, therefore, the bread -winner of the entire family.

TABLE 3: AGE-SEX STRUCTURE OF THE POPULATION OF MATHARE 2, LOWER VILLAGE.

Age-Group	Male (%)	Female(%)
0-4	19	24
5-9	15	14
10-14	14	12
15-19	4	7
20-24	21	9
25-29	7	9
30-34	7	4
35-39	4	12
40-44	8	3
45-49	1	-
50-54	-	3

/Cont.

Table 3: Cont.

55-59	-	3
60-64	-	-
65-69	-	-
70-74	-	-
75+	-	-

Source: Chana, A.S. "Uncontrolled urban settlements: Case studies for Nairobi, Kenya," Copenhagen, 1971. p. 92.

For the two settlements both the young and female population contribute a heavy burden of dependants on the male population. Needless to say, the burden is even heavier on unemployed male household heads. The economy of the city must also set aside a lot of money expenditure on schools, clinics, and other social amenities for this population.

According to the sample population of Kawangware the total population of sampled households was 1152 composed of 579 males and 573 females. With regard to age-structure, 60.1%, both male and female, fell between 01 and 24 years. On this basis, therefore, the population is very young reflecting a high depe-ndency ratio. Females generally predominate in the age-groups of between the ages 01 and 19. Compared with overall national dependency ratio this observation matches favourably with most rural areas of Kenya where the majority of the age-sex

pyramids show that the population is overburdened by a broad base of dependants including children below the age of 15 years and females of between ages 19 and 40 left behind by the selective nature of migration.[2] However, the ratio of "young" population at the ages of between 20 and 39 in Kawangware was very balanced; that of adult population above age 40 was very unbalanced, with men predominating for Kawangware and very balanced for Mathare Valley. Although a fuller explanation would require more research, it is possible that this pattern reflects the historic differences in the employment pattern among the women and men.[3] There is also a great probability that persons above the age of 40 in Kawangware were more likely to have improved their economic status and most likely had moved to better residential settlements or retired to their original rural homelands.

4.2.1 Household Composition

On the basis of the 250 households interviewed in the sample survey, the average household size for Kawangware was found to be 4.6 persons per household. The size of the average Kawangware household is high and compares closely with Mathare's 4.2 persons per household [4] - which todate is the most crowded squatter settlement in Nairobi.

A reasonable number of Kawangware households,(17.6%), were small and consisted of three or less members (Table 4). There was one unique case with twenty-two members. However, considering that the majority of the households live in one room tenements (see chapter 5), the average Kawangware household is too large and tends to be squeezed in a small space (Plate 1).

TABLE 4: HOUSEHOLD COMPOSITION IN KAWANGWARE

Household Size	No. of Households	Per Cent
1	25	10.0
2	40	16.0
3	32	12.8
4	44	17.6
5	35	14.0
6	21	8.4
7	16	6.4
8	10	4.0
9	8	3.2
10	8	3.2
11	7	2.8
12	3	1.2
-	-	-
-	-	-
12	1	0.4
TOTAL	250	100.0

PLATE 1: Typical Extended Family Constituting A Household.

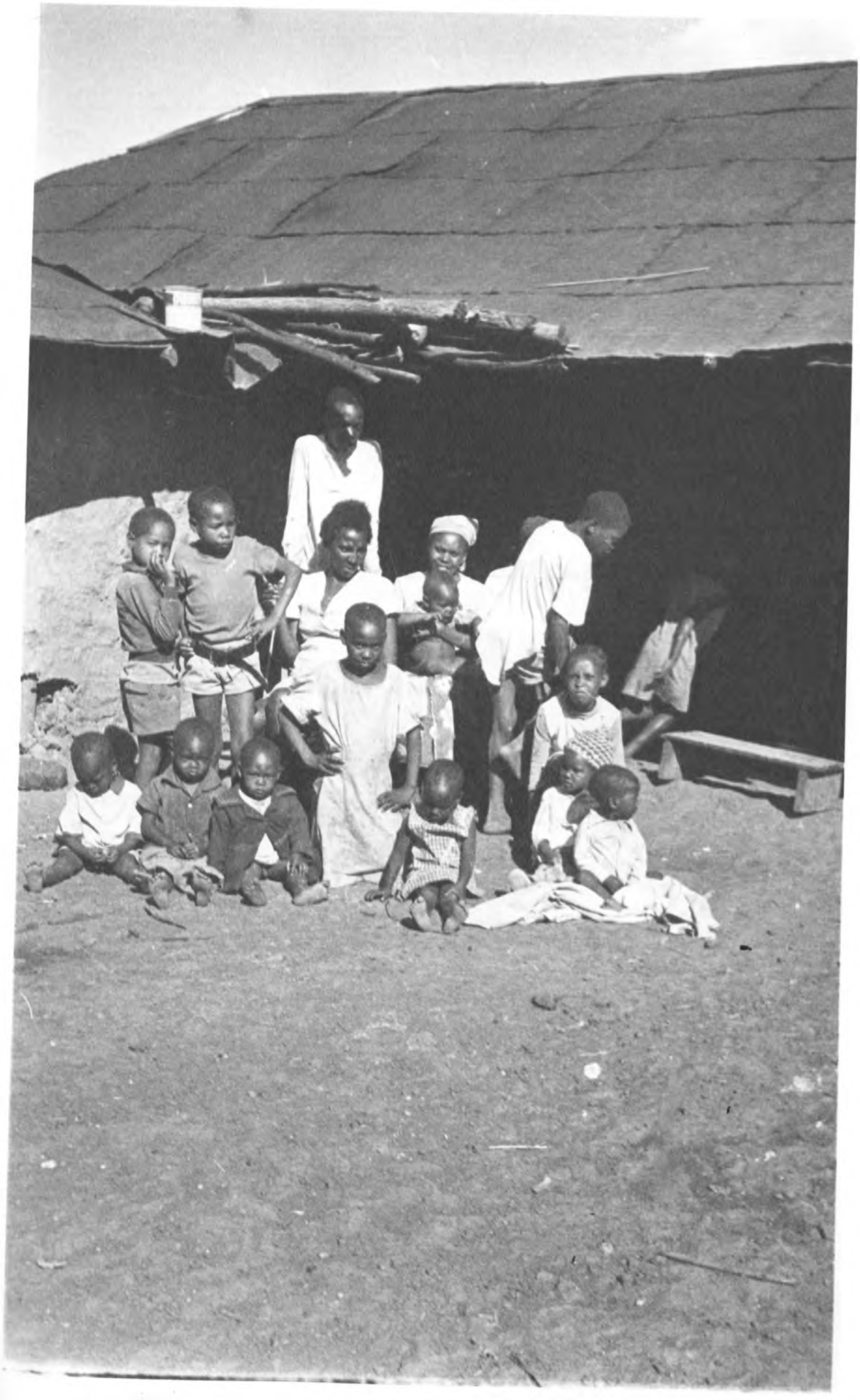


PLATE 1(b): A Section of the Township.

A large number of Kawangware households that were interviewed are nucleated, that is, household heads live together with their wives, sons and daughters rather than being extended families. Information regarding the relationship between household heads and respective members indicated that nucleated households constituted more than two-thirds (69.3%) of sampled population. This shows a characteristic of a migrating population.

4.3 Population Dynamics

Kawangware's population can be divided into two groups: the old-timers, mainly Kikuyu people most of whom own plots in the township; and the new-comers who constitute the bulk of the tenant population. As for the period of stay in Kawangware, the survey sought information in two ways: First, a question was posed regarding the length of time one had lived in Nairobi. Secondly, information was sought on the number of years one had occupied his present house. As Table 5 shows more than one-half (58.0%) of the sample population had lived outside Nairobi before coming to Kawangware. This observation will be discussed in the ensuing sub-section on migration. In order to analyse the mobility of population between the various wards in Kawangware,

the writer tested whether some zones were more preferred for residence than others using data from Table 6.

TABLE 5: DISTRIBUTION OF KAWANGWARE POPULATION BY PLACE OF BIRTH

Place	Number	Per Cent
In Kawangware	54	21.6
In Nairobi	19	7.6
Outside Nairobi, in Kenya	172	68.8
Outside Kenya	5	2.0
TOTAL	250	100.0

TABLE 6: LENGTH OF STAY IN HOUSE BY ZONES IN YEARS

ZONE	TIME: <1	1-5	>5	TOTAL
1	5	15	10	30
2	15	22	13	50
3	15	21	14	50
4	9	10	19	38
5	13	26	10	49
6	9	12	12	33
TOTAL	66	106	78	250

Using data in Table 6, the writer investigated the relationship between the length of stay in house in years and the differences between the six zones or wards. The Chi-square (X^2) test of significance was used.

The Chi-square test is one of the non-parametric tests of significance - tests whose list of requirements does not include a normal distribution or the interval level of measurement. The X^2 test is used to make comparisons between two or more samples for variations in the expected pattern in our results. The Chi-square enables us to evaluate whether variation in expected results is due to chance factors, or whether it is caused by some other variable. X^2 technique compares the OBSERVED VALUES (those obtained from a sample) with the values we think should exist given certain conditions i.e. ESTIMATED VALUES. A NULL HYPOTHESIS must be determined first and this usually states that discrepancies between the observed values and the expected values have occurred by chance, and that there is no underlying reason for the difference. Usually, the null hypothesis is rejected at the 95% level of probability. If there is a 95% probability of the values not having occurred by chance, the null hypothesis is rejected. On the other hand, if the value of X^2 falls outside of the 95% limits, then the null hypothesis is accepted.

The X^2 is computed by the following formula:-

$$X^2 = \Sigma \frac{(fo - fe)^2}{fe}$$

where fo = the obtained frequency in any cell;

fe = the expected frequency in any cell;

X^2 = Chi-square.

In order to obtain the expected frequency for any cell, we multiply together the column and row marginal totals for a particular cell and divide the product by N. After the X^2 value is obtained, it has to be interpreted by determining the appropriate number of degrees of freedom. This can be done for tables having any number of rows and columns by employing the formula:-

$$df = (r - 1)(c - 1)$$

where

r = the number of rows in the table of obtained frequencies;

c = the number of columns in the table of obtained frequencies;

df = degrees of freedom.

To avoid discrepancies in X^2 values, the degrees of freedom are invaluable tools. These have been worked out by Mathematicians

and tables have been calculated which give values of Chi-square for a given number of degrees of freedom for various probability levels.

Table 6 is a 6 x 3 matrix, and the following conditions were set in order to make a decision as to whether there was a strong tendency for tenants to prefer one or two zones against others:-

(1) Null hypothesis: There is no significant difference between the zones in terms of the number of years a house has been occupied by a tenant.

(2) Research hypothesis: There is significant difference between the zones in terms of the number of years a house has been occupied by a tenant.

(3) Table 7 shows expected frequencies (Fe) based on the following formula calculated on Table 6:-

Fe = (row marginal total) (column marginal total)

Table 7: EXPECTED FREQUENCIES FOR EACH CELL

ZONE	TIME IN YEARS		
	≤ 1	1 - 5	> 5
1	7.92	12.72	9.36
2	13.20	21.20	15.60
3	13.20	21.20	15.60
4	10.03	16.11	11.86
5	12.94	20.77	5.28
6.	8.71	13.99	10.29

4) The Probability level i.e. significance level was set at 95% (0.05). The null hypothesis would be rejected if there is a 95% probability of the values not having occurred by chance.

(5) Degrees of Freedom were calculated using the following formula, which is already defined: df = (r-1) (c-1)

= (6-1) (3-1)

The result was 10 degrees of freedom.

(6) Decision Making: The null hypothesis would be accepted if in 10 degrees of freedom at the 95% probability level the values have occurred by chance i.e. if the value of X^2 falls outside of the 95% limits.

The computed X^2 using data in Tables 6 and 7 had a value of 13.05. Using tabled values of Chi-square, for the 0.05 confidence level, the Chi-square value with 10 degrees of freedom is 18.31. Since calculated X^2 is only 13.05 and hence smaller than the table value (18.31), we must accept the null hypothesis. Thus, there is no signifcant difference between the zones in terms of length of stay in house. Hence, the significance of this finding is that tenants occupy a house whenever one is vacant, irrespective of the physical qualities of the zone. There is a high probability, therefore, that the settlement has homogeneous physical characteristics.

4.4 Migration

Information sought regarding the place of birth revealed that only about one-fifth (21.6%) of the sample population were born in Kawangware. The majority (70.8%) of residents were born outside Kawangware, and in fact outside Nairobi as Table 5 shows.

In terms of Kenya as a whole, migration to Kawangware (Fig. 7) was shown to be predominantly from Central Province. The pattern of in-migration to Kawangware, therefore, appears to fit a distance-decay (Gravity Model) model which states that two places interact with each other in proportion to the product of their masses and inversely according to some function of the distance between them.[5] The general version of the distance-decay model is expressed as:-

$$Iij = f\left(\frac{Mi\ Mj}{dij}\right)$$

where : Iij = the number of interactions between i and j during some time period;

dij = the distance between i and j ; and

M = some measure of the size or mass of the interacting pair of places.

The distance-decay model tells us that in a system of flows, the flow level between an origin and a destination varies directly according to the product of their masses and inversely with the distance between them.[6] The model assumes that the effect of distance varies smoothly and continuously over geographic space. Normally this is so, but political boundaries , and unequal locational economic development create discontinuities in patterns of interaction among places.

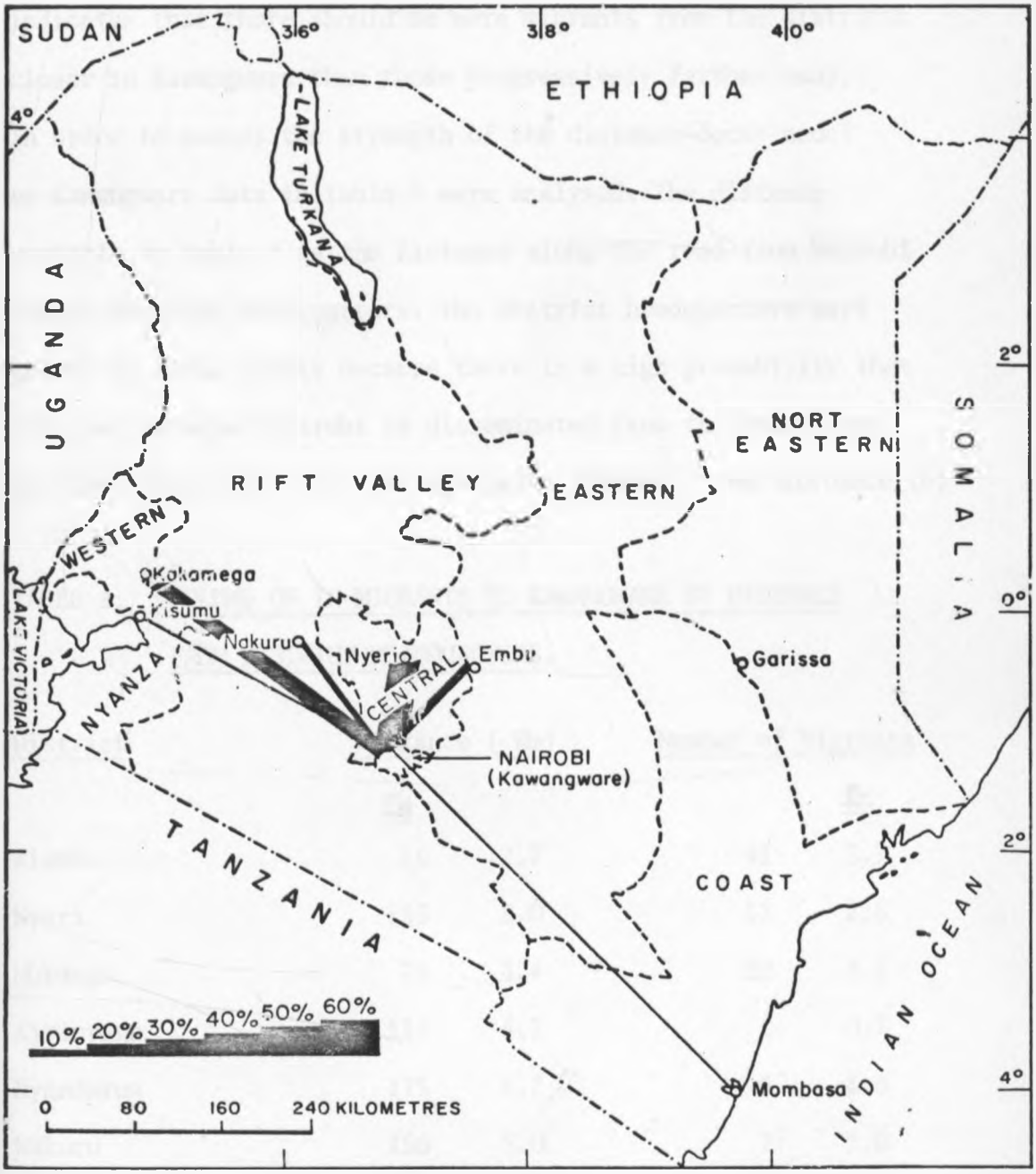


FIG 7 : DISTRIBUTION OF KAWANGWARE POPULATION BY PROVINCE OF BIRTH

For the purpose of the study, the distance-decay model indicates that there should be more migrants from the districts closer to Kawangware than those progressively farther away. In order to assess the strength of the distance-decay model on Kawangware data in table 8 were analysed. The distance variable in table 8 is the distance along the road from Nairobi to the District headquarters. The District headquarters were chosen as focal points because there is a high probability that information about Nairobi is disseminated from the main towns in these districts. The distance-decay function used distance (D)

TABLE 8: VOLUME OF IN-MIGRANTS TO KAWANGWARE BY DISTANCE FROM DISTRICT HEADQUARTERS.

District	Distance (Km)		Number of Migrants	
		$\ln$		$\ln$
Kiambu	15	2.7	41	3.7
Nyeri	155	5.0	13	2.6
Muranga	79	4.4	32	3.5
Kirinyaga	113	4.7	2	0.7
Nyandarua	175	5.2	5	1.6
Nakuru	156	5.0	7	2.0
Trans Nzoia	357	5.9	2	0.7
Baringo	275	5.6	2	0.7
Nandi	332	5.8	1	0

Table 8 cont.

Siaya	429	6.1	1	0
Kisumu	350	5.9	1	0
Kisii	344	5.8	2	0.7
Bungoma	380	5.9	2	0.7
Busia	469	6.2	4	1.4
Kakamega	391	6.0	41	3.7
Mombasa	494	6.2	1	0
Taita	369	5.9	2	0.7
Marsabit	518	6.3	2	0.7
Isiolo	278	5.6	1	0
Kitui	179	5.2	2	0.7
Machakos	65	4.2	8	2.1

as the independent variable to explain the volume of migration to Kawangware and was specified as follows:-

$$M = a.D^{-b}$$

where: M = volume of migration from each district to Kawangware;

D = Distance from District headquarters to Kawangware;

a = a constant or intercept and;

b = gradient or slope, an exponent weighing distance.[7]

After plotting the volume of migration against distance, the graph was a rectangular hyperbola (Fig 8). This model which was hyperbolic was linearised using a logarithmic transformation of migration and distance data in table 8 into natural logarithm.

In order to measure the strength of the volume of migration against distance to Kawangware, the Pearson's correlation coefficient (r) was then calculated. Basically, r assumes that the relationship would be linear. However, in its raw form, that is, plotting number of migrants against distance on a graph, the correlation coefficient is not linear. Hence, the need to linearize the relationship by natural logarithms (ln). The correlation coefficient was calculated using the formula:-

$$r = \frac{N\Sigma XY - (\Sigma X)\ (\Sigma Y)}{\sqrt{\left[N\Sigma X^2 - (\Sigma X)^2\right]\left[N\Sigma Y^2 - (Y)^2\right]}}$$

where:

r = the Pearson's correlation coefficent;

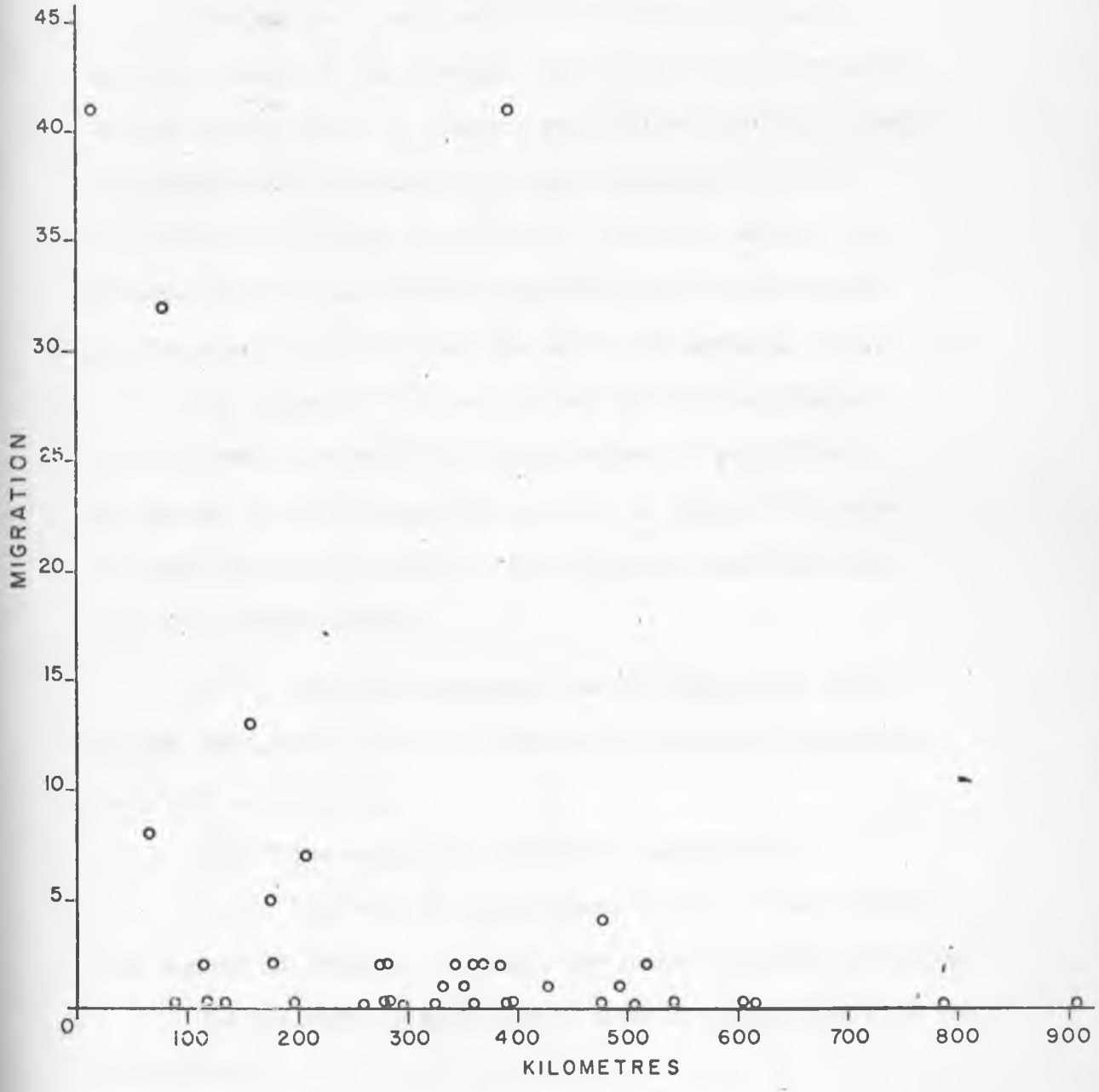
X = logged value of the distance variable;

Y = logged value of the migration variable; and

N = the total number of pairs of scores of X and Y.

The Pearson's r equals - 0.8, indicating a fairly strong negative correlation between the volume of migration and the distance from Kawangware.

FIG. 8: SCATTERGRAM SHOWING THE EFFECT OF DISTANCE ON THE VOLUME OF MIGRATION



That is to say, there are progressively fewer people migrating to Kawangware with increasing distance from the township.

The Pearson's correlation coefficient gives us a precise measure of the strength and direction of correlation in the sample. There is always a possibility that the correlation coefficient obtained could have occurred by chance. The student's "t" test is applied to determine whether the obtained association between migration and distance exists in the population and is not due merely to sampling error.

The student's "t" test is used for testing whether any difference between the average values is significant, or whether the difference has occurred by chance.[8] In order to test the significance of r the following conditions were set for decision making:-

(i) The null hypothesis is: NO CORRELATION EXISTS IN THE POPULATION i.e. $r = 0$; whereas the research hypothesis is $r \neq 0$.

(ii) The level of confidence = 0.05 or 95%

(iii) The test of significance is the "t" test with N-2 degrees of freedom - N equals the number of pairs of scores.

The following formula can be used in conjunction with the "t" tables:-

$$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

where:

t = the "t" ratio for testing the statistical significance of Pearson's r;

N = the number of pairs of data being compared (in this case 21);

r = the obtained Pearson's correlation coefficient.

It can be seen that:

$$t = \frac{-0.8\sqrt{21-2}}{\sqrt{1-(-0.8 \times -0.8)}}$$

$$= \frac{-0.8\sqrt{19}}{\sqrt{1-0.64}}$$

$$= \frac{-0.8\ (4.36)}{\sqrt{0.36}}$$

$$= \frac{-3.49}{0.6}$$

$$= -5.8$$

Now, with degrees of freedom as N-2 (21-2 = 19), the "t" value can be looked up in the "t" tables, where it can be seen that 5.8 is greater than the tabled value of 2.09,

that is, it is 95% certain that r is significant. We can, therefore, reject the null hypothesis and accept the research hypothesis that there is a very significant relationship between the volume of migration and distance.

The square of Pearson's Product Moment Correlation value is the coefficient of determination (r^2) and it is a very useful statistic which indicates the amount of variation in X (distance) which is accounted for by variations in Y (volume of migration). In this case $(- 0.8)^2$ gives a value of 64% which means that the volume of migration to Kawangware is not totally explained by distance. 36% remains unexplained by the distance factor and a standardized residual map (Fig. 9) of physical distance was drawn with a view to estimating the effect of physical distance on movement.

The statistical model of regression makes a number of assumptions including a normal distribution of the residuals and random arrangement of the residual values along the regression line.[9] The random arrangement suggests that there should be no regular pattern in the residual distribution because the values of the residuals should be independent of each other. The mapping of residuals from regression equations provides a means by which the relationships between the Independent

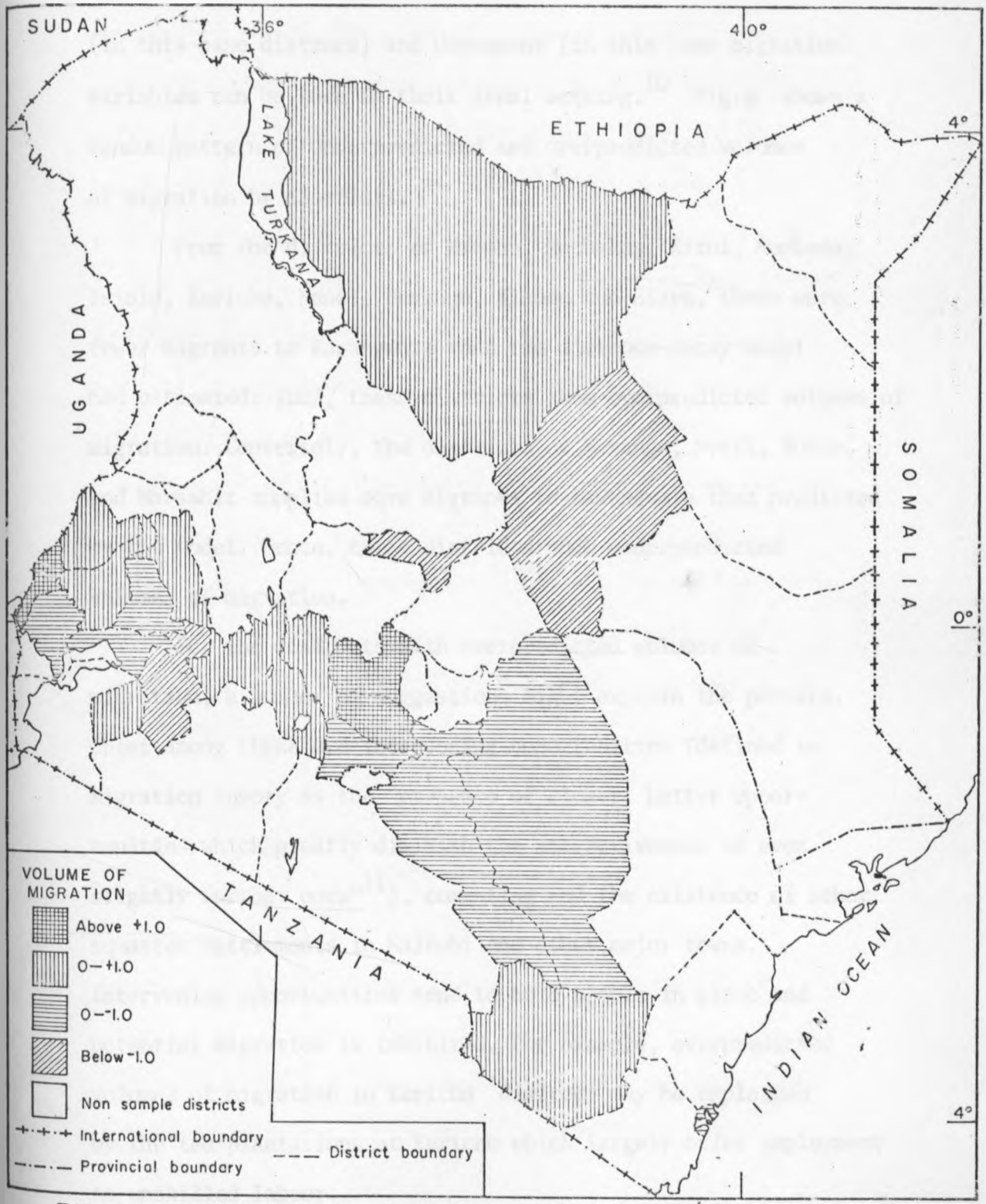


FIG. 9 : STANDARDISED RESIDUAL MAP OF IMMIGRATION FROM DISTRICT HEADQUARTERS TO KAWANGWARE – 1976 AND 1977

(in this case distance) and dependent (in this case migration) variables can be seen in their areal setting.[10] Fig.9 shows a random pattern of underpredicted and overpredicted volumes of migration by districts.

From the districts of Kiambu, Machakos, Kitui, Mombasa, Isiolo, Kericho, Nandi, Baringo, Kisumu and Siaya, there were fewer migrants to Kawangware than the distance-decay model had estimated. Thus, these districts show overpredicted volumes of migration. Conversely, the districts of Muranga, Nyeri, Busia, and Marsabit supplied more migrants to Kawangware than predicted by the Model. Hence, these districts show underpredicted volumes of migration.

For the districts with overpredicted volumes of migration, a number of suggestions might explain the pattern. Chief among these are intervening opportunities (defined in migration theory as the "presence of closer, better opportunities which greatly diminish the attractiveness of even slightly farther ones"[11]), commuting and the existence of other squatter settlements in Nairobi and other major towns. Intervening opportunities tend to hold people in place and potential migration is inhibited. For example, overpredicted volumes of migration in Kericho district may be explained by the tea plantations at Kericho which largely offer employment to unskilled labour.

Moreover, a considerable number of Nairobi workers commute daily from Kiambu and Machakos districts. Other squatter settlements in Nairobi and other big towns like Mombasa, absorb a number of people who otherwise would have settled in Kawangware. In fact 44% of Mathare Valley migrants come from Kiambu.[12] Another possibility for fewer migrants from both Kisumu and Siaya is ethnicity and place of origin. The tendency for migrants to settle in certain locations by place of origin is well explained by contemporary political trends, particularly the strained relations between the Kikuyu and the Luo communities after the assassination of Tom Mboya in 1969.[13] Hence, the Luo community has settled in Kaloleni, Kariobangi, and other low-income settlements where Kikuyus are a minority. Marsabit is a sparsely populated district and may have supplied only a handful of people.

For those districts with underpredicted volumes of migration, it is suggested that ethnicity and land pressure at the origin are key variables explaining the flow of more migrants to Kawangware than estimated by the Model. As observed in Chapter Three, Kawangware is a traditional Kikuyu area. Hence, the ease of settling down Muranga and Nyeri migrants. Also, population densities are considerable in both districts and these have created

acute shortage of land leading to high migration. Land pressure may also explain high migration from Busia district. The Luhya and Kikuyu people belong to the Bantu group and their customs tend to be largely similar. This similarity may explain the positive residual values over Busia district.

However, except for a few extreme residual values, most residual values are small. This further portrays the significance of the distance-decay model in explaining a high percentage (64%) of the variation in migration. Hence, migration is largely influenced by the distance to the source of the migrant.

4.5 Ethnicity

The ethnic composition of Kawangware sample population is dominated by the Kikuyu people who constitute more than two-thirds (68.8%) of the population. Table 9 and Fig. 10 show the distribution.

FIG. 10: DISTRIBUTION OF ETHNIC GROUPS IN KAWANGWARE

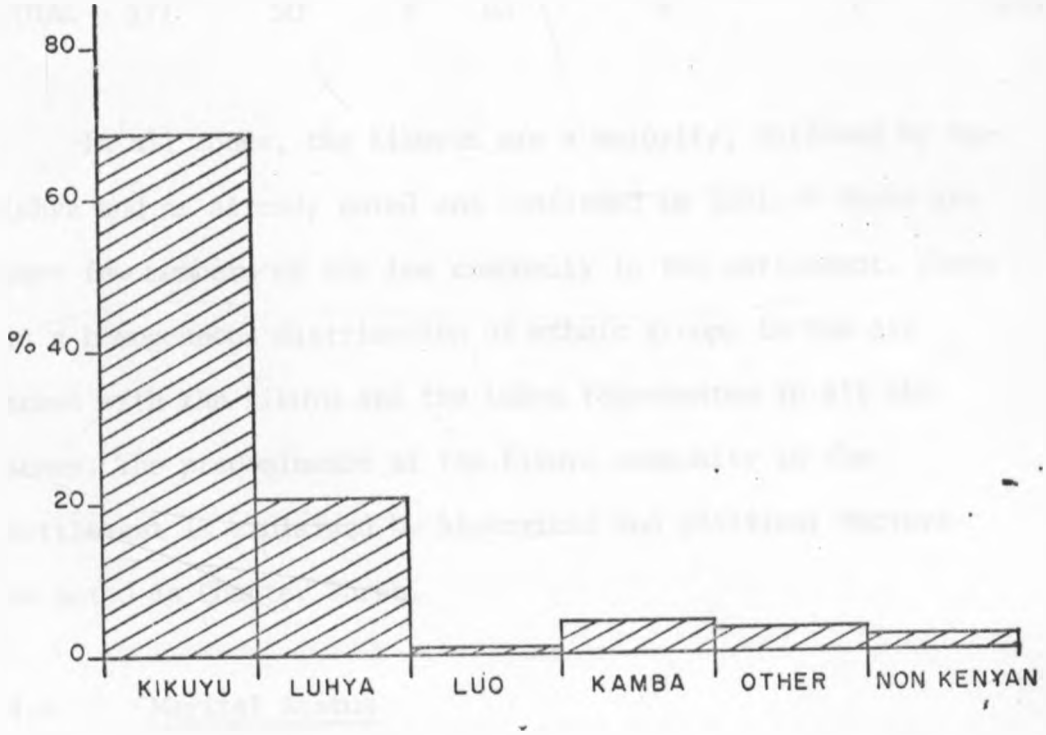


TABLE 9: ETHNIC GROUPS IN KAWANGWARE BY ZONES

	ETHNIC GROUPS						
Zone	Kikuyu	Luhya	Luo	Kamba	Other Kenyan	Non-Kenyan	Total
1	26	1	-	1	2	-	30
2	37	5	1	3	3	1	50
3	32	12	2	1	-	2	49
4	32	3	-	2	-	2	39
5	23	19	-	2	3	2	49
6	21	10	-	1	1	-	33
TOTAL	171	50	3	10	9	7	250

In all zones, the Kikuyus are a majority, followed by the Luhya and as already noted and confirmed in Table 9 there are very few members of the Luo community in the settlement. There is a homogeneous distribution of ethnic groups in the six zones with the Kikuyu and the Luhya represented in all the zones. The predominance of the Kikuyu community in the settlement is explained by historical and political factors as noted in Chapter Three.

4.6 Marital Status

More than two-thirds (70.8%) of household heads were married with a dominance of men over women (table 10).

This partly explains the fact that the majority

Table 10: DISTRIBUTION OF MARITAL STATUS IN KAWANGWARE

Status	Number	Per cent
Single	33	13.2
Married	177	70.8
Widowed	25	10.0
Divorced	4	1.6
Separated	9	3.6
Other	2	0.8
TOTAL	250	100.0

of African men tend to migrate to towns leaving their families behind to till their small pieces of land in the rural areas.[14] As for the large number of unmarried women this reflects the attraction of easy money through prostitution, brewing and petty trading. This was because at times this was the only means they could find to keep up their desired standard of living.

A cross-tabulation between marital status of tenants and owner-occupiers was done (table 11). The findings revealed

that although the proportion of tenants was higher than that of owner-occupiers - 75.2% against 22.4% respectively - the proportion of single people who were tenants was higher than that of owner-occupiers. Conversely, there were relatively more married owner-occupiers than tenants. This fact tends to suggest that ownership of property, particularly a house in a town, and permanency are key inducements to the establishment of families and homes in urban areas.

Table 11: CROSS-TABULATION OF MARITAL STATUS AGAINST HOUSE TENURESHIP

MARITAL STATUS*

	S	M	W	D	SE	R	TOTAL
Tenant No.	25	138	15	2	7	1	188
%	13.30	73.40	7.98	1.06	3.72	0.53	100.0
Owner-occup. No.	6	38	10	2	2	1	59
%	10.17	64.41	16.95	3.39	3.39	1.69	100.0
Other No.	0	2	1	0	0	0	3
%	-	66.67	33.33	-	-	-	100.0

Table 11 Cont.

* Marital status is abbreviated as follows:-

S		Single
M	-	Married
W	-	Widowed
D	-	Divorced
SE	-	Separated
R	-	Other e.g. mistress.

4.7 Education:

More than one-half (51.2%) of the inhabitants have had elementary or no formal education at all. Out of these about one-half (20.4%) have not had any formal education. As table 12 indicates only a very small proportion (9.2%) of the inhabitants have been introduced to some initial technical education.

Within the category of technical education the practice during the interview was to include carpentry, blacksmiths, bicycle and radio repairing, and typing within it.

Table 12: LEVEL OF EDUCATION

Grade	Number	Per cent
No formal education	51	20.4
Incomplete Primary	72	28.8

Table 12 cont.

Complete Primary	56	22.4
Incomplete Secondary	25	10.0
Complete Secondary	9	3.6
Higher education	3	1.2
Incomplete primary plus tech. education	9	3.6
Complete primary plus tech. education	10	4.0
Complete sec. plus tech. education	3	1.2
Higher education plus tech. education	1	0.4
Not clear	6	2.4
TOTAL	250	100.0

Only a very small proportion (1.6%) of the sample population had had higher education usually reaching the fifth and sixth forms. Nearly one-fifth of the sample population had no formal education and only one-seventh (13.6%) had had access to secondary backgrounds and largely lack in the basic skills needed for employment in the formal sector.

4.8 Employment and Income

The majority (60.4%) of sampled Kawangware heads of households are engaged in activities that constitute the

"Informal Sector" of the economy of the city. The "informal Sector" is one which operates largely outside the system of government benefits and regulation, and has thus no access to the formal credit institutions; its operations are often illegal because of an official limitation of access to legitimate activities.[15] A significant number are also employed in the formal sector as wage earners in the city. As table 13 shows, about one-third 30.0% of the sampled population are found in wage employment and nearly all have jobs outside Kawangware, while the majority constituting three-fifths or 60.4% of the sample are self-employed in the informal sector mainly in Kawangware. A small proportion (4.0%) of the workers were engaged in short-term casual employment.

Table 13: DISTRIBUTION OF EMPLOYMENT IN KAWANGWARE

Occupation	Number	Per cent
Lower professional	38	15.2
Self-employed i.e. informal	151	60.4
Driver	17	6.8
Farmer	5	2.0
Watchman	20	8.0
Housewife	2	0.8

Table 13 Cont.

Student	4	1.6
Unemployed	13	5.2
TOTAL	250	100.0

The major groups included in the Informal sector were such illegal activities as brewing, charcoal selling (plates 2,3 & 4), and prostitution. Also included in this sector were landlords who receive their incomes from letting out houses to tenants, as well as hawkers and second-hand material pedlars. A number of residential rooms have been converted into commercial uses as Plate 5 shows.

As table 13 shows, the rate of unemployment was very low (5.2%). Similarly, a very small proportion (0.8%) consisted of women who were solely housewives. The category classified as lower professional included members of the clergy, clerical staff, teachers, factory supervisors and lower administrators. The low proportion of farmers (2.0%) reflected the transitional nature of the land use in the settlement whereby some subsistence cultivation was practised side by side with residential activity as Plate 6 illustrates.

PLATE 2: "Informal Sector"- Local Brewing.

PLATE 3: Charcoal Selling Provides Cash for Subsistence.

PLATE 3(b): Children are also Engaged in Charcoal selling.

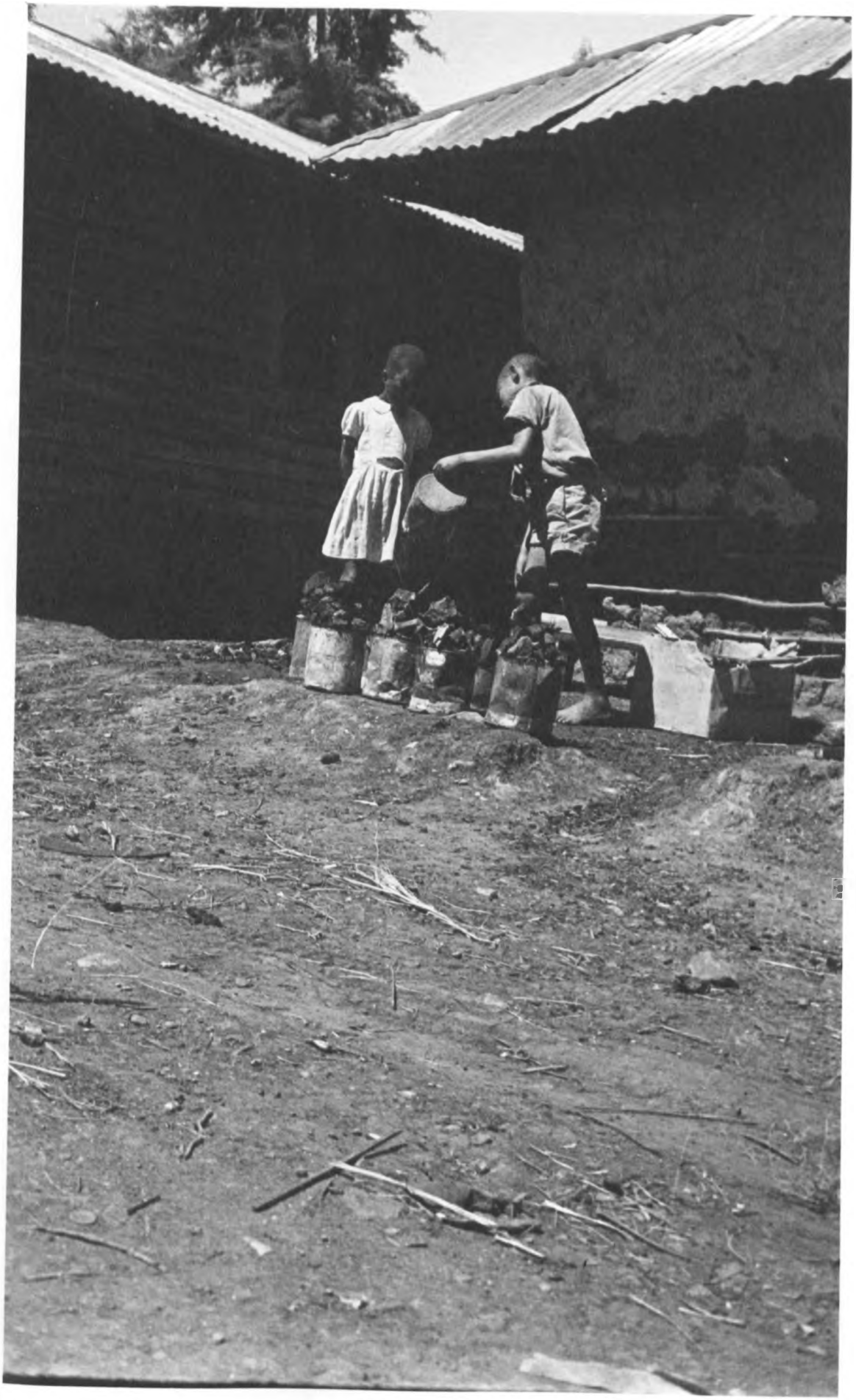


PLATE 3(c): The Backyards Provide Ample Storage for Charcoal.

PLATE 4: Roasting of Meat at Street Corners is a Popular Economic Activity.

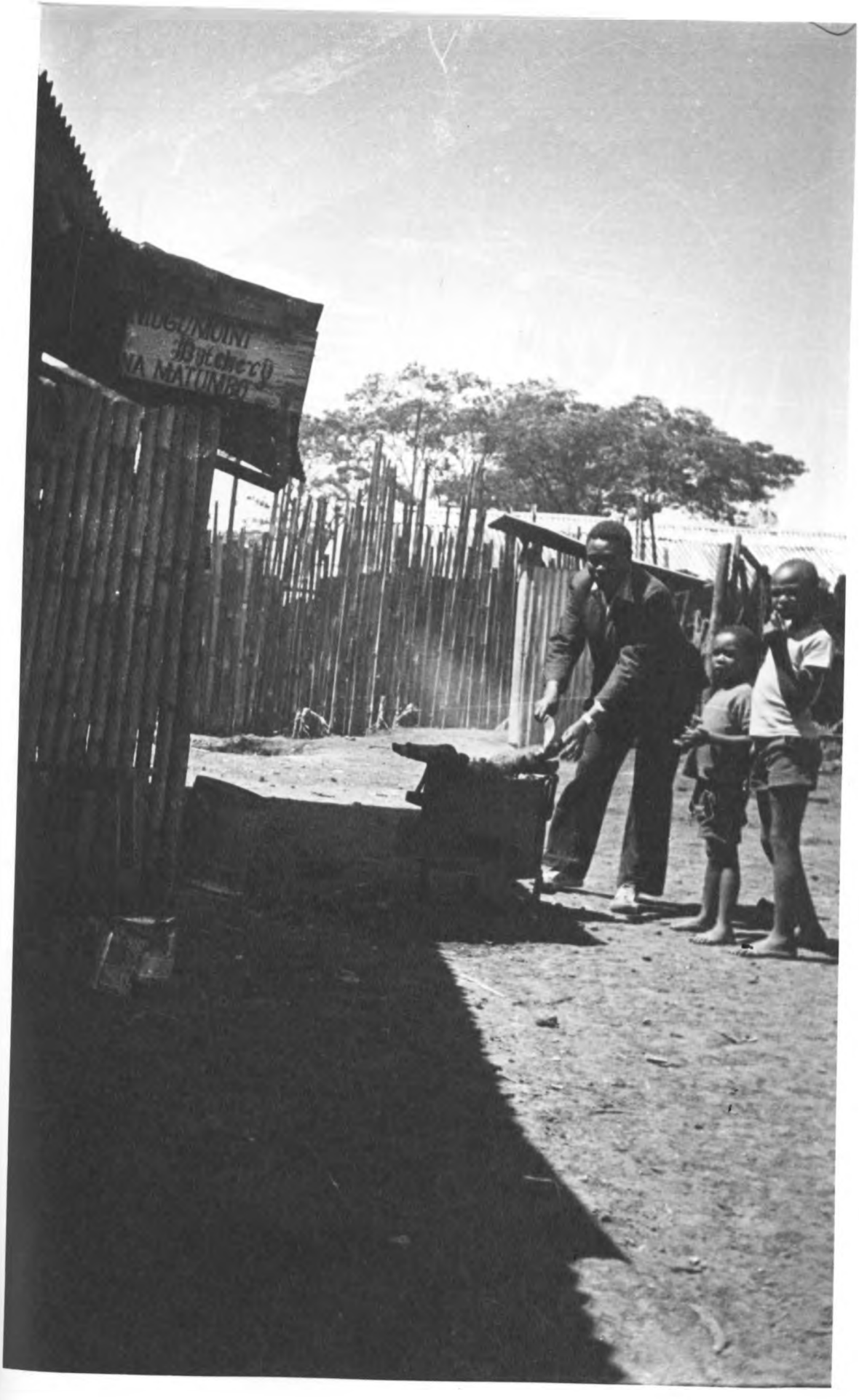


PLATE 4(b): Scrap Metal is a Resource for Making Household Utensils.

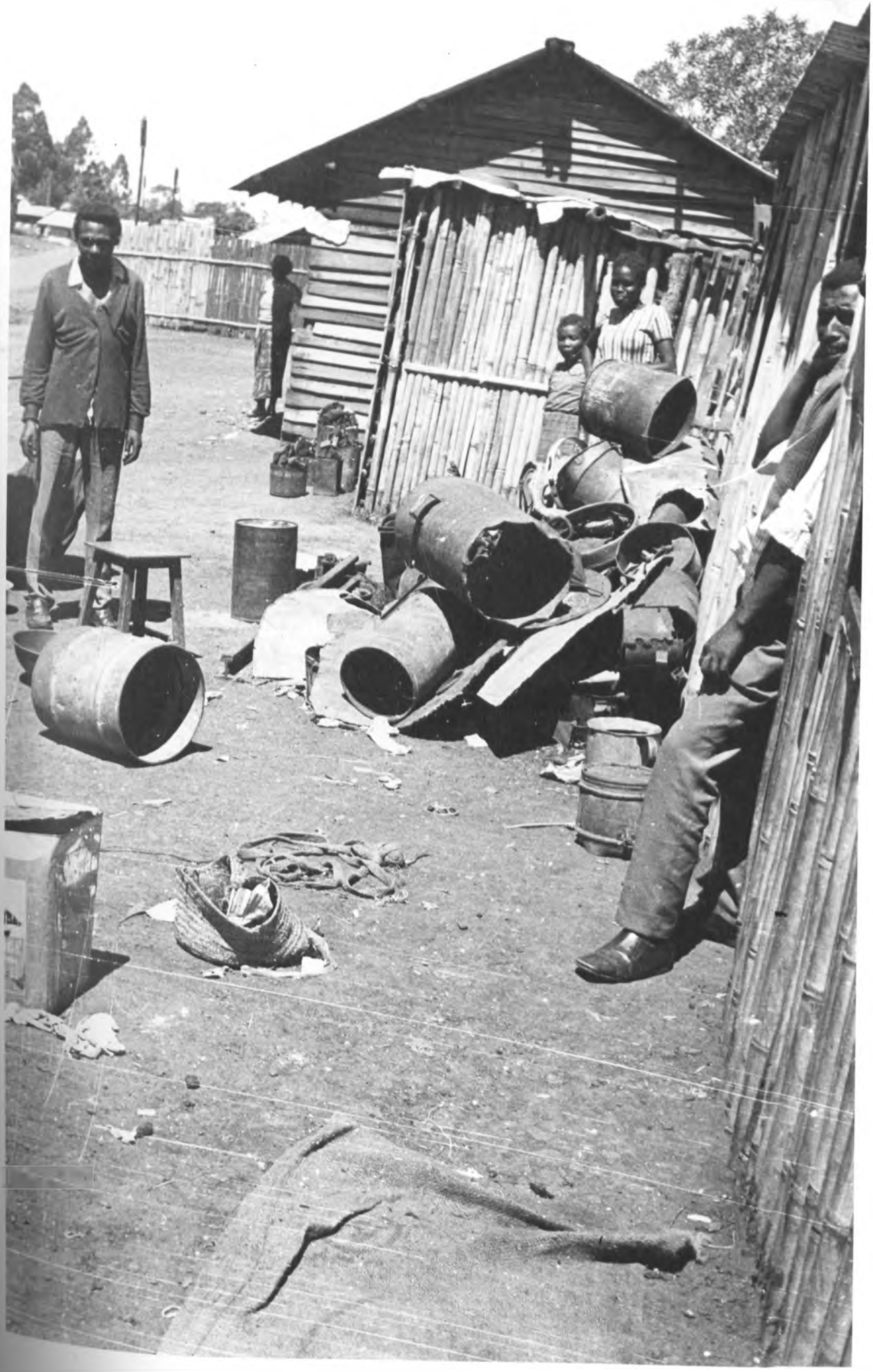
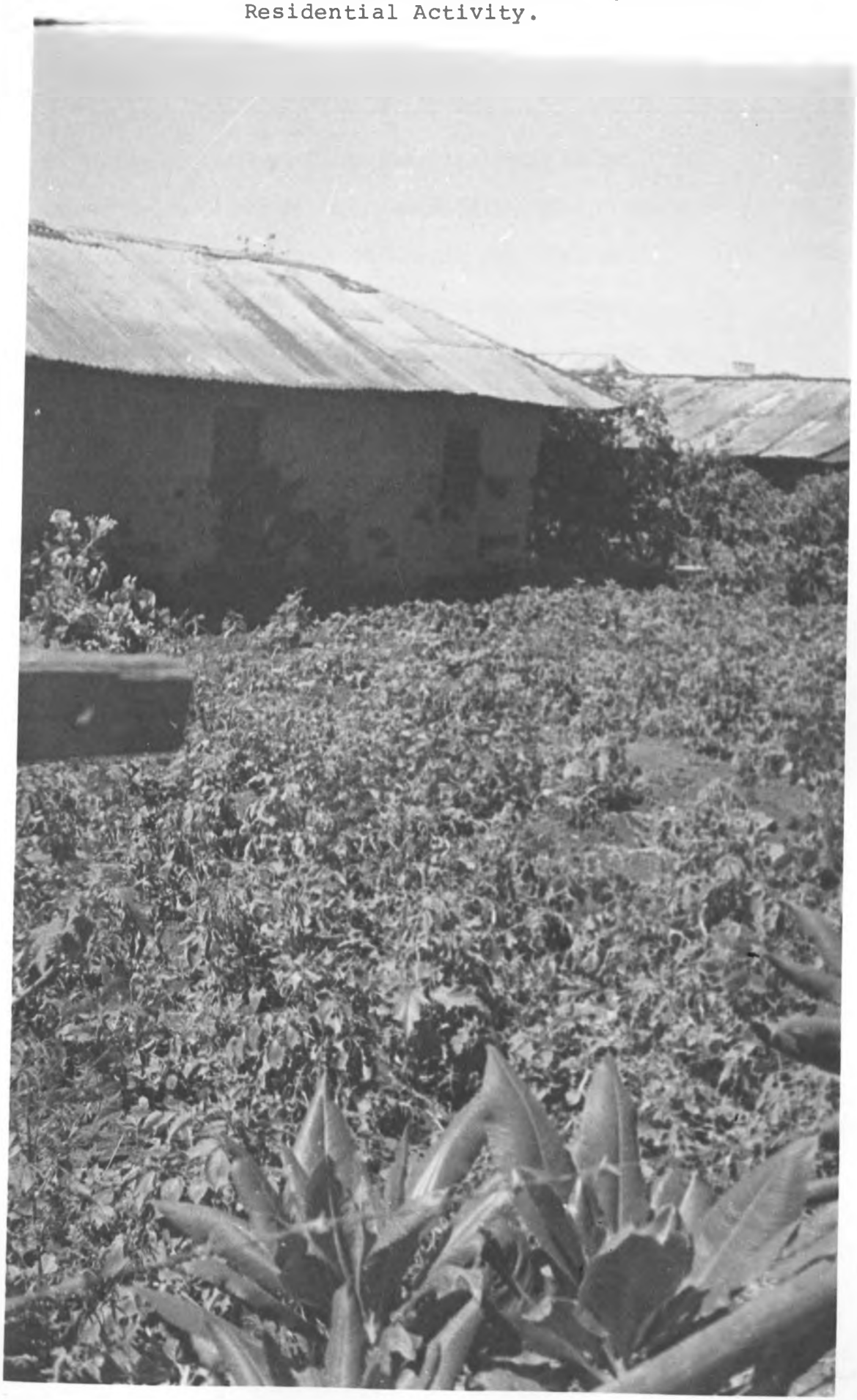


PLATE 5: Verandah Kiosks - A Reflection of Residential Activity Converted into Commercial Uses.

PLATE 6: Subsistence Cultivation of Potatoes and other Staple crops goes together with Residential Activity.



In Mathare Valley, Chana found out that, as in Kawangware, 52% of the residents were self-employed mainly in the informal sector while 38% of the residents were employed in the city.[16] The proportion of unemployed residents in Mathare Valley was twice as large as that of Kawangware or 10%, as table 14 shows. Both tables 13 and 14 depict similarities in the nature of employment activities in

Table 14: DISTRIBUTION OF EMPLOYMENT IN MATHARE 2, LOWER

Occupation	Per cent
Illegal liquor selling	19
Selling vegetables or own small shop	19
Rent out rooms	7
Subsistence farming	4
Resale activities	3
Wage employment in city	38
Unemployed	10
TOTAL	100

Source: Chana, A.S. op. cit., p. 73

the two settlements.

A notable feature, however, was the high number of unemployed people in Mathare Valley which was perhaps a reflection of more in-migrants settling in Mathare Valley than in Kawangware. This is possibly due to the shorter distance of Mathare as compared with Kawangware from the City Centre.

With regard to incomes the available data do not give a true picture of the distribution of incomes in Kawangware because as table 15 illustrates one-half of the respondents were reluctant to state their incomes during the interviewing. Some respondents

Table 15: DISTRIBUTION OF INCOMES IN KAWANGWARE

Income/Month (Kshs.)	Number	Per cent
NOT APPLICABLE (i.e. unwilling to indicate)	125	50.0
1-150	13	5.2
151-300	25	10.0
301-450	37	14.8
451-600	16	6.4
601-750	3	1.2
751-900	10	4.0
901-1000	9	3.6
1000^{+}	12	4.8
TOTAL	250	100.0

also gave information which was very unreliable and hence have been excluded from the tabulation of income categories. However, this is expected when one is delving into an area which tends to be rather personal and in fact sensitive.

Considering only the fraction of the sample that willingly gave reliable information about its level of income, then about one-third (30.0%) of the population have low incomes of up to Kshs.450 per month. There is, however, a small proportion (8.4%) of the sample population with income categories of between Kshs.901 and 1,000 and over. These were mainly the traditional landowners who either owned houses for renting out to tenants or people who owned several business activities. The median income per household for all the categories of workers was three hundred and seventy five shillings (Kshs.375) per month.

Table 16: DISTRIBUTION OF INCOME IN MATHARE 2, LOWER VILLAGE

Income per month (Kshs.)	Per cent
0-100	60
101-200	25
201-300	13
301-400	2
401-500	0
501-600	0
601-700	0

Table 16: Cont.

701-800	0
801-900	0
901-1000	0
-1500	0

Source: Chana, A.S. op. cit., p. 74

Compared with Mathare Valley, Kawangware, is inhabited by people with relatively higher incomes as both tables 15 and 16 show. The majority (85%) of Mathare Valley residents belonged to the income category of 000-200 shs. per month, while the average income per household was Kshs.122.4 per month. Compared to the minimum wage for Nairobi, that is Kshs.350 per month, it can be concluded that most Kawangware residents earn the minimum wage while Mathare Valley residents are two-thirds below the set out wage minimum.

4.9 Conclusion:

From the analysis of socio-economic and demographic characteristics of Kawangware population in the foregoing sub-sections, four major conclusions emerge, namely:-

(a) that Kawangware is inhabited by a young population with a predominance of men.

(b) that the volume of migration to Kawangware is related with the distance to the sources of migrants.

(c) that the majority (70.8%) of Kawangware residents are married with a dominance of men over women. Most (69.3%) of the families are nucleated households with owner-occupiers dominating this group.

(d) Kawangware population has attained low educational levels with one-fifth of the population ranking as illiterate. As regards employment about three-fifths (60.4%) of the residents are self-employed in the "informal sector" of the economy of the city. Most of the remainder are engaged in irregular employment either as domestic servants or watchmen in the neighbouring high-income housing estates. Moreover, the distribution of incomes is low and uneven and tends to cluster around a mean of Kshs.375 per month per household. Taking into account, that the size of households is high, then the income level is hardly sufficient for bare subsistence.

FOOTNOTES

1. Dutto, C.A. Nyeri Townsmen, Kenya, Nairobi: East African Literature Bureau, 1975, p. 72.
2. Ominde, S.H. Land and Population Movements in Kenya. Nairobi: Heinemann, 1968, p. 112 and p. 137.
3. Ibid. p. 138
4. Etherton, D. Mathare Valley: A case study of uncontrolled settlement in Nairobi. University of Nairobi, H R D U, 971.
5. Abler, R. Adams, J.S. Gould, P. Spatial Organization: The Geographer's view of the World. New Jersey: Prentice-Hall, Inc. Englewood Cliffs, 1971, pp. 221-229.
6. Berry, B. Horton, E.F. Geographic Perspectives on urban systems. New Jersey: Prentice-Hall, Inc. Englewood cliffs, 1970, p. 537.
7. Ibid. pp. 220-221.
8. Blalock, H.M. Social Statistics, Tokyo: McGraw-Hill Kogakusha, Ltd., 1972, pp. 188-193; Levin, J. Elementary statistics in Social Research. New York: Harper & Row, Publ., 1973, pp. 211-213.

9. Ebdon, D. Statistics in Geography: A practical approach Oxford: Basil Blackwell, 1977, p. 91.

10. King, L.J. Statistical Analysis in Geography. New Jersey: Prentice-Hall, 1969, p. 149.

11. Morrill, R.L. The Spatial Organization of Society. Washington: Duxbury Press, A. Division of Wadsworth Publishing Company, Inc., 1970, p. 242.

12. Etherton, D. op. cit., p. 25

13. It is an open secret that since the assassination of Tom Mboya, a Luo Minister, by a Kikuyu tribesman in, 1969, relations between the two major communities have been very strained. Consequently, a large number of Luo people who formerly resided in Kawangware have moved to Kaloleni, a typical Luo neighbourhood, in the Eastlands.

14. Ominde, S.H. op. cit., p. 188.

15. International Labour Office (ILO), Employment, Incomes and Equality: A strategy for increasing productive Employment in Kenya. Geneva: ILO, 1972.

16. Chana, A.S. "Uncontrolled urban settlements: case studies for Nairobi, Kenya." Copenhagen, 1971.

CHAPTER FIVE

HOUSING AND RELATED SOCIAL AND PHYSICAL INFRASTRUCTURAL FACILITIES IN KAWANGWARE

5.1 Introduction

This chapter examines the existing housing situation in Kawangware and makes an assessment of whether the quality of housing has adhered to the regulations laid down in the Building Code. The other related social and physical infrastructural facilities analysed include schools, health centres, water supply, refuse and sewage disposal, and access roads.

The growth in unofficial rental housing was noticed in Dagoretti at an earlier period than in Mathare Valley.[1] In Kawangware, land prices rose sharply in 1967. Since then demand for cheap accommodation has precipitated a fantastic rate of rental housing output considering the recent nature of the settlement. In order to assess the quality of housing in Kawangware it is important to outline the Building By-laws and examine the feasibility of their application in a settlement like the one in question.

5.2 The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968.

These By-laws constitute an order made by the Minister

for Local Government in exercise of the powers conferred by Regulation 210 of the Local Government Regulations 1963, and are the ones which any County Council or Municipality in Kenya may adopt. The By-laws apply to the use of residential land within the Council's area of jurisdiction. As can be seen from Appendix B, the By-laws stipulate minimum standards regarding the development of low-income housing of a "type B" class which is often high density in terms of the number of constructed houses per areal unit. The By-laws specify the number of buildings authorized to be constructed per plot and also specify the manner of provision of services particularly sewers. The emphasis is laid mainly on the type of building and its size with regard to the plot coverage.

An examination of these By-laws (Appendix B) will reveal that the By-laws are too rigid to take account of the high population growth rate in the large urban centres such as Nairobi and the accompanying strain on supply of housing stock. This situation has inevitably led to the development of uncontrolled and unauthorized urban settlements. The By-laws unrealistically lay down very high building standards with regard to plot size, building materials, formal application for erection of buildings and definition of what is classified as a habitable room.

This is illustrated below with some examples drawn from the By-laws.

As specified in the By-laws, the minimum area of plot, for example, is 862 sq. metres (2,800 sq. ft) and not more than one-quarter of one plot should be built upon (By-law no. 7). This By-law is an attempt to control the density of development. The area of each plot is, moreover, too large in grade II urban situations (i.e. low-income housing areas) where housing density is expected to be reasonably high. Furthermore, since almost all these plots are in private ownership, sub-letting of houses is an economic necessity and, therefore, these private developers have tended to build the plots to a maximum.[2]

With regard to the quality of building materials, one can cite By-law no. 21 which requires that every roof be of either corrugated iron, aluminium, asbestos or other permanent materials or shingles, as may be required by the Council. This By-law is inherited from the 1948 Building By-laws (Planning) which set control of the future development of Nairobi by a zoning policy geared toward the creation of a colonial capital as discussed in Chapter Three of this thesis. The legislation set out and maintained very high building standards that the ordinary worker earning the minimum urban wage of sh.350 per month, could not afford.

The situation is aggravated, for example, when most building materials, such as asbestos and corrugated iron sheets for roofing, have to be imported at a high cost and the financial position of the local authorities is not able to cope with these demands.

By-law no. 10 is even more unrealistic in terms of defining a habitable room. It stipulates this in terms of height of the building, ceiling installation, and specification of the minimum area of accommodation for each person. The By-law may be fair in principle, but in practice it is inappropriate because it disregards socio-economic as well as customs of the inhabitants of Grade II urban areas. As outlined in Chapter Four, the residents of uncontrolled urban settlements such as Kawangware have low incomes, the households are generally big and the population is "transitional" in that it is adapting itself into the urban environment. Thus, by and large these by-laws have violated African culture.

There is, therefore, an urgent need for the revision of these Building By-laws. In so doing, two factors should be considered if Grade II urban areas are to accommodate low-income groups in a satisfactory environment at a reasonable cost. First, consideration should be taken of building materials that are appropriate for low-cost housing. The use of local building materials such as wood and earthen-bricks

is recommended in order to reduce the exorbitant capital expenditure on housing in Grade II areas. Secondly, a general assumption based on research must be made of the financial position(s) of the people who inhabit these settlements. At present, some of the components that catch the eye of the physical planner include decent shelter with specifications of space outside the house, a good site and provision of public services such as busing and street lighting. In settlements with such high densities of population more emphasis should be laid on provision of basic infrastructure such as piped water, communal toilets, and public amenities such as clinics, social halls and commercial services. Low-cost housing can also be viewed in terms of affordability. Anderson has suggested that the financial effort to obtain a house can be the 25% of monthly income or two and one-half times the annual income.[3] However, although Anderson's recommendation was a useful base for settling out guidelines for low-cost housing, it did not account for the high cost of living in urban areas and particularly with the contemporary inflationary period. It is, therefore, suggested that a maximum of one-third of one's monthly income should be an ideal financial strain on the worker earning a minimum monthly salary of sh.350.[4]

In conclusion, several observations can be made with regard to the Grade II Building By-laws of 1968. First, is the fact that although these By-laws have been in operation for the last eight years, no amendments have been made to accommodate problems emanating from high urbanization rates particularly in Nairobi. Secondly, from the information collected during the survey, the private developers expressed their concern at the rigidity of these By-laws and the fact that they stipulate very high building standards. Consequently, the developers have tended to ignore a number of them and instead have erected temporary housing structures while awaiting possible revision of these By-laws. Thirdly, the financial position of the local authorities, particularly Nairobi, has made it difficult, if not impossible, to adhere to the standards of infrastructure in the low-income settlements, although they insist on maintaining such high standards as specified in the By-laws. Lastly, until Independence the Africans were regarded as temporary residents of Nairobi by the colonial regime and hence the set up building standards did not aspire to the socio-economic and cultural needs of the low-income people. Any little efforts to lower the Building standards would appear futile because even the existing Grade II By-laws are unnecessarily too high in standards. Consequently, there have been shortages in the supply of both public and private

housing stock and a strain on the infrastructure and related services. Nairobi, particularly, has never been able to meet the backlog in housing need and services. The responsibility rests entirely on its short-sighted adoption of colonial urban planning standards without due regard to the socio-economic and cultural heritage of its population. Private housing development that has ensued in the low-income settlements has largely utilised traditional materials such as mud and wattle or any other cheap materials. These developments have led to the creation of several uncontrolled urban settlements dotted with makeshift housing where essential physical and communal infrastructural facilities are virtually non-existent.

5.3 Housing

Housing in Kawangware is mainly of timber and corrugated iron sheets as plate 6 shows. The design and building techniques are identical to those common in most rural areas of Kenya, and construction of a dwelling takes a few days. Structures contain six to ten rooms arranged either back-to-back or around a central passage similar to swahili houses in Mombasa. Plates 7 and 8 illustrate this. 75.0% of the houses are rented as Table 18 shows.

PLATE 7: Typical Mud and Wattle Row Housing in Kawangware.

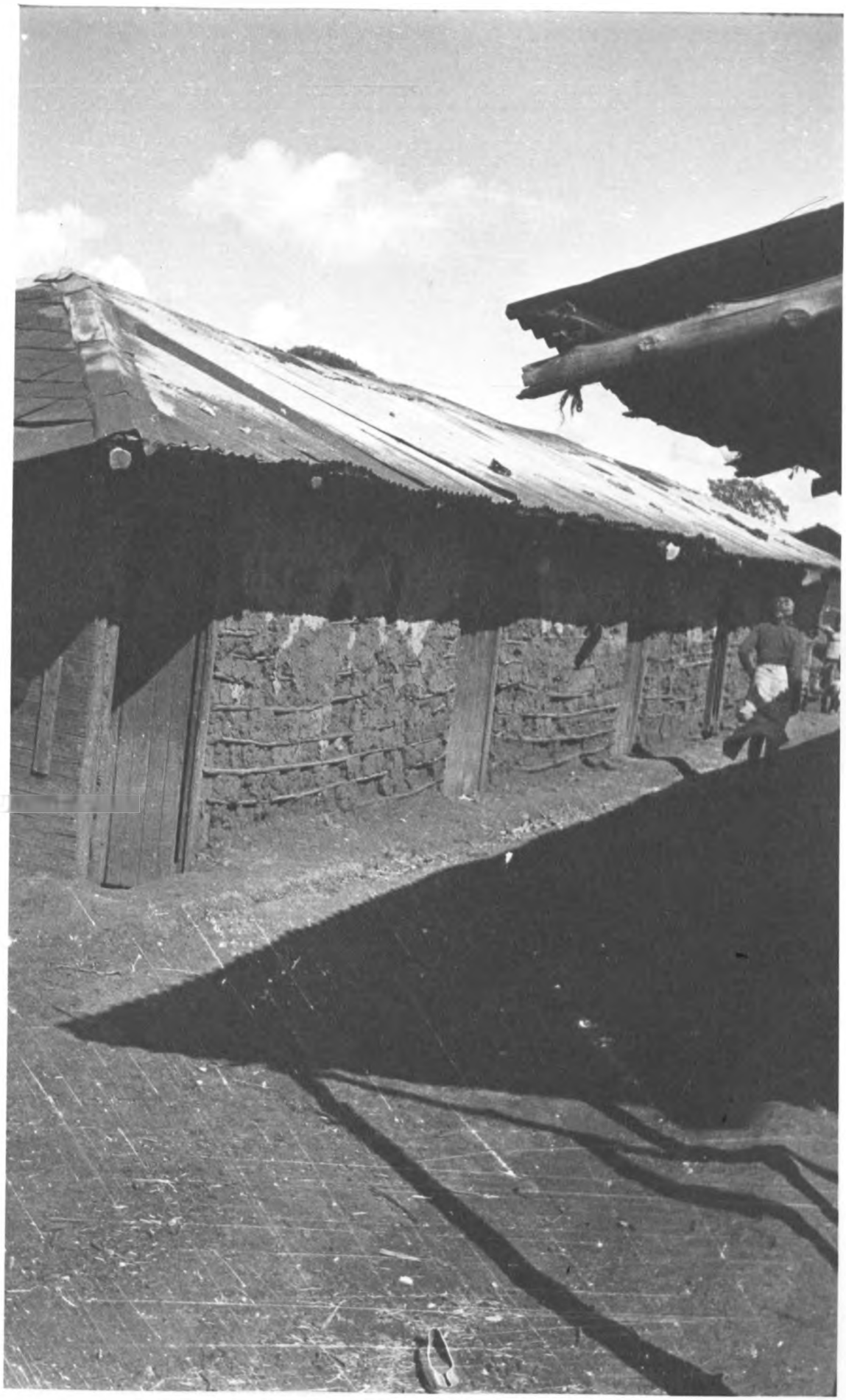


PLATE 8: Housing Structures with Rooms Arranged Back-To-Back Similar to Swahili Houses in Mombasa.

Table 18: HOUSE TENURE IN KAWANGWARE.

TENURESHIP	NUMBER	PER CENT
Owner-occupiers	56	22.4
Tenants	188	75.2
Other e.g. staying free	6	2.4
TOTAL	250	100.0

More than three-quarters (75.2%) of the households are tenants occupying one or two room units. Besides, the timber houses, there are a few huts[4] built using traditional Kikuyu skills and techniques with local materials as Plates 9 and 10 illustrate. There is very little (3.0%) sub-letting of houses by tenants as Tables 19 and 20 show.

Table 19: HOUSE RENTAL

TYPE OF RENT	NUMBER	PER CENT
Pay full rent	177	70.8
Partial rent, because tenant related to owner	5	2.0
Free, because caretaker	6	2.4
Partial rent, employer assists	1	0.4
No rent, owner-occupier	61	24.4
TOTAL	250	100.0

Table 20: SUB-LETTING OF HOUSES BY TENANTS.

	NUMBER	PER CENT
Sub-letting	6	3.2
No Sub-letting	183	96.8
TOTAL	189	100.0

A great proportion (87.6%) of the housing structures are lodging houses (Table 21) which have been built in stages by private developers. The average rent per room per month is Kshs.45 as stipulated in table 22.

Table 21: TYPE OF HOUSE STRUCTURES IN KAWANGWARE

TYPE	NUMBER	PER CENT
Detached/Semi-detached/ single family	28	11.2
Block of self-contained flats	1	0.4
Lodging house	219	87.6
Hut	2	0.8
TOTAL	250	100.0

The class intervals of rent in Table 22 were designed after the survey having obtained information about the distribution of house rents in the settlement.

PLATE 9: Use of Local Materials: Mud, Wattle and Grass Thatch - A Traditional Kikuyu House.

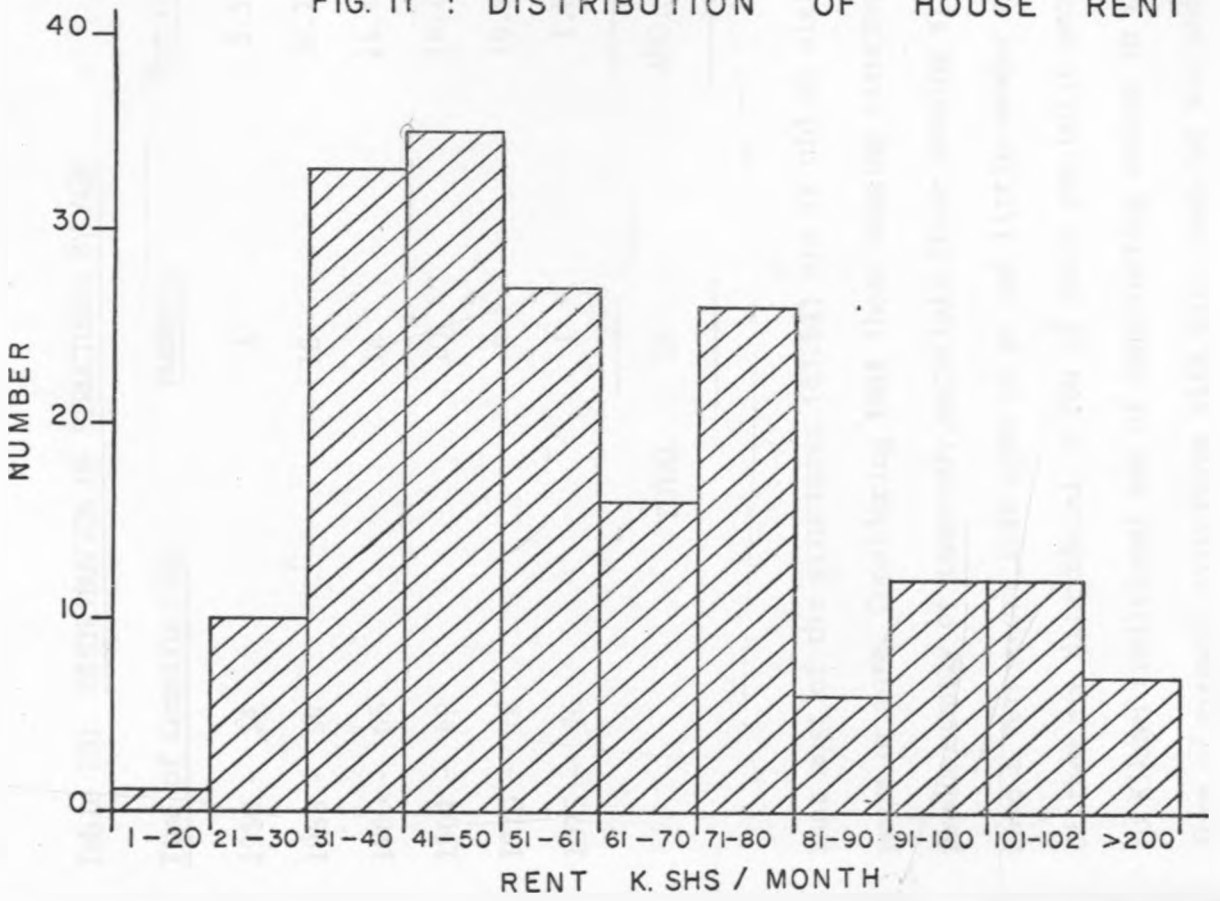
Fig.11 is a diagrammatic representation of the layout of rents in Kawangware.

Table 22: DISTRIBUTION OF HOUSE RENTS

Amount Per month (Kshs.)	Number	Per cent
10 - 20	1	0.4
21 - 30	10	4.0
31 - 40	33	13.3
41 - 50	35	14.1
51 - 60	27	10.9
61 - 70	16	6.0
71 - 80	26	10.5
81 - 90	6	2.4
91 - 100	12	4.8
101 - 200	12	4.8
- 200 +	7	2.8
No rent	65	26.0
TOTAL	250	100.0

A very great number (96.4%) of building structures were built by the plotholders and only two structures out of a total number of forty-five were purchased with houses already built on from previous owners.

FIG. II : DISTRIBUTION OF HOUSE RENT



More than three fifths (63.6%) of the total structures were built during the period before Kenya attained Independence as summarized in Table 23. It is evident from the table.

Table 23: DISTRIBUTION OF STRUCTURES BY AGE

Time of Construction	Numbers	Per cent
1950 - 54	3	5.5
1955 - 59	18	32.7
1960 - 63	14	25.4
1964 - 69	10	18.2
1970 - 74	9	16.4
1975 - 76	1	1.8
TOTAL	55	100.0

that most of the structures (63.6%) are as old as sixteen years or more. Considering that these housing structures are predominantly of temporary materials these housing structures have a very short life span to go and little wonder that some of them are dilapidated. A few of these are built according to Kikuyu traditional way of constructing houses in the form of rounded structures with walls made of mud and wattle and a thatched roof (Plate 10).

PLATE 10: Traditional Kikuyu House Fenced Around with Barbed wire, standing in the midst of Exotic Houses.

Those structures built after the '60s, have mainly timber and log planks constituting the wall framework, and corrugated iron sheets have largely replaced grass thatch as roofing materials.

Table 24 shows that the maximum number of rooms in a structure was forty and accommodated forty-six households. On average, a household occupied a one-roomed dwelling unit. There was one unique case where a single household occupied ten rooms in a structure. The head of the household was, however, an owner-occupier and a polygamist. From Table 24 it can be noticed that within two hundred and fifty housing structures, two thousand six hundred and ninety two (2692) households were accommodated. Considering that the aggregate number of habitable rooms within these structures was two thousand seven hundred and eighty seven (2787), then on average one household occupied 1.04 rooms. By all standards of habitation, this ratio clearly demonstrates how congested the houses were bearing in mind the fact that the average household size was 4.6 persons.

5.4 Occupancy rate

If the sample is assumed to be random and, therefore, representative of the population, then considering that one thousand one hundred and fifty seven (1157) persons

constituted 250 households (the sample size), this gives an occupancy rate of 4.6 persons per household. Referring to Table 24, the occupancy rate per room has been computed in the following way:-

Number of structures = 250

No. of households in 250 structures = 2692

Average no. of persons per household = 4.6

Total number of rooms in 250 structures = 2787

$$\therefore \text{Occupancy Rate (O.R)} = \frac{\text{Household Population}}{\text{Total no. of rooms}}$$

$$\therefore \text{O.R.} = \frac{2692 \times 4.6}{2787}$$

$$= \frac{12383}{2787}$$

= 4.4 persons per room.

Referring to Table 25, there are two other possible ways of expressing the occupancy rates:-

(a) That for all the population living in 250 structures with 2692 households there was 1.04 rooms per household calculated as:-

$$\frac{\text{No. of rooms}}{\text{No. of households}} \equiv \frac{2787}{2692} = 1.04$$

Table 24. DISTRIBUTION OF DWELLING ROOMS AND HOUSEHOLDS IN KAWANGWARE

No. of Rooms	Structures	Total Rooms	Households
1	1	1	1
2	2	4	3
3	10	30	15
4	10	40	22
5	6	30	23
6	16	96	94
7	18	126	103
8	20	160	159
9	7	63	55
10	30	300	281
11	16	176	166
12	28	336	308
13	20	260	248
14	22	308	310
15	12	180	161
16	4	64	61
17	5	85	93
18	7	126	120
19	1	19	30
20	4	80	88

Table 24 cont.

21	-	-	-
22	1	22	25
23	1	23	17
24	2	48	46
25	2	50	111
26	-	-	-
27	-	-	-
28	2	56	55
	-	-	-
30	1	30	30
-	-	-	-
-	-	-	-
34	1	34	21
-	-	-	-
-	-	-	-
-	-	-	-
40	1	40	46
TOTAL	250	2787	2692

Table 25: DISTRIBUTION OF MEMBERS OF HOUSEHOLDS

No . of Persons	Structures	Total No. of Persons
1	25	25
2	40	80
3	32	96
4	44	176
5	35	175
6	21	126
7	61	112
8	10	80
9	8	72
10	8	80
11	7	77
12	3	36
-	-	-
-	-	-
-	-	-
22	1	22
TOTAL	250	1157

(b) That there are 4.6 persons per household calculated as :-

$$\frac{\text{No. of persons}}{\text{No. of households}} = \frac{1157}{250} = 4.6$$

From the above arithmetic. it is clearly evident that by all standards of room occupancy. the incidence of overcrowding is indeed very high. This grave situation means that since the one-roomed dwelling units were quite small, the open alternative to the members of the household was to share beds at night. One bed might have been shared by two or more persons. Finally, the number of persons per room (4.4) depicts a situation where there is not only immense overcrowding, but also congestion in terms of available space per person. The dangers from ill-health exposed to such a population in this situation are obvious.

5.5. Building Materials

In order to assess the quality of the housing structures the building materials were subdivided into those making up the roof, walls, ceiling, wall finish, foundation and floor. The adequacy of the structures was also recorded by assessing the amount of ventilation and whether the roof or the walls or both were leaking during rainy weather.

5.5.1 Roof

The majority (79.2%) of roofs were made of corrugated iron sheets, although in some structures it was possible to

find more than one material used for the roof. Table 26 gives a summary of roof types.

Table 26: TYPE OF ROOF

Type of Material	Number	Per cent
Thatched	1	0.4
Cardboard	1	0.4
Flattened tin (Scrap)	24	9.6
Corrugated iron sheets	198	79.2
Other e.g. combinations	26	10.4
TOTAL	250	100.0

5.5.2 Wall

The majority (40.8%) of walls were made of timber nailed to log planks. In some cases the timber varied from crude slabs to finely sawn wood, but during the survey this sharp distinction was not made. Table 27 gives a summary of the main materials used for walls.

As in the materials used for the roof, it is evident that substantial (27.6%) of structures used combinations of materials for walls. This is a reflection of non-availability of financial resources for building on the private developers.

This reflection also demonstrates further the harshness of the Grade II By-laws, which are evidently being violated.

Table 27: TYPES OF WALL

Material	Number	Per cent
Cardboard or flattened tin	3	1.2
Mud and wattle	62	24.8
Mud bricks or blocks	4	1.6
Burned bricks	1	0.4
Timber	102	40.8
Stone	7	2.8
Thatched	2	0.8
Other e.g. combinations	69	27.6
TOTAL	250	100.0

5.5.3 Ceiling

The majority (91.2%) of the structures had no ceiling and the few (6.4%) that had were of crude cardboard only. Table 28 is a summary of this information.

Table 28: TYPE OF CEILING

Material	Number	Percent
Cloth or mat	3	1.2
Cardboard and paper	16	6.4
Timber	3	1.2
No ceiling	228	91.2
TOTAL	250	100.0

The absence of ceilings in the majority of structures was of concern because in a hot climate, ceiling is very important as it controls the heat radiation through the roof during the day and at nighttime. In other words, housing in Kawangware is very uncomfortable because it would tend to be too hot inside at daytime and very cold at night.

5.5.4 Wall Finish

The standard of hygiene can be kept high in a dwelling if the wall finish is smooth and clean. But in the majority (70.8%) of Kawangware structures, the walls were both unplastered and unpainted. Even where timber was used the finish was rough and with crevices that could possibly harbour pests. Table 29 is a summary of wall finish.

Table 29: WALL FINISH

Type	Number	Per cent
Unplastered, unpainted	177	70.8
Unplastered, painted	31	12.4
Plastered, painted	10	4.0
Plastered, unpainted	30	12.0
Other e.g. combinations	2	0.8
TOTAL	250	100.0

5.5.5 Foundation and Floor:

A substantial number (43.2%) of structures had a smooth cement floor, but the majority (72.8%) of the houses did not have a foundation. A good number (47.6%) of the houses had either a compact earth surface or a rough concrete floor. In households where all the activities are normally carried out in a single room, it was inadequate for structures to be ill-provided with this necessity. Tables 30 and 31 are a summary of information on floors.

Table 30: FOUNDATIONS OF STRUCTURES

Type	Number	Per cent
Concrete	25	10.0
Stone	42	16.8
Brick	1	0.4
No foundation	182	72.8
TOTAL	250	100.0

Table 31: FLOORS OF STRUCTURES

Type	Number	Per cent
Compact earth	101	40.4
Rough concrete	18	7.2
Smooth	108	43.2
Other	23	9.2
TOTAL	250	100.0

5.5.6 Ventilation:

With regard to ventilation, a substantial number (64.8%) of the structures had adequate windows; while 32.8% had small windows, and only 2.9% of the structures were without any windows.

This facility was indirectly provided for by the fact that a lot of the structures had no ceilings.

5.5.7 Water Penetration of Roofs or Walls

More than one-half (57.2%) of the roofs and walls did not leak, although a substantial proportion (42.8%) had some leakage as Table 32 shows.

5.5.8 Space Between Buildings

About one-half (48.0%) of the housing structures are built very close together and very little space

Table 32: ROOF/WALL LEAKAGE

Amount	Number	Per cent
Nil	143	57.2
Low	65	26.0
Medium	10	4.0
High	32	12.8
TOTAL	250	100.0

is left between the structures as Table 33 shows. This situation is aggravated by the fact that nearly three-quarters of the households use charcoal as their main fuel as Table 35 shows.

Table 33: SPACE BETWEEN BUILDINGS

Space (feet)	Number of structures	Per cent
10 ft and over	130	52.0
5-10 ft	98	39.2
Less than 5 ft	22	8.8
TOTAL	250	100.0

These two findings demonstrate further that Kawangware is not only confronted by a serious health hazard, considering the congestion and overcrowding in the rooms, but also a potential fire hazard.

5.6 Kitchen Facilties:

82.4 per cent of the households had no kitchen facilities. This large number of households used their single rooms for sleeping, cooking, as well as living rooms. The data on kitchen facilities given in Table 34 were analysed further in order to find out where cooking was done by those households without kitchen facilities. The findings are summarized in Table 36.

Table 34: KITCHEN FACILITIES

Facility	Number	Per cent
No kitchen	206	82.4
Cook inside	1	0.4
Outside building, but private	35	14.0
Inside building, but shared	1	0.4
Outside, but private	5	2.0
Outside, but shared	2	0.8
TOTAL	250	100.0

Table 35: TYPES OF FUEL FOR COOKING

Type	Number	Per cent
Wood	5	2.0
Charcoal	154	61.6
Kerosine/Paraffin	8	3.2
Gas	2	0.8
Electricity	0	-
Other e.g. combinations	81	32.4
TOTAL	250	100.0

Table 36: COOKING PLACES FOR KAWANGWARE HOUSEHOLDS

Place	Number	Per cent
Cook inside room	207	82.8
Do not cook	1	0.4
Cook outside	2	0.8
Have kitchen facilities	40	16.0
TOTAL	250	100.0

5.7 Bathroom Facilities

About two-thirds (65.2%) of Kawangware households have shared bathrooms located outside the building structures. Strictly speaking, the structures called bathrooms in Kawangware are mere rectangular structures with side walls often covered with either sacks, cartons, old tins or any available scrap material and without a roof. Water is not drained away from these structures and pools of dirty water were found collecting inside the majority of them. These stagnant pools of water are health hazards in that they are prospective breeding grounds for mosquitoes. As Table 37 shows more than one-fifth of the households have no bathroom facilities. Only a very small proportion (1.6%) of households have bathrooms located inside the housing structures,

but even these are shared by a number of households as shown in Table 38. The majority (73.0%) of the bathrooms are shared by many households - between ten and twenty or more. This situation usually leads to queueing and can be frustrating in the early morning when residents have to rush to their respective places of work.

Table 37: BATHROOM FACILITIES

Type	Number	Per cent
Outside, but shared	165	65.2
Outside, but private	9	3.6
Inside building, but shared	4	1.6
Backyard or compound used	1	0.4
No bathroom facility	73	29.2
TOTAL	250	100.0

Table 38: COMMUNAL USE OF BATHROOMS

No. of households	Frequency	Per cent
1 - 2	4	2.4
3 - 5	10	6.0
6 - 8	31	18.6
9 - 11	46	27.5
12 - 14	42	25.1

/Cont.

Table 38 Cont.

15 - 17	15	9.0
18 - 20	10	6.0
20 +	9	5.4
TOTAL	167	100.0

5.8 Community Facilities and Public Utilities:

This section examines certain public facilities and utilities that are related to housing. These facilities largely benefit the entire Kawangware population and it is their adequacy that is assessed below. The facilities include schools, clinics, piped water, sewage and access roads. The Collection of information about these facilities was done using different questionnaires (see Appendices C and D). The questionnaires were aimed at assessing the amount of satisfaction derived by the users of these facilities.

5.8.1 Schools:

At the time of survey, there was one primary schools in Kawangware. The Kawangware Primary School has 24 classrooms with a student population of 1136 and 26 teachers. More than one-half of the teaching staff had acquired formal education up to form two level (9th Year) and only 7% had attained education beyond secondary school (ordinary) level as Table 39 shows.

Table 39: QUALIFICATIONS OF TEACHERS AT KAWANGWARE PRIMARY SCHOOL

Grade	Number	Per cent
S_1	2	7.7
P_1	6	23.1
P_2	9	34.6
P_3	8	30.8
UNTRAINED	1	3.8
TOTAL	26	100.0

Each class in Kawangware Primary School had an average of 47 students and the teacher - child ratio was high (1:24). Unlike the sex-ratio of the adult population in the settlement with a dominance of males over females, the reverse is the case with child sex-ratio. Thus, the female children predominate with 43.1% being boys. Table 40 shows that 58.8% of the children were born in Nairobi, but a significant proportion (41.2%) was born outside Nairobi.

Table 40: PLACE OF BIRTH OF KAWANGWARE PRIMARY SCHOOL CHILDREN

Place	Number	Per cent
In Dagoretti	18	35.3
Outside Dagoretti, but in Nrb.	12	23.5
Outside Nairobi	21	41.2
TOTAL	51	100.0

The hinterland from which the student population is drawn is within a radius of 1.6 km, as Table 41 shows. The majority of children (90.2%) walk to school in about 15 minutes and their perception of distance indicated that they find the location of the school near.

Table 41: DISTANCE FROM HOME TO SCHOOL

Distance (Km)	Number	Per cent
Less than 0.5	27	52.9
0.5 - 1.0	16	31.3
1.1 - 2.0	2	3.9
2.1 - 3.0	-	-
3.1 - 4.0	1	2.0
4.1 - 6.0	1	2.0
> 6.0	4	7.9
TOTAL	51	100.0

With the recent declaration of free education up to class six, having one primary school in a settlement which is so densely populated is very unsatisfactory. Those children who could not find places in the school appeared to drift to Ndurarua Primary school about 2 kilometres from Kawangware.

In the entire settlement, there existed one Nursery school, operated by a Christina denomination which also organises other social activities in Kawangware. The Nursery school is a wooden structure which was crowded by children of varying ages. The facilities for the Nursery school were very inadequate, particularly because there was no space for the children to play on. There were about 700 children in the structure, some of whom were too old for the school, as Plate 12 shows. The situation at the Nursery school reflected the lack of vacancies in the one Primary school nearby. Thus, there is an urgent need for more nursery and primary schools in the settlement.

There is no secondary school in Kawangware. However, there is a girls' high school one kilometre away and another for boys ten kilometres away. Because of the rising demand for primary school places, there is justification for the establishment of a secondary school in the settlement.

The future demand for educational facilities is increasing and there is need for the establishment of more facilities in the area. These might be able to absorb the children who cannot find places in the existing schools, and in effect avoid the adverse condition of enhancing illiteracy which is already high.

PLATE 11: The only Nursery school in Kawangware.

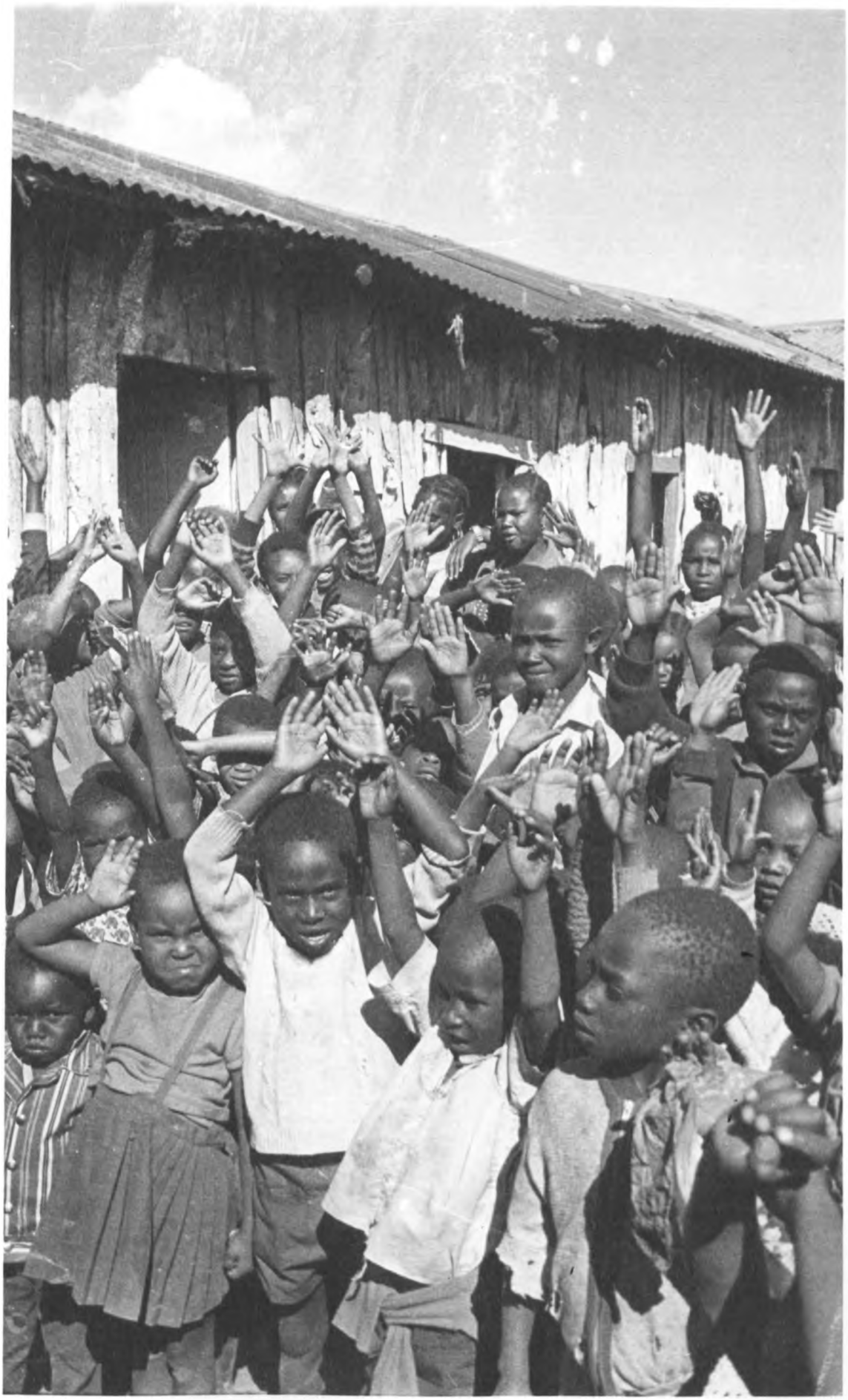
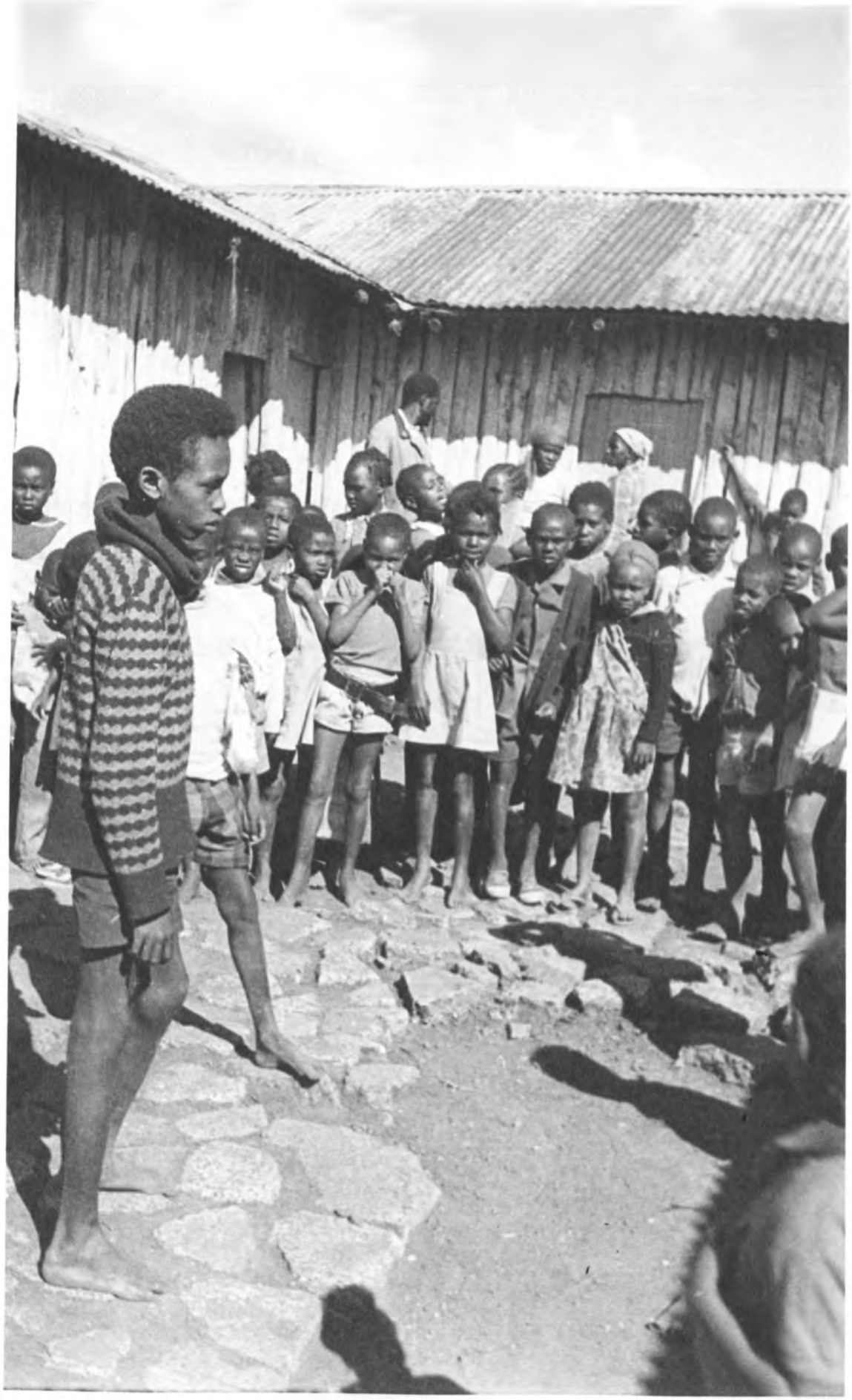


PLATE 12: A cross-section of the children attending Kawangware Nursery School. Some appear too old for the Nursery.



5.8.2. Health Facilities

There is only one health centre run by the Nairobi City Council for the settlement and the surrounding areas. There is not a single hospital nearby and patients requiring immediate attention by a doctor have to travel to the Kenyatta National Hospital in the city, eleven kilometres away. The majority of the patients (90.2%) walk to the health centre and perceive the distance travelled as too far as Tables 42 and 43 illustrate.

Table 42: DISTANCE FROM HOME TO RIRUTA HEALTH CENTRE IN MILES

Distance	Number	Per cent
Less than 0.5	79	64.2
0.5 - 1.0	30	24.2
1.1 - 2.0	6	4.9
2.1 - 3.0	2	1.6
3.1 - 4.0	1	0.8
4.1 - 6.0	5	4.1
TOTAL	123	100.0

Table 43: PERCEPTION OF DISTANCE BY PATIENTS ATTENDING RIRUTA HEALTH CENTRE

Distance	Number	Per cent
Very far	12	9.8
Far	7	5.7
Reasonable	2	1.6
Near	26	21.1
Very near	76	61.8
TOTAL	123	100.0

The Health centre is also inadequate in terms of the services offered to the patients as Table 44 shows. The writer observed immense overcrowding at the centre, and it appeared as if the services offered at the health centre were over-strained due to the fact that many patients were lying sick on the ground outside the health centre.

Table 44: PATIENTS' RESPONSES TOWARDS TREATMENT AT RIRUTA HEALTH CENTRE

Response	Number	Per cent
Satisfied	48	39.0
Not satisfied	69	56.1
Indifferent	6	4.9
TOTAL	123	100.0

The majority (73.9%) of the patients complained about inadequate services at the health centre as Table 45 summarises. When asked to suggest possible ways of

Table 45: GRIEVANCES OF PATIENTS AT RIRUTA HEALTH CENTRE

Complaint	Number	Per cent
Far from home	5	4.1
Overcrowding and long queues	26	21.1
Rare visits by a doctor	45	36.6
Impolite nursing staff	20	16.2
Delayed attention to serious cases	11	8.9
Other	16	13.0
TOTAL	122	99.9

solving the above problems most (89.0%) of the patients preferred expansion of the clinic and the improvement of services rendered by the medical staff as Table 46 shows.

Table 46: PROPOSED SOLUTIONS BY PATIENTS TO PROBLEMS AT RIRUTA HEALTH CENTRE

Solution	Number	Per cent
Build a clinic nearer home	2	1.6
Expand clinic to accommodate more patients	68	55.3
Increase no. of doctor visits	20	16.3
Improve services of nursing staff	22	17.9

/Cont.

Other	11	8.9
TOTAL	123	100.0

In view of the many complaints put forward by residents of Kawangware it is recommended that another clinic be built in the settlement and the services rended by the nursing staff be reviewed by the relevant authorities.

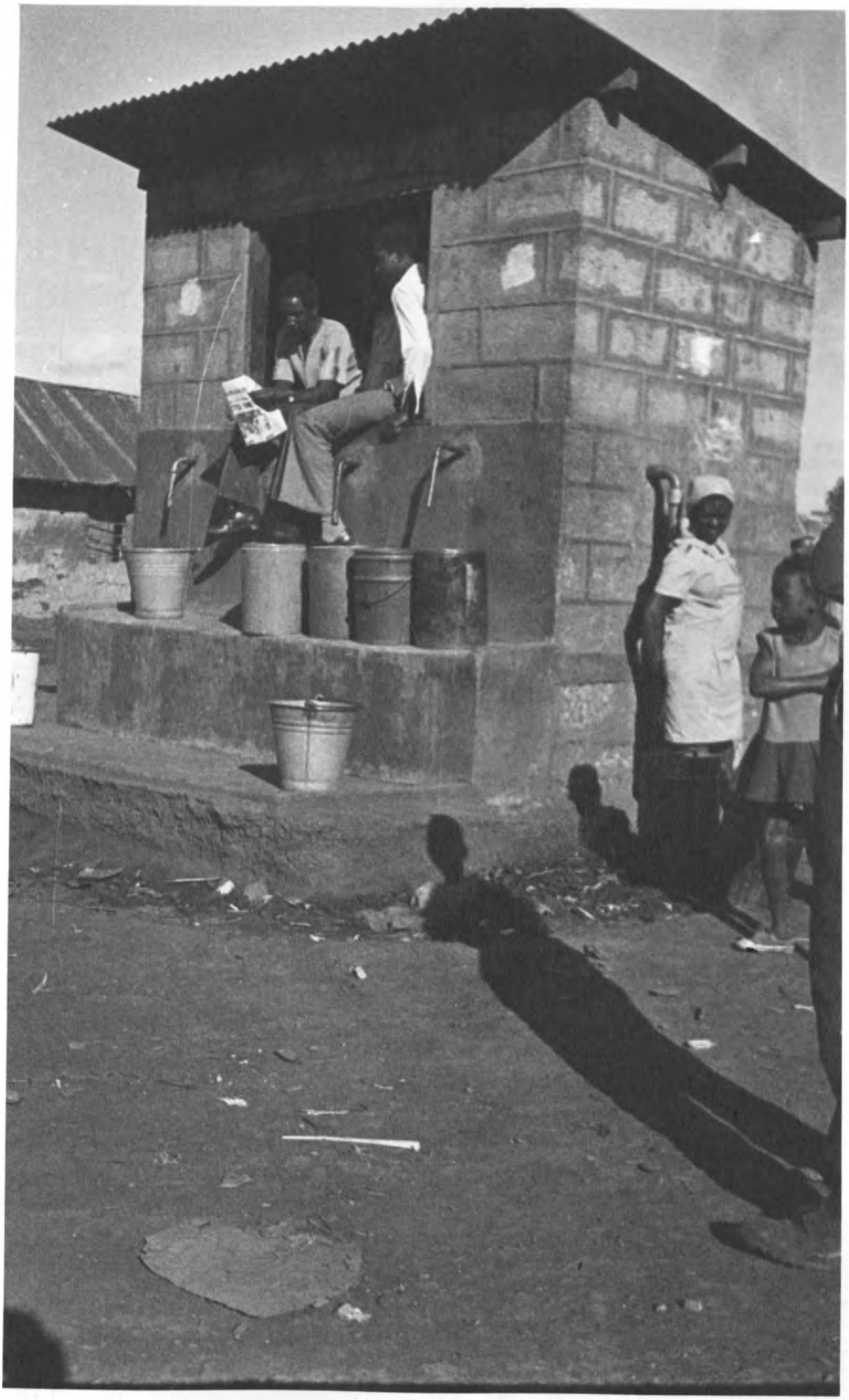
5.8.3. Water Supply:

The City Council of Nairobi operates only one water stand for the whole of Kawangware township. Water is sold at 20 cents per debe (three litres), but most of the time the water taps dry off and residents make long queues in the afternoon as Plate 13 shows. This serious problem is alleviated somewhat by some landlords who have installed taps on their plots and sell water to their tenants at a higher price usually at 50 cents per debe. In fact, most residents prefer buying water from landlords rather than queue for long hours at the one public water stand. It is recommended, therefore, that the City Council improvise for more facilities of this nature in view of this problem.

5.8.4 Sewage and Refuse Disposal

Domestic sewage in Kawangware is mainly disposed of

PLATE 13: The only city council public water stand in Kawangware. The taps are dry and the attendants had time to relax over a newspaper.



by allowing it to percolate in the compound or the backyard. There are no sewage treatment works. The township is served with pit latrines which not only get filled up quickly, because of the high population densities, but also fail during the wet season. These pit latrines are undesirable from a health point of view in residential areas of this magnitude. The inadequacy of pit latrines is further aggravated by the high incidence of communal use as illustrated in Table 47. In view of this serious problem of toilet-sharing whereby fifteen or more households share one pit latrine, it is crucial that provision of waterborne sanitation is seriously implemented. The mean number of households sharing one pit latrine was ten and there is an eminent health danger considering the high population densities and overcrowdedness in the area.

Table 47: DISTRIBUTION OF HOUSEHOLDS SHARING PIT LATRINES

Households	Frequency	Per cent
0	25	10.0
1-2	7	2.8
3-5	18	7.2
6-8	40	16.0
9-11	64	25.6
12-14	50	20.0
15-17	18	7.2

/cont.

Table 47 cont.

18-20	15	6.0
20 +	13	5.2
TOTAL	250	100.0

Refuse collection system provided in other residential areas by the City Council of Nairobi does not exist for Kawangware. Table 48 illustrates that virtually all litter is either dumped in the compounds and on unbuilt plots (Plate 14) or it is dumped on the few existing access roads and very little is burnt out.

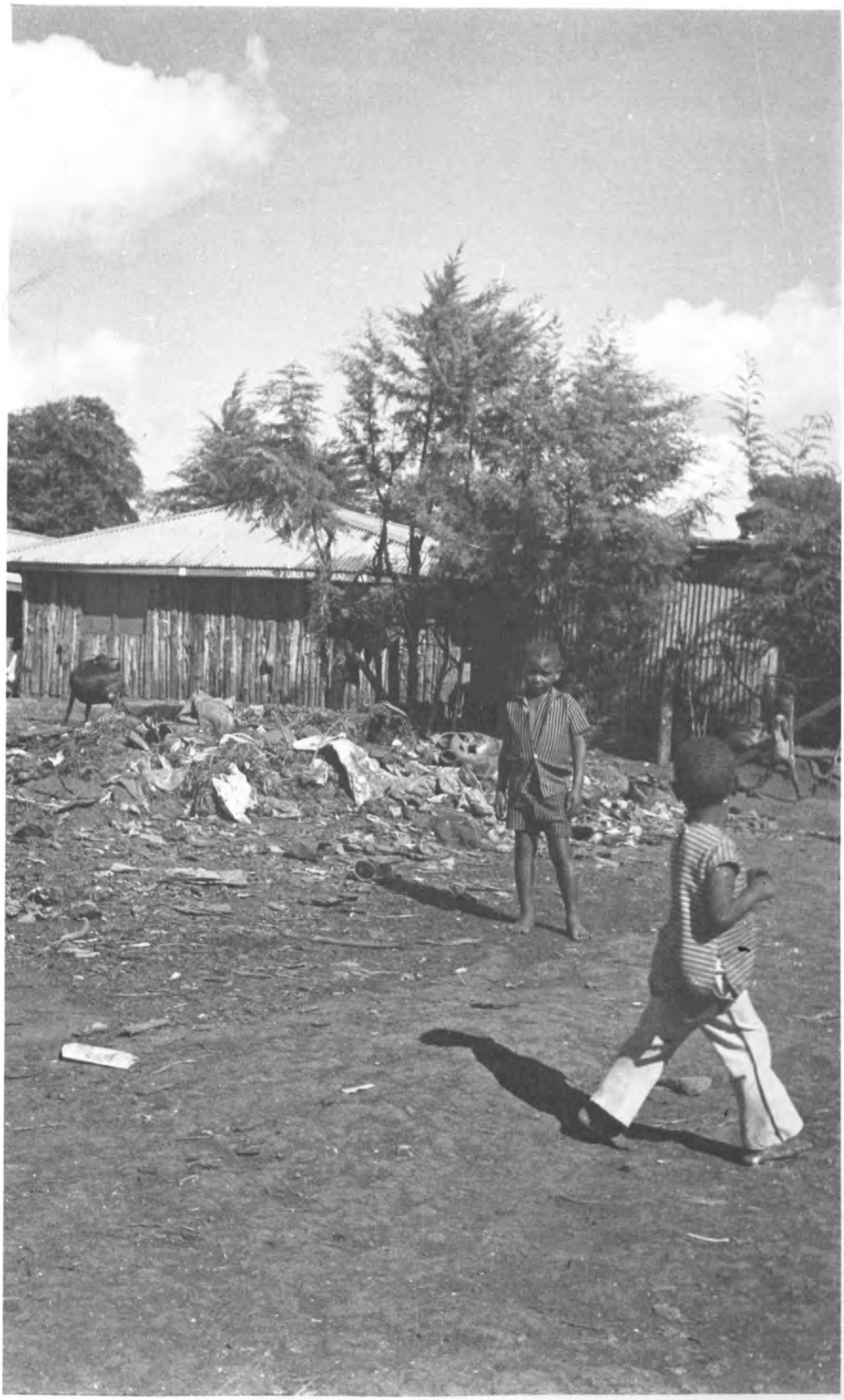
Refuse collection is the one sanitary facility which does not require permanent installation directly connected to housing development, and hence requires relatively little capital expenditure. It is, however, essential to establish this facility in order to maintain health standards.

Table 48: MEANS OF REFUSE DISPOSAL

Method	Number	Per cent
Dig it down at plot or compound	56	22.4
Dump it at private pit nearby	44	17.6
Dump it at communal pit	20	8.0
Dustbin collection	9	3.6
Burning	21	8.4

/cont.

PLATE 14: Litter and rubbish from nearby homes is dumped on unbuilt plots. Children and domestic animals scavenge on it.



Dump it on road nearby	21	8.4
Dump it on unbuilt plot	16	6.4
Other e.g. manure	63	25.2
TOTAL	250	100.0

Without regular collections, refuse can only be dumped outside of doors to pile up and become breeding ground and transmission-medium for disease. It becomes an even greater danger when heavy rains and wind disperse it over a wide area. Uncontrolled refuse, as found in Kawangware, is also unsightly and is one of the major factors in creating a visually undersirable area. It is clear that in order to ensure minimum health standards in this area, refuse collection and litter clean-up system should be extended to include this densely populated settlement as well. One of the reasons why there is lack of refuse collection system in Kawangware is that there are few access roads for the collection trucks.

5.8.5. Roads:

A major important function of roads is to provide access to the settlement as well as within the settlement. In addition to providing access to houses, roads also facilitate fire and ambulance service, refuse collection,

litter clean-up and drainage. Although roads are not strictly speaking a sanitary service, they are important in the provision and maintenance of other sanitary facilities. The majority of residents (92.4%) of the settlement complained about having difficulties on the access roads particularly during the wet season. Kawangware Road (Fig. 2) is a paved, all-weather road, running around the edge of the township. The main access roads such as Gathuru Road, not only become muddy and waterlogged during wet weather, and therefore impossable, but some of the other access roads have been converted into refuse dumps by the residents.

5.8.6 Public Security

Police administration is inadequate in Kawangware since some 18% of the residents complained of harassment by organised thugs. Although the variable of crime was not incorporated into the research, it is important to note that in a settlement where many people are unemployed, petty crimes may enhance life-long criminals if not policed right from the settlement.

5.9. Conclusion.

From the analysis of housing and related infrastructural facilities in Kawangware it can be concluded that in terms of Grade II By-laws, the housing quality is sub-standard in terms of a number of criteria. These include the fact that housing in Kawangware is overcrowded and the housing densities are also high. The state of overcrowdedness is expressed by the occupancy rates which are as high as 4.4. people per room, while it was also common to find more than five building structures containing about forty rooms on a plot. This situation is a result of spontaneous development by the private sector whereby a class of landlords has emerged in Kawangware to capitalize on housing shortage in the city by building cheap rental housing on their plots. The lack of service infrastructural facilities such as piped water, access roads, electric lighting, clinics and educational facilities are other problems in the settlement.

PLATE 15: A View of the open air weekly market of Kawangware.

PLATE 16: A Modern Bungalow in the midst of Sub-standard housing.

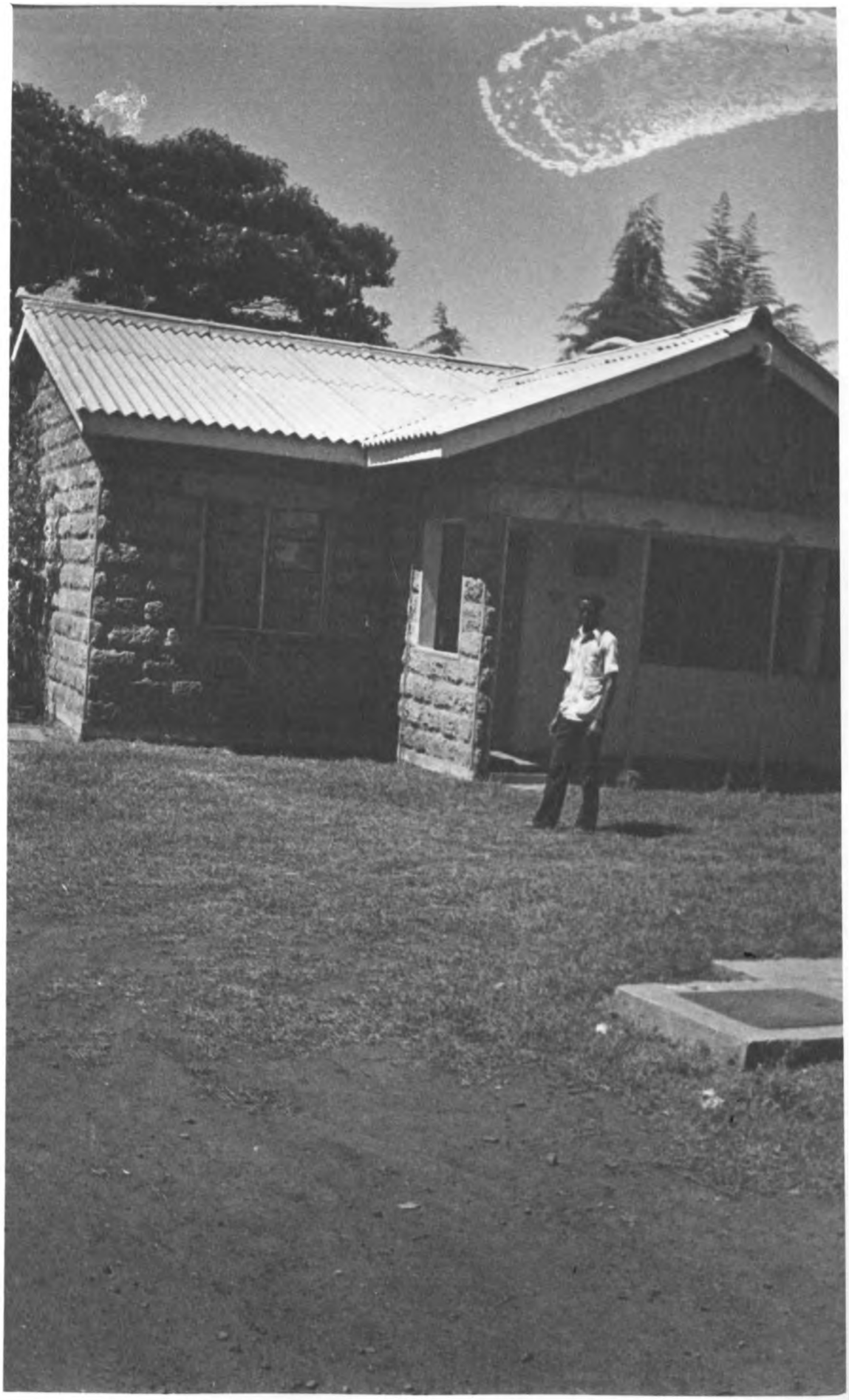
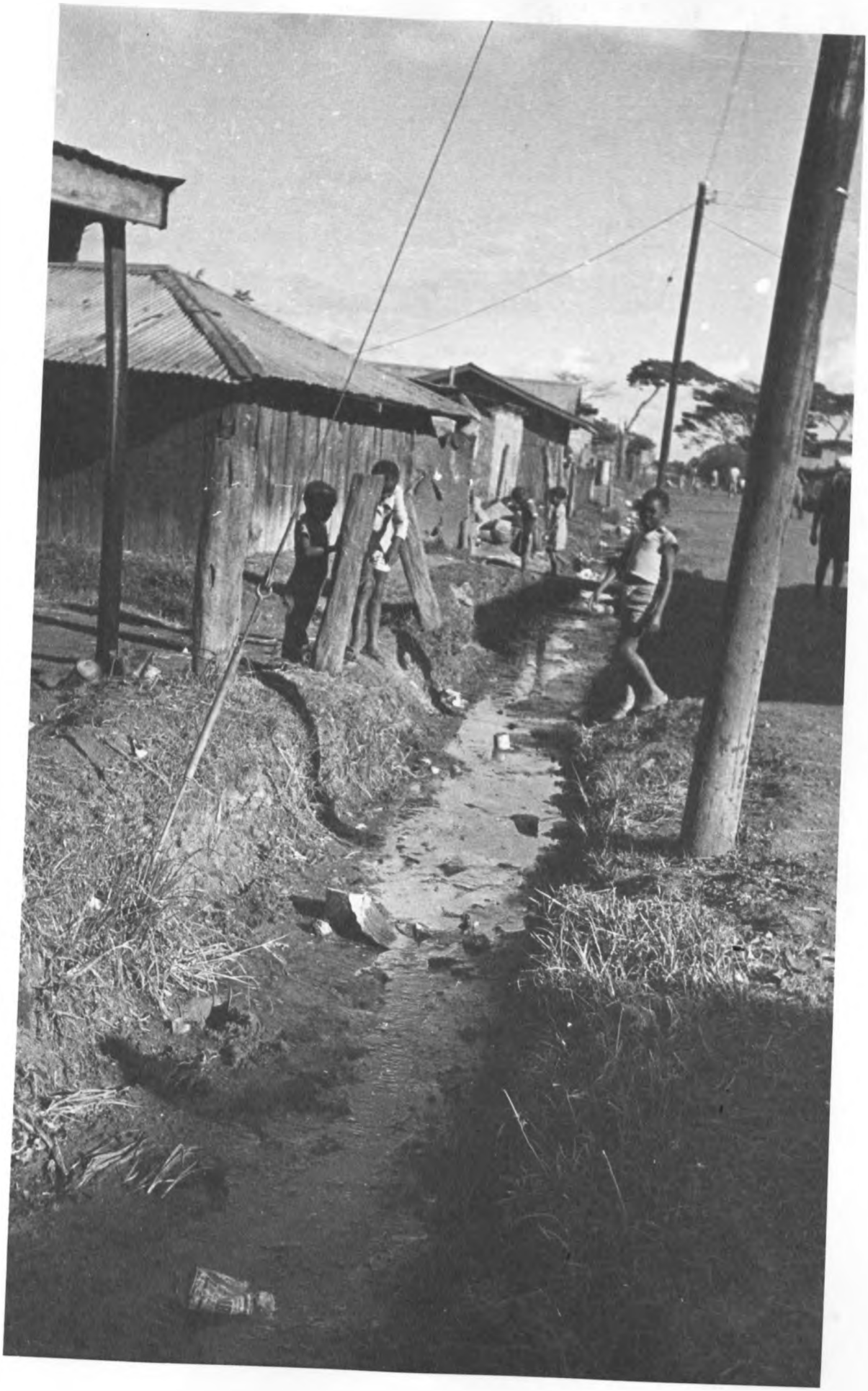


PLATE 17: Open water drains provide recreational facility for children.



FOOTNOTES

1. Yost, J.R. "Dagoretti Area: a feasibility study". Plan East Africa III (3), May-June 1972, p. 39.

2. Jorgensen, N.O. "On the Problem of Subletting." HRDU, University of Nairobi, 1968.

3. Anderson, K.B. "African Traditional Architecture : A Study of the Housing Settlement Patterns of Rural Kenya." HRDU, University of Nairobi, 1974.

4. The traditional house of the Kikuyu was an oval-walled structure with a thatch roof called a hut. The walls were made of mud-and-wattle and plastered with cow-dung.

5. Kaszner, O. "The Kibera Experimental self - Help Scheme: Explanatory notes on the planning of a low-cost housing scheme in Nairobi". HRDU, University of Nairobi, 1976 p. 16.

CHAPTER SIX

CONCLUSION

The aim of this study has been to examine the socio-economic characteristics and environmental conditions of an uncontrolled urban settlement in the peri-urban area of Nairobi. The theme of the study has been an attempt at bringing the problem of uncontrolled urban settlements into better focus, in the hope that planners and policy-makers will no longer regard it as socially marginal and physically insignificant. Even though a study does not guarantee action, at least, data on the nature and dimension of the problem are a prerequisite. So far there is a lack of basic information on socio-economic conditions of squatters such as income, employment, education, health, etc. and information on these have to be sought soon before considering action programmes.

The discussion of the problem of uncontrolled urban settlements has been treated systematically in this thesis by dividing it into four stages. Firstly, the problem was analysed by examining the available literature on uncontrolled urban settlements in Kenya. Secondly, the uncontrolled settlements of Nairobi were treated from an historical approach. Thirdly, the demographic and socio-economic characteristics of the population of Kawangware were analysed. Finally, housing and related social and physical infrastructural facilities in Kawangware were analysed.

The literature dealing with low-income urban housing in Kenya and sub-standard housing in the uncontrolled urban settlements focuses on a number of central issues. These include estate housing, slum and squatter housing, migrant-host groupings, tenant-landlord relationships, and formal-informal economic activities. From the literature review, it was concluded that data were needed on the origin, numbers, locations and socio-economic status and attitudes of residents towards their settlements. Other necessary information was on income, employment, and education, among others. It was argued that the end goal of planning, should be to provide more housing with better services for the maximum benefit of the communities affected. It has also been concluded that interference with existing social and economic patterns must be kept to a minimum, and the required information already outlined must be sought before embarking on programmes of action by the urban planners.

The historical approach towards uncontrolled urban settlements was based on two facts, namely; that urban life for most Africans has been an alien phenomenon and towns have been largely a product of the present century; and secondly, the fact that Europenas regarded the Africans as not belonging to the towns for a long time and this fact largely influenced the development of land-use patterns in towns, and especially in Nairobi, during the period of colonial administration.

Subsequently, because of the attitudes of the colonial administration towards race relations, the city of Nairobi developed spatially and socio-culturally into three distinct residential areas based on race. Thus, the significant aspect of Nairobi's historical development has been the separation of the various communities. At Independence, colonial restrictions on African migration to towns were suddenly relaxed, and there ensued a huge influx of people into the towns. As soon as these people arrived in the city they were faced by a serious housing problem. As a result, they had either to squat on vacant land or sought cheap accommodation in the peripheries of the city. Most of the housing in the peripheries is spontaneous and sub-standard and the settlements lack in provision of basic social infrastructure.

From the analysis of socio-economic and demographic characteristics of Kawangware population in the study, several conclusions have emerged, namely:-

(a) that Kawangware is inhabited by a young population dominated by men;

(b) that the volume of immigration into Kawangware is very significantly related with the distance to the sources of migrants.

(c) that the majority of residents in Kawangware are married with most families being nucleated; and

(d) that most people in Kawangware have low educational levels with about one-fifth being illiterate and about $3/5$ of the population is employed in the "informal sector" of the settlement.

From the analysis of housing and related infrastructural facilities in Kawangware, it was concluded that in terms of Grade II By-laws, the quality of housing was sub-standard in terms of being overcrowded and high densities of housing structures per plot. This was a result of spontaneous development by the private sector whereby a group of landlords in Kawangware has provided "dormitory" accommodation whilst capitalising on housing shortage in the city. The lack of social and physical infrastructure in the settlement were adequately noted.

From the above analysis a number of tentative solutions with certain planning implications can be suggested not only for Kawangware, but other uncontrolled urban settlements as well. For a long time, urban authorities especially in Nairobi view demolition of squatter or uncontrolled urban settlements as the only solution at their disposal. However, they should bear in mind that demolition of one settlement only forces the occupants to move into other squatter settlements which may be already overcrowded.

To a large extent, demolition tends to block the efforts, the hopes and aspirations of the people concerned. Thus, demolition is viewed as a negative solution for uncontrolled urban settlements. Squatters should be understood as people in transition, heading to better goals. This understanding should enable planners to absorb them into the urban society.

At the outset, the first priority for the City Council of Nairobi should be to recognize the de facto existence of Kawangware. Then concerted efforts at development through upgrading of Kawangware should follow because most of the settlement is in a state of deterioration. Phased improvements should apply to the service-infrastructure and the outdoor environment rather than to space standards within individual household units.

As in Mathare Valley, one of the main difficulties in arriving at an upgrading policy is the question of land-ownership and responsibility for financial costs of future development. In the case of Kawangware, a number of alternative tentative solutions are available. The Government may decide to use its powers of compulsory purchase to buy all private land including the plots on which the landlords have built. The Government could then either lease the land to building companies or undertake further development itself through the City Council of Nairobi or a non-profit making

organization such as the National Christian Council of Kenya (NCCK). Another solution to the development of Kawangware lies in the government providing financial assistance, mainly in form of capital loans, to landlords in Kawangware to improve their property. The latter suggestion would encourage individual effort and is, therefore, more practical. Private development should be subsidized by the City Council by providing public utilities which cannot be afforded by private enterprise.

As discussed in Chapters Three and Five of this thesis, the Muncipal Planning and building regulations are no longer meaningfully applicable to Kawangware and other uncontrolled urban settlements. Such regulations were originally devised to protect the health of a European minority living in "tropical" conditions to the extent of excluding the poor from the city unless they were housed in the official dormitories provided by their employers. However, most development in squatter settlements such as Kawangware, although technically unauthorized is carried out by the legal owners of the plots. The Nairobi City Council planners and policy-makers should in-corporate the output of the private sector in finding a solution to the low-income problem.

On the national level, there should be a clear policy aimed at reducing the main causes of uncontrolled urban settlements.

This policy should be geared towards alleviating the problems of rural-urban migration, population growth and unemployment.

Because rural-urban migration is a result of the existence of uneven distribution of opportunities for industrial employment, it is proposed that the government should tolerate and encourage the "informal sector" activities found mainly in the uncontrolled urban settlements. Moreover, the government, through its parastatal bodies, could establish small industries in such settlements as Kawangware. Efforts to encourage individual initiative from the population of the uncontrolled settlements should be made particularly with regard to development of job opportunities in the informal sector. These people should be given technical, economic and administrative assistance in order to make a greater impact upon urban employment.

Rehabilitation of squatters into site-and-service projects is theoretically a commendable undertaking, but in practice such schemes tend to fail mainly because of laying down the initial house-building standards beyond the financial means of low income households. Typically, the allotee sells his plot to someone who can better afford to build to the required standard. Strict enforcement of regulations of low-cost housing too often actually hinders orderly growth.

Thus, the policy-makers should review their attitude towards re-settlement housing projects i.e. site-and-service schemes. The public sector can best provide technical services and planning guidance as a framework for the previously uncontrolled settlements. After all, squatting is basically a reaction to official oppression and will be minimized by allowing people to provide themselves with housing they can afford. Instead of relocating populations from their present urban settlements, it is suggested that efforts should be focussed on improvement of existing settlements as a more positive move.

Generally, in Kenya, and especially in Nairobi, only limited research has been done on squatter settlements such as Mathare Valley, Kibera and Kawangware. More research should be done on uncontrolled settlements not only in Nairobi, but also other towns in Kenya. In a number of the surveys conducted, information has occasionally been provided about conditions in the uncontrolled urban settlements. However, although studies are done by planners and recommendations thereof made, it is important to know the needs and demands of these settlements.

Another area of further research should be studies to determine the type of industries that should be established in uncontrolled urban settlements such as Kawangware.

Large scale job opportunities are still absent from these settlements and there is a lack of attempts to channel jobs into or near these locations. For the existing "informal sector" activities, there is a need for guidelines along which the scattered economies of these settlements can develop and form a back-bone for these communities.

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APPENDIX A

QUESTIONNAIRE FOR KAWANGWARE HEAD OF HOUSEHOLD SURVEY

"N.B. Information collected in this survey will be Confidential"

Date of Interview .....

Respondent number .....

Person interviewing .....

A. HOUSEHOLD INFORMATION (Head of Household)

1. Sex: Male ( ) 1

Female ( ) 2

2. Place of birth: In Kawangware ( ) 1

In Nairobi ( ) 2

Outside Nairobi ( ) 3

3. If born outside Nairobi, specify District and Province ....

4. How long have you lived in Kawangware?

Less than 1 year ( ) 1

1 - 2 years ( ) 2

2.1 - 3 years ( ) 3

3.1 - 4 years ( ) 4

4.1 - 5 years ( ) 5

Over 5 years ( ) 6

Always ( ) 7

5. Where did you live just before moving to Kawangware?

In Nairobi ( ) 1

Outside Nairobi ( ) 2

6. If in Nairobi specify place of last residence

.....

(ii) Length of time you have lived in Nairobi

.....

7. If you lived outside Nairobi before coming to Kawangware specify:

Town .....

District.....

Province.....

8. How many years have you lived in this house?

Less than 1 year ( ) 1

1 - 2 years ( ) 2

2 - 4 years ( ) 3

4 - 6 years ( ) 4

6 - 10 years ( ) 5

Over 10 years ( ) 6

Always ( ) 7

9. For what reasons did you come to Kawangware?

a) Had friends or relatives already living here ( )1

b) Could find cheaper housing here ( )2

c) Could find better housing here ( )3

d) It was near my place of work ( )4

e) There were many people from my own tribe living here ( ) 5

f) Other reasons (explain) .....

.....

.....

.....

10. COMBOSITION OF THE HOUSEHOLD-

	SEX	RELATION TO HEAD	AGE	OCCUPATION
i)				
ii)				
iii)				
iv)				
v)				
vi)				
vii)				
viii)				
ix)				
x)				

11. Total monthly income of Household .....

(If unwilling to answer say so) .....

12. Would you prefer to live in another neighbourhood if it had the same type of housing and similar rents were charged?

Yes ( )1

No ( )2

13. If Yes, what neighbourhood would you prefer?

Kangemi ( )1

Waithaka ( )2

Kibera (old) ( )3

Muslim Village ( )4

Mathare ( )5

Pumwani ( )6

Kariobangi ( )7

Other (specify) .....

14. Why?

Near place of work ( )1

Better security ( )2

Near friends/relatives ( )3

Lower rents ( )4

Extra amenities (E.g. clubs, social hall, bars, shops, etc)

Better environment ( )5

Good Schools and Clinics ( )6

Other (Specify).....

.....

.....

.....

15. If NO, state reasons .....

16. Ethnic Group: Kikuyu ( )1

Luhya ( )2

Luo ( )3

Kamba ( )4

Other (specify).....

If non-Kenyan state nationality .....

17. Occupation ....

	Location of place of work/school *	No. of one way trips per week	Usual means of travelling **	Time of one way trip(Min)	Distance one-way Ml/Km
(1)					
(2)					
(3)					
(4)					
(5)					
(6)					
(7)					
(8)					
(9)					
(10)					

* Indicate by means of an (S), or (W) whether travel is to school or to work.

**For means of travel indicate: Walking - W; bicycle - Y; bus - B; taxi - T; Motor cycle or scotter - M; Household car - C; Matatu -A; Walk + bus/matatu/ - W+B/A.

23. If travel is to school, state name of school.....

24. Marital Status:
- Single ( )1
- Married ( )2
- Widowed ( )3
- Divorced ( )4
- Separated ( )5

25. Level of Education:
- No education ( )1
- Incomplete Primary ( )2
- Complete PRimary ( )3
- Incomplete Secondary ( )4
- Complete Secondary ( )5
- Higher Education ( )6

Technical education (specify).....

.....

Not clear

26. Are you renting this dwelling or are you an owner occupier?

- RENTING ( )1
- OWNER OCCUPIER ( )2

Other (specify)e.g. staying free.....

.....

B. FOR OWNER - OCCUPIERS ONLY

27. Did you build this structure or did you buy it?

- BUILT ( )1
- BOUGHT ( )2

b) When did you build it? .....

c) When did you buy it? .....

28. Do you own or rent the plot of land?

OWN ( )1

RENT ( )2

b) If you own the plot, did you buy it?

YES ( )1

NO ( )2

c) When did you buy the plot?.....

d) If not bought, how did you acquire it.....

.....

29. How did you finance building of the structure?

From bank loan ( )1

Harambee Housing Companies ( )2

Built in stages as accumulated money ( )3

Other ( )4

30. Do you rent out any part of this structure or building?

Yes ( )1

No ( )2

31. How many rooms do you rent out?

2 - 4 ( )1

5 - 8 ( )2

9 - 12 ( )3

Over 12 ( )4

32. How many and what type or rooms does the dwelling unit you occupy have?

TYPE	TOTAL No.
a) General purpose room (entertaining and sleeping	( )1
b) Living room (sitting and entertaining)	( )2
c) Dining room	( )3
d) Bedroom	( )4
e) Kitchen	( )5
f) Storeroom	( )6
g) Garage	( )7
h) Other (explain)	( )8
Total rooms	

C. FOR RENTERS ONLY

33. What kind of arrangement do you have for renting this dwelling unit?

a) Pay full rent	( )1
b) Pay only part of rent; dwelling belongs to relative/friend	( )2
c) Pay only part of rent; work for owner	( )3
d) Pay no rent; dwelling belongs to relative/friends	( )4
e) Pay no rent; dwelling is provided with job	( )5
f) Pay no rent; guest/caretaker	( )6
g) Pay no rent; works for owner	( )7

34. How much rent per month do you pay for the dwelling unit?

Shs. 20	( )1
" 21 - 40	( )2
41 - 50	( )3
60 - 80	( )4
81 - 100	( )5
101 - 120	( )6
121 - 140	( )7

35. How many rooms are included in this rent?

Part of a room	( )1
1 room	( )2
2 rooms	( )3
3 rooms	( )4
More than 3 rooms	( )5

36. For how long have you been renting this dwelling?

.....

37. Does rent include any other service?

Water	( )1
Electricity	( )2
Furniture	( )3
Shamba land	( )4

Other (specify).....

38. Do you rent out any part of this dwelling unit to other people?

Yes	( )1
No	( )2

39. If YES how many rooms do you rent? .....

40. What is the total monthly rent you receive

Shs.....

41. How many and what type of rooms does this dwelling unit have?

TYPE	TOTAL NO.	
a) General purpose room (entertaining and sleeping)	.....	( )1
b) Living room (sitting and entertaining)	.....	( )2
c) Dining room	.....	( )3
d) Bedroom	.....	( )4
e) Kitchen	.....	( )5
f) Storeroom	.....	( )6
g) Garage	.....	( )7
h) Other (explain).....	.....	( )8
	Total rooms	

42. Have you applied for any of the low income housing scheme e.g. Umoja or Dandora?

Yes ( )1

No ( )2

43. If No, why .....

b) If NO for what reasons? .....

.....

.....

44. Are you satisfied with accommodation here?

YES ( )1

NO ( )2

b) If NO for what reasons .....

.....

.....

c) If YES for what reasons?.....

.....

.....

45. Who is your landlord? An individual ( )1

A family ( )2

Housing co-operative ( )3

Private housing Company (( )4

City Council ( )5

b) Where does he live? Elsehwere in the compound ( )1

Kawangware ( )2

Nairobi ( )3

Outside Nairobi ( )4

D. HOUSING QUALITY AND ENVIRONMENT

46. Type of structure

a) Detached/semi-detached self-contained

Single family ( )1

b) Block of self-contained flats ( )2

c) Lodging house (multiple of one or two room units) ( )3

d) Hut ( )4

47. Structure Composition including adjacent buildings:

Dwelling Unit	No.of habitable rooms in each dwelling unit	No. of households in each dwelling Unit
1.....		
2.....		
3.....		
4.....		
5.....		
6.....		
7.....		
8.....		
9.....		
10.....		
11.....		
12.....		
13..		
14.....		
15.....		

48. Number of full-time shops or kiosks in structure

.....

D. Type of Ceiling

Fibre board ( )1, Mats or cloth ( )2, Cardboard ( )3, Other (specify).....

.....( )4

None ( )5

D. Wall Finish

Unplastered, unpainted ( )1

Unplastered, painted ( )2

Plastered, painted ( )3

Plastered, unpainted ( )4

E. Foundation:

Concrete ( )1, Stone ( )2, Brick ( )3,

None ....( )4

F. Ventilation:

Adequate ( )1, Small windows ( )2, No windows( )3

G. Floor:

Compact earth ( )1, Rough concrete ( )2,

Smooth ( )3, Timber ( )4, Tile linol ( )5,

Other (specify) ..... ( )6

H. Water Pentration of Walls/Roof:

Low ( )1, Medium ( )2, High ( ), Nil ( )4.

49. Number of verandah kiosks/tailor shops, etc..

.....

50. Number of bars in structure.....

.....

51. Other functions (e.g. workshop).....

52. Age of structure:

0 - 2 years	( )1
3 - 5 years	( )2
6 - 10 "	( )3
11 - 15 "	( )4
16 - 20 "	( )5
Over 20 years	( )

53. Building materials:

Thatched ( ) 1, Cardboard ( )2, Flattened tin (scrap) ( ) 3, C.l. Sheets (mabati) ( )4, Asbestos ( ) 5, Tiles ( )6, Concrete (Flat ( )7, Other (Specify).....

.....( )8.

B. WALLS

Cardboard/flattened tin	( )1
Mud and Wattle	( )2
Mud bricks or blocks	( )3
Burned bricks	( )4
Timber ( )5, Concrete blocks	( )6,
Stone ( )7, bamboo/sisal	( )8,
Thatched ( )9 Other (specify).....	
.....(	)10

54. Kitchen Facilities:

Outside but shared	( )1
Outside but private	( )2
Inside the building but shared	( )3
Inside the building but private	( )4
No kitchen facilities	( )5
Cook outside	( )6

55. If No kitchen facilities where do you cook?

Cook inside	( )1
Do not cook	( )2

56. Bathroom facilities:

Outside but shared	( )1
Outside but private	( )2
Inside the building but shared	( )3
Backyard or compound used for bath	( )4
Other (specify).....	( )5
No bathroom facilities	( )6

b) If shared, by how many households .....

57. Space between buildings:

Approx. 10 feet	( )1
" 5 feet	( )2
" Less than 5ft.	( )3

58. Type of cooking facilities:
Wood fuel ( )1, Charcoal ( )2, Kerosine ( )3,
Gas ( )4, Electricity ( )5, Other (specify
.....( )6.

59. Source of water:

Stream or river ( )1, Well ( )2, borehole on plot ( )3, Public borehole ( )4, Pipe borne water on plot ( )5, Pipe borne water in house (shared) ( )6, Pipe borne water in house (private) ( )7, Pipe borne water from plot near-by ( )8, Bought from water seller ( )9, Roof tank ( )10, Other (specify)..... ..... ( )11.

60. How do you dispose of domestic sewage?

Sewer ( )1, Septic tank ( )2, Pit ( )3 Backyard or compound used ( )4, Other (specify) .....( )5

61. Toilet facilities: Flush toilet ( )1, Pit latrine ( )2, Bush ( )3, Other (specify).....( )4

b. Are toilet facilities shared? YES ( )1, NO ( )2.

c).If YES, by how many households?.....

d) How far is the toilet sited from the structure?

Over 30 feet ( )1
" 20 " ( )2
" 10 " ( )3
" 5 " ( )4
Less than 5 ft. ( )5
Within the structure ( )6

62. How do you dispose of refuse?

Dig it down at own plot/compund ( )1

Dump it at pit nearby ( )2

Dump it at communal pit ( )3

Dust bin collection ( )4

Burning ( )5

Other (specify) .....

.....( )6

b) If refuse bins are collected by City Council, then how often?

Less than once a week ( )1

Once a week ( )2

Twice a week ( )3

Daily ( )4

Never ( )5

63. Does this house have electricity? YES ( )1,

NO ( )2.

64. Use of surrounding neighbouring environment:

Subsistence cultivation ( )1

Planted with flowers ( )2

Planted with grass ( )3

Unused (i.e. bush) ( )4

Other (explain).....

.....( )5

65. Do you have difficulties on the roads during rainy season? YES ( )1, NO ( )2.

66. COMPOUND (Up-keep:)

Densely crowded area with no open space ( )1

small open space which is littered ( )2

small open space which is clean and fenced ( )3

amount of open space shows efforts of making it attractive ( )4.

67. State of Building:

Habitable maintained ( )1

Habitable but not maintained ( )2

Not habitable ( )3

68. Access to roads:

Plot has direct access to a paved road ( )1

" " " " " an improved murram road ( )2

Plot does not have direct access to any of above motorable roads ( )3

69. What are the major problems you encounter by living in Kawangware?

Long distance to work ( )1

Lack of security ( )2

Lack of social amenities (clubs,bars,shops etc) ( )3

Lack of facilities (clinics, schools) ( )4

Far from relatives and friends ( )1

High rents ( )2

Other (specify).....( )3

70. What are the main advantages of living in Kawangware?

Near place of work ( )1

Good security ( )2

Adequate amenities (shops,bars,clubs,etc) ( )3

Adequate facilities (clinics, and schools) ( )4

Close to relatives/friends ( )5

Lower rents ( )6

Other (specify).....

.....

.....

71. If the area where you are living was to be improved, (i.e. provision of water, better roads, ungrading of the environment) would you be willing to participate in the work on harambee basis?

YES ( )1

NO ( )2

72. If YES under which conditions?

Against payment ( )1

Free of charge ( )2

73. How many days a week would you be willing to work?

1 day	( )1
2 days	( )2
3 "	( )3
4 "	( )4
5 "	( )5
6 "	( )6
7 "	( )7

74. Make suggestions for making Kawangware a better residential place.

1.....

2.....

3.....

4.....

5.....

6.....

.....

LEGAL NOTICE No. 16

(2915)

THE LOCAL GOVERNMENT REGULATIONS 1963

(*L.N.* 256 *of* 1963)

IN EXERCISE of the powers conferred by regulation 210 of the Local Government Regulations 1963, the Minister for Local Government hereby makes the following Order:—

THE LOCAL GOVERNMENT (ADOPTIVE BY-LAWS) (GRADE II BUILDING) ORDER 1968

1. This Order may be cited as the Local Government (Adoptive By-laws) (Grade II Building) Order 1968.

2. The By-laws set out in the Schedule to this Order shall be the Adoptive Grade II Building By-laws which any municipal or county council may adopt.

SCHEDULE

PART I—PRELIMINARY

1. These By-laws may be cited as the Local Government (Grade II Building) By-laws 1968. Citation.

2. In these By-laws, unless the context otherwise requires— Interpretation.

"building" means any structure, movable or fixed, of whatsoever kind or any part thereof intended to be used as a dwelling house or shop or ancilliary thereto and includes drainage works and excavation;

"building line" means a line drawn across a plot so that no building or permanent structure, except a boundary wall or fence of approved design enclosing the plot, may be erected within the area contained between that line and the plot frontage;

"council" means a municipal council or a county council;

"clerk" means a clerk to the council;

"dwelling house" means a building designed for use exclusively as one self-contained residence, together with such out-buildings as are an ancilliary thereof;

"habitable room" means a room constructed or adopted as a living or sleeping room;

"plot" means any piece or parcel of land whether demarcated by survey or not; and

"residential area" means an area of land which has been approved by the council for use for residential purposes.

3. These By-laws shall apply to all land within the council's area of jurisdiction except where otherwise specified by the council after having obtained the approval of the Commissioner of Lands—and except where the Local Government (Adoptive By-laws) (Building) Order has been applied to an area. Application. L.N. 15/1967.

Erection of buildings not to be approved in certain circumstances.

4. The council shall not approve the erection of any building which is to be erected in contravention of these By-laws or where –

(*a*) the land concerned is unsuitable for any reason for the development purposes;

(*b*) that the plot is located outside the boundaries of an existing or proposed municipality, township, trading centre, market or residential area;

(*c*) the proposal conflicts with the proper planning of the area;

(*d*) the site concerned forms part of an area for which an approved comprehensive layout is, in the opinion of council, desirable

Erection of buildings.

5. Every person who proposes to erect a building on any land within the area specified under by-law 3 of these By-laws shall comply with the requirements of these By-laws, and for the purposes of these By-laws any of the following operations shall be deemed to be the erection of a building after the date on which these By-laws become operative—

(*a*) the erection of any new building;

(*b*) the erection of any addition to an existing building;

(*c*) the re-erection or alteration of any part of any existing building;

(*d*) the roofing over of any space between walls or buildings;

(*e*) the changing of any purpose or purposes for which a building or part of a building or appurtenances of a building are used;

(*f*) the using for human habitation of any building or part thereof which has not been previously used for that purpose;

(*g*) for using of any building in a manner different from that shown on the plans thereof approved by the council whether before or after the date on which these By-laws become operative, and whether or not it is proposed to execute any alterations or work in connexion with the proposed change;

(*h*) the carrying out of any water service or drainage works;

(*i*) any other work which involves the use and assembly of building materials to a structure in any form whatsoever.

Siting of a building.

6. No building shall be sited on a plot otherwise than in accordance with the approval of the council.

Minimum areas of plot and buildings thereon.

7. (1) Except where otherwise approved by the Commissioner of Lands, no plot shall be less than 2,800 sq. ft. in area and not more than quarter of one plot shall be built upon. In calculating the area of the plot which is built upon, the verandah or any part of the plot which is not open to the sky shall be included.

(2) No building shall be erected within 5 ft. of a boundary of the plot on which it stands unless the council expressly so authorizes in any particular case:

Provided that—

(i) a latrine may be sited on the line of a back boundary or on a side boundary of a plot if it forms part of a semi-detached building containing any other latrine on an adjoining plot; and

(ii) buildings constructed of grass or other inflammable material shall be sited not less than 10 ft. from any side boundary.

8. (1) Every dwelling house must be provided with a latrine of a type approved by the council.

Latrine.

(2) A pit latrine shall be at least 20 ft. in depth from ground level to the bottom of the pit, and shall be provided with a roof the height of which shall be at least 6 ft. 6 in. from the floor to the underside of the roof or ceiling. A pit latrine shall also be provided with a concrete stance and with a fly-proof cover.

(3) A latrine shall be sited in a position approved by the council and shall not be nearer than 30 ft. from any habitable room, or room used for the preparation, cooking or storage of food:

Provided that, in exceptional circumstances, the council may, on the advice of the Medical Officer of Health of the council or Chief Health Inspector of the council, permit a pit latrine to be constructed within 30 ft. from a habitable room.

9. Every dwelling house shall consist of at least one habitable room in addition to a kitchen, ablution and privy accommodation for the exclusive use of the occupants of the house.

Dwelling house.

10. (1) Where a ceiling is provided, the average height of a habitable room shall be not less than 7 ft. 9 in. with a minimum height of 7 ft. Where a ceiling is not provided the average height measured to the underside of the roof covering shall be not less than 8 ft. 3 in. with a minimum height of 7 ft.

Habitable rooms.

(2) Every habitable room shall have a superficial area of not less than 75 sq. ft., with a minimum width of 6 ft. 6 in. and shall contain a minimum area of 40 sq. ft., for each person accommodated therein:

Provided that in every dwelling of two or more habitable rooms there shall be constructed one habitable room having a superficial floor area of at least 120 sq. ft.

11. The area of the kitchen shall not be less than 25 sq. ft. and not less than 7 ft. in height at any point from the floor to the underside of the roof or ceiling and shall have a satisfactory outlet for smoke and fumes and be lighted and ventilated in accordance with by-laws 13 and 14 of these By-laws.

Kitchen.

Bathroom.

12. The bathroom shall be at least 2 ft. 6 in. by 4 ft. 6 in. and if roofed, shall be provided with lighting and ventilation in accordance with by-laws 13 and 14 of these By-laws. The minimum height of any such bathroom, from the floor to the underside of the roof or ceiling shall not be less than 6 ft. 6 in. and adequate provision shall be made for the disposal of all waste water by means of a trapped and properly covered soak pit or other method approved by the council.

Windows.

13. Every habitable room, kitchen, roofed bathroom and latrine shall be provided with a sufficient number of windows opening to the external air so as to provide a clear lighting area equal to at least one-tenth of the floor area of such room, and of which at least one-twentieth of the floor area shall be capable of being opened.

Ventilation.

14. Every habitable room, kitchen, roofed bathroom and latrine shall be provided with permanent through or cross ventilation by means of openings which shall give direct access to the external air and the aggregate area of any such openings shall be equal to at least one-hundredth of the floor area of any such room.

Surface water drainage.

15. Surface water drainage shall be provided to the satisfaction of the council.

Fencing.

16. If so required, by the council, the owner of the plot shall cause the plot to be fenced in such manner and by the use of such material as may be required by the council.

Relaxation of by-laws.

17. Where any building is required for a temporary period not exceeding six months, the council may at its discretion, permit a relaxation in respect of the by-laws relating to latrines, ablutions and kitchens.

Part II—Method of Construction

Foundations.

18. Foundations shall be adequate to support the load transmitted to them and be generally to the satisfaction of the council.

Walls.

19. No walls shall be constructed to a lower specification than wattle or similar timber adequately framed together and filled and covered with mud. Such walls shall be capable of supporting the roof. The covering shall be of adequate thickness and the surface internally and externally shall be sealed and brought to a smooth finish in materials approved by the council and decorated and maintained in a sound and good condition and be redecorated from time to time as required by the council:

Provided that the council may specify the materials to be used in constructing and finishing the walls.

Floors.

20. Every floor shall have a smooth finish and shall be at least 6 in. above the surrounding ground level. A floor shall be constructed of concrete, compacted earth or such other materials as approved by the council.

Roof.

21. Every roof shall be of corrugated iron, aluminium, asbestos or other permanent materials or shingles as may be required by council and shall be supported on an adequate frame of poles, timber or similar material. Any material used shall be in good condition and the roof shall be so constructed as to be weatherproof and regular in shape and the pitch of the roof shall conform with the council's requirements:

Provided that—

(i) where roofs are to be constructed of corrugated iron or aluminium the council may require that ceilings be provided and that corrugated iron roofs be painted and maintained from time to time, and

(ii) the council on the advice of the Town Planning Advisor may set aside either the whole or part of a Grade II building area where roofs may be permitted to be constructed of grass or other similar material.

Frames of doors and shutters.

22. Frames of doors and shutters shall be construed in such a way as to be rigid and shall be firmly fixed in the walls.

Bathrooms and latrine doors.

23. Bathrooms and latrines and each habitable room shall be provided with doors or shall be screened in a manner approved by the council. Such doors shall be at least 2 ft. 3 in. wide and 6 ft. 6 in. high.

Well.

24. No person shall construct a well in connexion with any building, except with the approval of the Medical Officer of Health of the council or the Chief Health Inspector of the council.

Part III—Miscellaneous

Applications for erection of buildings.

25. Every person proposing to erect any building in an area to which these By-laws apply shall lodge with the council an application on a form obtainable from the council and three copies of the plan of the proposed building showing its siting and the layout of the site together with a front and back elevation of the building and section of the building from the foundations to the uppermost part of the structure to illustrate the construction thereof, with all drawings delineated in a clear and intelligible manner and signed by the applicant or his duly authorized agent. The plans shall specify the proposed use of each room and give details of the method of construction and materials to be used:

Provided that where an approved council "type" plan is used the provisions of this by-law shall be met if the owner signs and deposits three copies of such plan together with the application form duly completed with the council.

Fees.

26. Applications made under by-law 25 of these By-laws shall be accompanied by a fee of Sh. 40 for a single dwelling or alterations thereto and an additional fee of Sh. 20 for each additional dwelling included in the application.

Decision on applications.

27. The council shall approve or disapprove the plan for the erection of a building and it shall signify notice of its decision thereon as soon as practicable after receipt thereof. Such notification shall be given within a maximum period of two months of the receipt of an application in accordance with these By-laws.

Approval by the Council to be void in certain circumstances.

28. The approval of the council of any plans for the erection of a building shall be null and void if—

(*a*) the erection has not been commenced within three months after the date of such approval; or

(*b*) erection has been commenced but the building has not been completed within a period of twelve months from the date of approval, unless the council has agreed to grant an extension of time.

Erection of buildings without approval prohibited.

29. (1) No person shall—

(*a*) commence to erect a building without plans thereof having been approved by the council, or in respect of which the approval of plans has become null and void; or

(*b*) having obtained the council's appproval to the plans for the erection of a building, erect such building otherwise than in accordance with the approved application and plans thereof.

(2) Without prejudice to the liability of any person under paragraph (1) of this by-law, the council may serve upon such person or upon the owner of the land upon which the building is erected, a notice under the hand of the clerk requiring him within a period of time specified in such notice to do all or any of the following things—

(*a*) to cease the erection of such building;

(*b*) to erect such building strictly in accordance with the approved plans;

(*c*) to execute such work or alterations or additions to such building as may be prescribed in such notice in order to render such building safe and sanitary or otherwise conform with the requirements of these By-laws;

(*d*) to remove or demolish such building.

(3) If any person, on whom a notice has been served as aforesaid, fails to comply with all or any of the requirements of such notice, then the council may, after not less than 48 hours notice in writing given under the hand of the clerk served upon such person, enter the premises and execute such alterations or additions to such building or remove or demolish the building without liability for any loss or damage which may be occasioned thereby and may recover the cost thereof from such person as a civil debt.

Notice of intention to commence building.

30. After plans have been approved by the council the applicant shall give notice to the council in writing of his intention to commence building and shall not commence building until the site of the building has been marked out by the owner and approved by the council.

Occupation of building without permit prohibited.

31. No person shall occupy or permit the occupation of any building to which these By-laws apply until he has obtained from the council a permit in writing authorizing occupation of such premises. Such permit shall not be issued unless the council is satisfied that the building has been erected in accordance with the application and approved plans thereof and that the construction is to a standard not lower than is required by these By-laws.

Penalty.

32. (1) Any person who contravenes or fails to comply with any of the provisions of these By-laws shall be guilty of an offence and liable—

(*a*) to a fine not exceeding two thousand shillings in respect of a first offence and not exceeding three thousand shillings in respect of a second or subsequent offence, or imprisonment for a period not exceeding six months in respect of a first offence and not exceeding nine months in respect of a second or subsequent offence, or both such fines and such periods of imprisonment; and

(*b*) in addition to the above penalty, in the case of a continuing breach, to a fine not exceeding twenty shillings for each day or part thereof during which such an offence shall continue:

Provided that the aggregate of any fines imposed in the case of any one continuing offence shall not exceed two thousand shillings.

(2) In addition to any penalty as aforesaid, any expenses incurred by the council in consequence of the breach of any of these By-laws or in the execution of any work directed under these By-laws to be executed by any person and not executed by such person, shall be paid by the person committing such breach or failing to execute such work.

Made this 29th day of November 1968.

L. G. SAGINI,
Minister for Local Government.

GPK 1115—1,500—4/70

APPENDIX C

UNIVERSITY OF NAIROBI

SURVEY OF EASTERN DAGORETTI: INFRASTRUCTURE-USER REACTION QUESTIONNAIRE

PRIMARY SCHOOLS:

Name of school _____

Date of interview _____

1. Respondent number _____

2. Sex: Male ( ) 1

Female ( ) 2

3. Place of Birth:

In Dagoretti ( ) 1

Outside Dagoretti, but

in Nairobi ( ) 2

Outside Nairobi ( ) 3.

4. If born outside Nairobi, specify the

District and Province _____

5. Age-Group: 0-4 years ( ) 1

5-9 " ( ) 2

10-14 " ( ) 3

15-19 " ( ) 4.

6. TRIBAL GROUP: Kikuyu ( ) 1

Luhya ( ) 2

Luo ( ) 3

Kamba ( ) 4

Other ( ) 5 (Specify _____).

7. Chief occupation of father/mother/guardian (i.e. the head of your family):

Professional, Manager & Upper administrator	( ) 1
Clerical, teachers and lower administrators	( ) 2
Shopkeepers & small business owners	( ) 3
Skilled & semi-skilled	( ) 4
Unskilled & casual labourers	( ) 5
Farmer	( ) 6
Landlord	( ) 7
Student	( ) 8
Unemployed	( ) 9

8. Where do you live? (Give exact location, e.g. sublocation, nearest street, village, etc).

_____

9. How far is your home from here in terms of miles?

Less than 0.5 miles	( ) 1
0.5 - 1.0 miles	( ) 2
1.1 - 1.5 "	( ) 3
1.6 - 2.0 "	( ) 4
2.1 - 3.0 "	( ) 5
3.1 - 4.0 "	( ) 6
4.1 - 6.0 "	( ) 7
Over 6.0 "	( ) 8

10. Approximately how long does it take you to travel from your home to school?

Less than 15 minutes	( ) 1
15 - 30 "	( ) 2
31 - 45 "	( ) 3
Over 45 minutes	( ) 4

11. How far do you find the school from where you live?

Very far	( ) 1
Far	( ) 2
Reasonable	( ) 3
Near	( ) 4
Very near	( ) 5

12. What is the usual chief means of travelling to school?

Walking	( ) 1
Use bicycle	( ) 2
By Bus/Matatus	( ) 3
By car	( ) 4
Other (Specify _____)	( ) 5

13. BELOW QUESTIONS TO BE ANSWERED BY HEADMASTER:

(a) Total number of pupils _____

(b) " " " teachers _____

(c) Grades of teachers:

Grade	Total number
S1 _____	_____
P1 _____	_____
P2 _____	_____
P3 _____	_____
P4 _____	_____

GRADE	TOTAL NUMBER
Untrained _____	_____

(d) Number of classrooms _____

14. Quality of buildings:

(i) Roof type:
- Cl sheets ( ) 1
- Tiles ( ) 2
- Thatch ( ) 3

(ii) Walls:
- Stone ( ) 1
- bricks and slabs ( ) 2
- mud and wattle ( ) 3
- plastered ( ) 4

(iii) Floor:
- Cemented ( ) 1
- earth ( ) 2

(iv) Toilets: No. of toilets _____

(v) Type of toilet:
- Pit latrine ( ) 1
- Septic tanks ( ) 2
- Other (specify _____ ( ) 3

(vi) Overall quality of the buildings (judged by all the above factors):
- very good ( ) 1
- good ( ) 2
- fair ( ) 3
- poor ( ) 4
- very poor ( ) 5

15. Number of 4-K Club members in the school _____

16. Proposals for expansion in the next two years or so:

17. Any other comments:

APPENDIX D

SURVEY OF EASTERN DAGORETTI: INFRASTRUCTURE-USER REACTION QUESTIONNAIRE

HEALTH CENTRES

Name of Centre _____

Date of interview _____

1. Respondent number _____

2. Sex: Male ( ) 1
   Female ( ) 2

3. Place of Birth:

   In Dagoretti ( ) 1
   Outside Dagoretti, but in Nairobi ( ) 2
   Outside Nairobi ( ) 3

4. If born outside Nairobi, specify the District and Province.

5. How long have you lived in Dagoretti?

   Less than 1 year ( ) 1
   1 - 2.0 years ( ) 2
   2.1 - 3.0 years ( ) 3
   3.1 - 4.0 years ( ) 4
   4.1 - 5.0 years ( ) 5
   Over 5 years ( ) 6
   Always ( ) 7

6. If you have not always lived in Dagoretti, what was your last place of residence?

   Specify: Town _____

   District _____

   Province _____

7. Age Group:

0 - 9 years	( ) 1
10 - 19 years	( ) 2
20 - 29 years	( ) 3
30 - 39 years	( ) 4
40 - 49 years	( ) 5
50 - 59 years	( ) 6
Over 60 years	( ) 7

8. Ethnic Group:

Kikuyu	( ) 1
Luhya	( ) 2
Luo	( ) 3
Kamba	( ) 4
Other (specify _____)	( ) 5

9. Chief occupation:

Professional, Manager and Upper administrator	( ) 1
Clerical, teachers and lower administrator	( ) 2
Shopkeepers and small business owners	( ) 3
Skilled and semi-skilled	( ) 4
Unskilled and casual labourers	( ) 5
Farmer	( ) 6
Landlord	( ) 7
Student	( ) 8
Unemployed	( ) 9

10. Marital status:

Single	( ) 1
Married	( ) 2
Widowed	( ) 3
Divorced	( ) 4
Separated	( ) 5

11. Where do you live? Give exact location, e.g. sublocation, nearest street, village, etc.)

12. How far is it from here in terms of miles?

Less than 0.5 miles	( ) 1
0.5 - 1.0 miles	( ) 2
1.1 - 2.0 miles	( ) 3
2.1 - 3.0 "	( ) 4
3.1 - 4.0 "	( ) 5
4.1 - 6.0 "	( ) 6

13. Approximately how long does it take you to travel from your home to this clinic?

Less than 15 minutes	( ) 1
15 - 30 minutes	( ) 2
31 - 45 "	( ) 3
Over 45 minutes	( ) 4

14. What is the usual chief means of travelling to this clinic?

Walking	( ) 1
Use bicycle	( ) 2
By Bus/Matatu	( ) 3
By car	( ) 4
Other (specify _____)	( ) 5

15. How far do you find this clinic from where you live?

Very far	( ) 1
Far	( ) 2
Reasonable	( ) 3
Near	( ) 4
Very near	( ) 5

16. Approximately how often do you visit this clinic?

Once a week	( ) 1
1 - 2 times a month	( ) 2
Once in 3 months	( ) 3
Once in 6 months	( ) 4
Once a year	( ) 5

17. Purpose of visit?

Personal treatment	( ) 1
Children's treatment	( ) 2

18. Are you satisfied with the services offered by this clinic?

Yes	( ) 1
No	( ) 2
Indifferent	( ) 3

19. If NO, what are your reasons?

Far from home	( ) 1
Overcrowding and queuing for long time	( ) 2

Rare visits by doctor	( ) 3
Impolite nursing staff	( ) 4
Unattractive premises	( ) 5
Delayed attention to serious patient cases	( ) 6
Any other (Specify _____)	( ) 7

20. In your opinion, what are the possible solutions to these problems?

Build a clinic nearer home	( ) 1
Expand clinic to accommodate more patients	( ) 2
Increase number of doctor visits	( ) 3
Improve services of nursing staff	( ) 4
Others (Specify _____)	( ) 5

21. Any other comments _____

_____

_____

_____