

DEVELOPMENT PLAN FOR KIAMBU TOWN

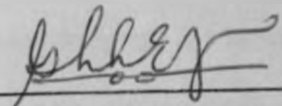
AD 2000

A thesis submitted in part fulfilment
for the degree of M.A. Planning of
the University of Nairobi in 1977/78

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DECLARATION

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


KURIA-GATHONI (Author)

This thesis has been submitted for examination with my approval as University supervisor.

PROF. SUBBAKRISHNIAH (Supervisor)

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PREFACE

When I first set out to prepare the course the present and future development of Kiambu Town should take, I visualized a purely urban structure plan typical of the development plans of our towns to-day which essentially cater for only urban or urban-oriented facilities and activities. Kiambu, though a designated urban area as the word "town suggests, differs from such other centres in the sense that most of the town area (about 94%) is predominantly under agricultural development. Therefore, after careful study, analysis and comprehensive assessment of the actual needs of the study area and of the aspirations of its residents (comprising both urban and rural people) it was found appropriate to prepare an urban structure plan within the context of a predominantly rich agricultural environment. In other words, an urban-country structure plan incorporating both urban and rural aspects within the same development framework was evident. Of course, it took me some time to convince myself that this would be the right course of development as this is already a novelty here (and probably elsewhere), but after discussing with many colleagues and the people of Kiambu (including politicians and officials), I boldly came out fully convinced that this is the appropriate and desired line of development not only for Kiambu Town but for other human settlements in Kenya as well where conditions are adequately favourable for agricultural development and promotion of other rural-oriented activities.

Throughout the course of the study, I have received considerable assistance from various people (with varying expertise and backgrounds) in form of information, advice, guidance, encourage-

ment, as well as material help in one form or another. Space cannot allow me to list all of them and their respective contributions but the following command some special mention due to their special contributions: The Town Clerk/Treasurer, Councillors and other officials of the Kiambu Town Council and Kiambu County Council who have been a wealth of intimate advice and valuable information about the town; Messrs Waweru and Gatheru (NCC, Quantity Surveying Section), Mr. Mbugua (NCC, Valuation Section), Mr. Nguiguti (NCC, Water and Sewerage Department), Mr. Kuria (Ministry of Works, Cost Planning Division), Mr. Munoru (Ministry of Water Development) and Mr. Njoroge (Ministry of Finance and Planning) all of whom have unreservedly furnished me with their most valuable expert advice, information and guidance; Prof. Subbkrishniah (my thesis supervisor) and other members of the staff (Urban and Regional Planning Department, UoN) whose constructive criticism and scholarly guidance have been of tremendous help to me throughout my studies; my many colleagues at the University and elsewhere whose encouragement and advice have been invaluable at all times; and lastly, but not the least, my wife, Rose, who unreservedly and tirelessly offered her valuable secretarial assistance in typing and arranging my work.

All of these and their esteemed contributions in various forms have markedly been instrumental in shaping my work and I therefore, whole-heartedly extend my deep gratitude and indebtedness to all of them and to those others whose names have not been mentioned.

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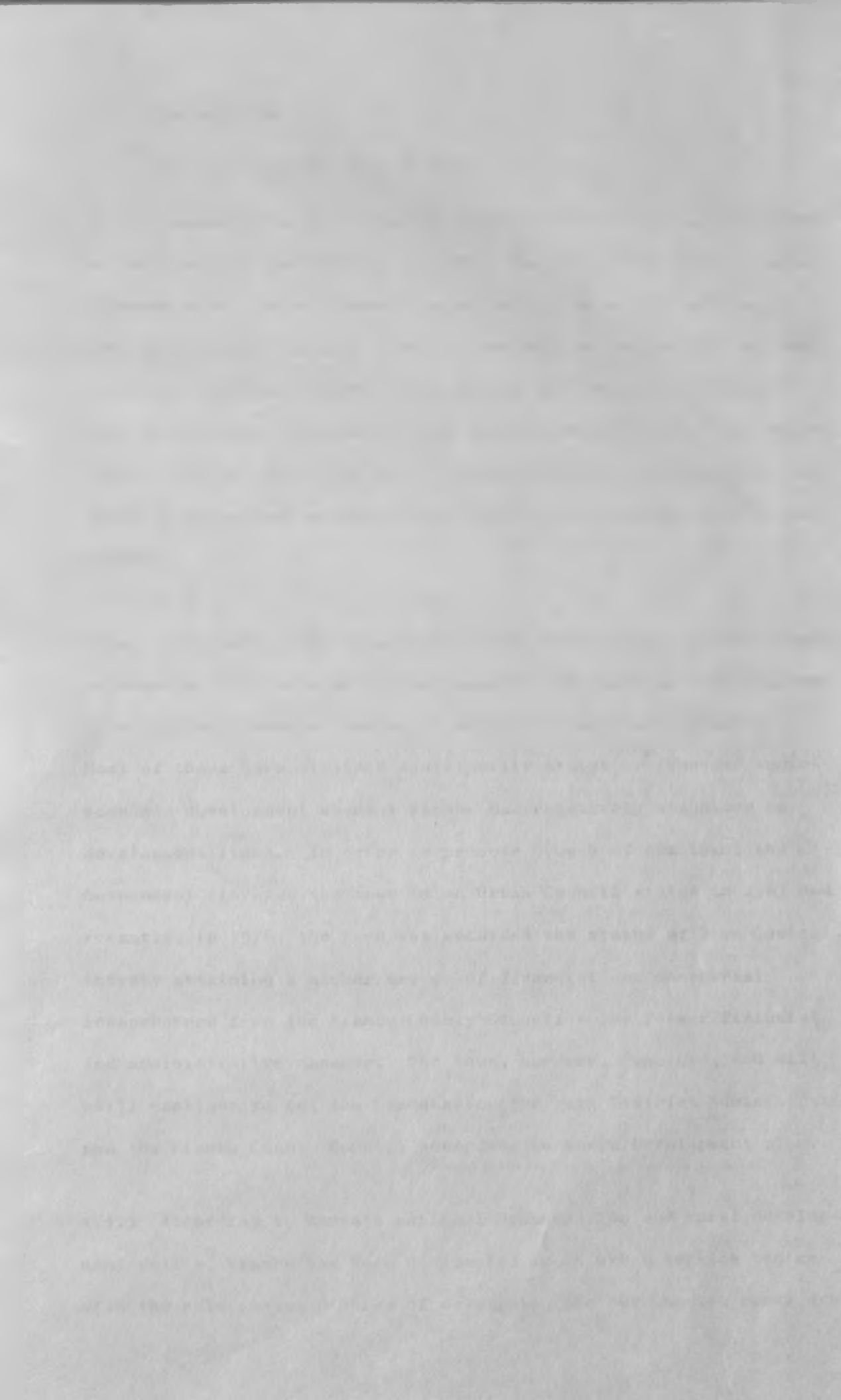
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1.0 INTRODUCTION

1.1. NATIONAL AND REGIONAL SETTING

1.1.1 Kiambu is a major trading centre situated only 16 kilometres to the north of the City of Nairobi. The two towns have a common boundary which is only some five kilometres from the built-up area of Nairobi. Kiambu is within the Nairobi region and has had, and will continue to have, close social and economic relations with the City and also with other nearby urban centres (e.g. Ruiru, Karuri, Limuru) and these will affect positively or negatively the scale of social and economic facilities to be provided in the town itself.

1.1.2 The Town's historical background¹ reveals that Kiambu became a Township with the creation of Township Ordinance in 1903 together with Nairobi, Mombasa, Nakuru, Eldoret, Naivasha and Machakos. Most of these have attained municipality status or renowned socio-economic development whereas Kiambu has relatively stagnated on development lines. In order to promote growth of the town, the Government elevated the town to an Urban Council status in 1963 and recently, in 1974, the town was accorded the status of Town Council, thereby attaining a higher degree of financial and managerial independence from the Kiambu County Council - its former financial and administrative manager. The town, however, remained, and will still continue to be, the headquarter for both District Administration and the Kiambu County Council, according to Kenya Development plan.

1.1.3 According to Kenya's national urbanization and rural development policy², Kiambu has been designated as an urban service centre with the role (among others) of developing the surrounding rural area

1.1.4 Similarly, Kiambu has been designated (along with other outlying townships namely, Kikuyu, Limuru, Athi River, Machakos) as an important service centre according to the Nairobi Metropolitan Growth strategy.³ According to this strategy, these townships should be officially encouraged to grow as separate towns distinct from Nairobi and local small-scale industries (possibly based on agriculture) should be located there so as to relieve housing and employment pressures on Nairobi. Owing to this and other overriding factors the regional strategy for the growth and expansion of Nairobi does not involve expansion of the city in the direction of Kiambu but to the west and to the north-east along the axis of the Thika Road.

1.1.5 The dormitory character of the town is evidenced by a considerable proportion of workers commuting daily to places of work outside the town such as Nairobi (19%) and other centres of employment (2.3%) particularly Limuru, Karuri, Ruiru and even Thika which is over 30 kilometres away.⁴

1.1.6 Locally, the coffee farms (the Settled Area) are a major location for wage employment with 13.2% of employment located there - and also the chief source of Kiambu Town Council's revenue (47%).⁵ Agriculture is the mainstay of the majority of the rural population, or so to speak, the whole of the town.

1.1.7 Kiambu is well situated in relation to the regional road system.⁶ It is at the crossroads of two regional roads namely, Nairobi/Githunguri Road and the Kikuyu/Ruiru Road. Two other main roads radiate from the town to Limuru and Marigi trading centres. The town, therefore, has good accessibility to the



- ★ THIKA
- ★ REGIONAL ROAD NETWORK AND SERVICE CENTRE
- ★ PRINCIPAL TOWN
- ◼ URBAN CENTRE
- ▲ RURAL CENTRE
- ◼ MARKET CENTRE
- LOCAL CENTRE
- ▨ INTERNATIONAL/NATIONAL ROAD
- ▨ REGIONAL ROADS
- ▨ LOCAL ROADS
- ▨ MINOR ACCESS ROADS
- ⋯ DISTRICT BOUNDARY
- ▲ DIVISIONAL HEADQUARTERS

city of Nairobi and also to the rich agricultural hinterland of Kiambu District. It also has good road links with the divisional administrative centres of Gatundu, Githunguri, Limuru, Karuri and Kikuyu. It can be concluded that accessibility, therefore and early urban development of the town and probably its nearness to the capital City of Nairobi were the main decisive factors in the selection of Kiambu as the Headquarters for Kiambu District.

1.1.8 With regard to recreational facilities, Kiambu is within easy reach of Nairobi National Park, the National Museum (Nairobi) the Escarpment Scenic area (Limuru), the Fourteen Falls (Thika) and, of the course, the beautiful rural and agricultural landscape in the surrounding areas. Also within easy reach are the Karura, Kamiti and Kiambu forests. The latter is within the town's area of jurisdiction.

1.2 THE PURPOSE OF THE STUDY

1.2.1 Up to now, there is only one development plan (prepared in 1971) for Kiambu town covering only the space within the old urban area⁷. This means that the development plan was prepared before the two boundaries were extended (in 1974) and, therefore, does not cover the extended area. Furthermore, the development plan was inadequate for the purpose of efficient comprehensive development of the area since it only recorded the then existing land uses and proposed others without proper and realistic assessment of the present and future land requirements and

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without catering for the needs (present and future) and aspirations of the Kiambu people. The plan did not recognize the existing land-use conflicts and the need to organize or reorganize these spatial systems to form a cohesive urban structure. In essence, therefore, the plan was a mere land-use map. Absence or lack of a proper development plan has resulted in piecemeal development of an uncontrolled and unco-ordinated nature throughout the entire town area. Consequently, the town lacks a coherent form and character and resultant deterioration of the environment in most parts is evident. This, essentially, dictates the need for an immediate comprehensive development plan with a predetermined aim of giving proper direction and co-ordination to various present and future rural and urban development activities of the town thereby forestalling the drift into chaos in the yet undeveloped areas of the town and the gradual reconstruction and/or improvement of the developed area of the town with particular attention to the blighted sections and improved circulation.

1.3 THE CONCEPT OF THE DEVELOPMENT PLAN

1.3.1 In the recent times, the concept of development plans, as has been developed in such countries as Great Britain and other developed countries, has changed in form, content and procedure. It reflects the advances in planning techniques which have taken place over the last twenty years or so and the growing complexity and urgency of planning problems. The context of the modern

development plan has widened into four important respects since the original system was laid down almost twenty years ago.

1.3.2 First, development plans must be prepared and examined in the light of national and regional/sub-regional planning policies.

1.3.3. Secondly, the new development plan system will be concerned not only with use of land but also with the many other matters which are vital to the proper planning of an area. In particular the new system provides a means for the full integration of land use and transport planning throughout the process. The new plans will be concerned not merely with the way in which parcels of land shall be used, but with the problems of movement and communications which arise because people live, work or play on the land. Nor will the plans look at these problems solely from the aspect of the land requirements implicit in them - the provision of land for roads, car parks, bus stations and so on. They will be concerned with relating the provisions of the plan as a whole to policies for the movement of people and goods which will include proposals for the management and control of road traffic and for maintaining a balance between public and private means of transport.

1.3.4. Thirdly, the new plan will also reflect the main lines of housing policy for the area; for the balance between conservation, improvement, redevelopment and new development, and the timing of major housing schemes under any of these heads will have important effects on the provision of land that needs to be made and on the

pattern of communications. Other major projects, whether by government departments, the planning authority, other local authorities, statutory undertakers or private enterprise will also have to be woven into the plan; and the plan as a whole must pay realistic regard to the likely levels of future investment.

1.3.5 Finally, and not the least, the new system, with its more positive approach, will facilitate the creation of a good environment in both town and country.

1.3.6. This calls for a broader and more flexible range of plans; and new-style development plans will be made up of two main elements. The first will be the STRUCTURE PLAN: a written statement illustrated diagrammatically, of a local planning authority's policies and main proposals for change on a large scale. The second will be the LOCAL PLANS, which will be concerned with the more detailed implementation of the policies and proposals of the structure plan.

1.4 ASSUMPTIONS, LIMITATIONS AND GUIDELINES

1.4.1 As explained above, a comprehensive development plan would involve much detailed studies and information gathering which time does not permit in my present study. For this reason I wish to limit myself primarily to preparation of a Structure Plan which would provide the basis for more detailed work in

future as need be. (I) shall, however, give a tentative reorganization of the town centre. Also for the same reasons I shall assume that national and regional recommendations and policies will hold, "mutatis mutandis", as regards the study area. Further, Kiambu is assumed to continue being the Headquarters for Kiambu District and therefore district administrative and associated institutions will continue to locate there. Briefly, then, the structure plan, among other things, will primarily perform the six closely related functions set out below:

- 1.4.1.1 Interpreting national and regional policies;
- 1.4.1.2 Establishing aims, policies and general proposals for the entire town.area;
- 1.4.1.3 Providing framework for more detailed local plans;
- 1.4.1.4 Indicating action areas (i.e. priority areas for intensive action) and, possibly, the nature of their treatment;
- 1.4.1.5 Providing guidance for development control; and
- 1.4.1.6 Providing a co-ordinated basis upon which various interests can develop individual programmes of work for which they have executive responsibility.

1.5 INFORMATION SOURCES

1.5.1 As has been mentioned before, Kiambu Town is within the region of the City of Nairobi. Before arriving at the appropriate regional strategy for the growth of Nairobi, the Nairobi Urban Study (NUS) carried out several regional studies which, of course, covered (though not so much in detail) the study area.

1.5.2. The students of the Kiambu Institute of Science and Technology (KIST), too, have made a number of studies in the study area - particularly in Kiambu Urban Area and Ndumberi village. Their studies, unlike those of the Nairobi Urban Study, have been more localized and, therefore, more detailed.

1.5.3 The Central Bureau of Statistics of the Ministry of Finance and Planning has a wide variety of data and information on population, employment and industry, commerce and incomes. However the data and information available here are somewhat limited as they cover only the old Kiambu Urban Area and no specific data or information is available here for the extended town area including the rural villages.

1.5.4 The Physical Planning Department and the Survey of Kenya both of the Ministry of Lands and Settlements, the National Agricultural Laboratories of the Ministry of Agriculture, the Geological and Mines Department of the Ministry of Natural Resources and the Meteorological Department of the East African community have been the main sources of data and information on physical aspects.

1.5.5 Other sources of information and data include Ministries of Water Development, Works, Housing, Labour, Commerce and Industry, and the Office of the President. Nairobi City Council, and the Kiambu Town and County Councils were also a major source of valuable information.

1.5.6 The above information and data sources were supplemented with frequent and extensive field visits and surveys - household surveys, traffic surveys, physical surveys as well as personal interviews with both members of the public including the politicians and government and council officials.

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1.6 RESEARCH METHODOLOGY

1.6.1 Household Survey⁹: Using the questionnaire as set out in Appendix IA, a field survey was conducted by four School-Certificate leavers. A total of 652 households were interviewed. These were drawn from all parts of the town area : Kiambu Town proper, the Shamba Area, the villages and the Coffee area.

1.6.1.1 Determination of the Survey Sample:

.1 The first step was to determine the appropriate population estimates for the survey area. This was done as follows:

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.1.1 Kiambu Urban Area population:

The 1969 census population for Kiambu Town was 2776. Applying an urban growth rate of 7% per annum (urban growth rate for Kenya) a population estimate of 4740 was obtained for Kiambu Urban Area in 1977.

.1.2 Village Population :

By assuming a population density of 10 persons per plot the following population estimates were made:

TABLE 1: VILLAGE POPULATION

Village	No. of Plots	No. of persons/plot	1977 Estimated Population
Ndumberi	522	10	5220
Kanunga	372	10	3720
Riabai	318	10	3180
Total	1212	10	12120

.1.3 Shamba Area Population:

Taking 1969 census population for Kiambaa Location and finding by proportion (70% of the location population) that population estimated to live within the present Shamba Area (including the villages) by then, a population estimate of 21208 was obtained in 1969. Using a growth rate of 3% per annum (growth rate for rural Kenya), 1977 Shamba population was estimated at 27060 (inclusive of village population). Subtracting village population of 12120 as obtained above, a net population of 14940 for Shamba Area was obtained.

.1.4 Settled Area Population:

Similarly by using proportion (80% of the Settled Area population) the 1969 Settled Area population was obtained as 5736. By employing a population growth rate of 3% as above, 1977 population of 7320 was obtained for the Settled Area.

.1.5 Total Population:

By adding up population for respective areas a total population estimate of 39120 was obtained for the whole of the town area.

TABLE 2 : ESTIMATED 1977 POPULATION

Area	1977 Population Estimates
Kiambu Urban Area	4740
Ndumberi Village	5220
Kanunga Vill ge	3720
Riabai Village	3180
Shamba Area	14940
Settled Area	7320
Total Population	39,120

.1.6 Number of households interviewed:

By assuming a household size ranging from 3 to 9 persons per household an average of 6 persons per household was obtained. Therefore, at the ratio of 6 persons per household a population of 39120 has 6520 households or in other-words, 6520 household-heads. Assuming 10% as acceptable representative sample, a total of 652 household-heads were to be interviewed. These were then distributed throughout the town area as follows:

TABLE 3 : NUMBER OF HOUSEHOLDS INTERVIEWED

Area	1977 Population	No. of h/holds	10% survey Sample
Kiambu Urban Area	4740	790	79
Ndumberi Village	5220	870	87
Kanunga Village	3720	620	62
Riabai Village	3180	530	53
Shamba Area	14940	2490	249
Settled Area	7320	1220	122
Total Population/ Households	39120	6520	652

1.1.7 Method of Selection:

Generally, households with even plot numbers were interviewed. In most cases, plots had more than one households living on them. In such cases and where it was necessary to interview more than one household, the first household next to the gate and every other one were interviewed. In any case, the number of households interviewed per plot never exceeded three.

1.6.2 Traffic Survey¹¹

Using traffic counts sheets as illustrated in Appendix II, traffic counts were made at four stations situated along the four main vehicular arteries leading into and out of Kiambu Urban Area. Traffic counts were made between 6.30 a.m. and 6.30 p.m. for four days Monday, Wednesday, Friday and Sunday. For final

recording, average for four days was entered into data sheets for each station. An observation was also made of through vehicular traffic and also of the vehicle movement at and around the bus-station in Kiambu Urban Area, and at the Kiambu Market Area, there by establishing the condition of car, lorry and bus/matatu parking.

1.6.3 Other Surveys:

Several general physical surveys were also carried out throughout the study area aimed at establishing and mapping general land use patterns, topographical features and the general land-scape, pedestrian movements and paths, (particularly within and around Kiambu Urban Area), and the nature and condition of access roads. Educational institutions (primary schools) were also visited with a view of obtaining up-to-date registration of students and also inspecting the condition of the school buildings. A detailed land use study for Kiambu Urban Area was also conducted.

1.6.4 Analysis:^{- 12} Analysis of the field surveys were done manually and presented by tables, maps, diagrams and charts.

Most of the analysis work is presented in the appendices.

NOTES AND REFERENCES

1. Source : Kiambu Town Clerk's Annual Report to the Council, 1975.
2. Source : Kenya Development Plan 1974/78 and also 1970/1974.
3. Source : Nairobi Metropolitan Growth Strategy, paragraph 87.
4. Source : Household Survey Appendices IA & IB (Table 29, Fig 13).
5. Source : Income Estimates for Kiambu Town Council, 1976 & 1977.
6. Source : Ministry of Works Regional Road Network.
7. 1972 Development Plan for Kiambu Urban Council - prepared by the Physical Planning Department, Ministry of Lands and Settlement.
8. See among others : Cowan P.(1966) - Institutions, activities

and accommodation in the city, journal of the Town Planning Institute, vol.52 pp 140-1; Friedmann J. (1965) - Comprehensive planning as a process, journal of the American Institute of Planners Vol.31 pp 195-7; Loeks C.D. (1967) - The new "Comprehensiveness" journal of the American Institute of Planners, vol.33, pp 347-52 Ministry of Housing and Local Government (Britain) (1970) - Development Plans, a manual on form and content; Mocine C.R. (1966) - Urban physical planning and the "new planning", journal of the American Institute of Planners, vol.32 pp 234-7; U.N. (1976) - The Vancouver action plan, a habitat special report on human settlements.

9. See Household Survey - Questionnaire: Appendix IA
10. Bases for estimates: 1962 and 1969 census figures. Supporting information: Residential plots in the villages of Ndumberi, Kanunga and Riabai.
11. See Appendix II - Tables 33,34,35 & 36: Fig.17.
12. See appendices IB, II, associated tables and figures and also other tables in the body of the report.

2.0 PHYSICAL BASE

2.1 PHYSICAL-GENERAL¹

2.1.1 Kiambu town, as defined by its present boundaries, is located north of and adjacent to Nairobi roughly between $1^{\frac{2}{15}}$ and $1^{\frac{3}{15}}$ degree latitude and $36^{\frac{15}{20}}$ and $36^{\frac{18}{20}}$ degrees longitude. The town covers an area of approximately 57 square kilometres about 94% of which is used for agricultural development. The climate is typically equatorial (humid to dry sub-humid) with maximum mean annual temperatures ranging between 22° - 26° C. (occurring in the months of January and February) and minimum mean annual temperatures ranging from 10° - 14° C. (in the months of June and July). The area is within rainfall regime of 875 mm (35") - east and north of Kiambu Urban Area - and 900 mm (45") - west and north of Kiambu Area. This occurs in the months of March to May and October to December with the maximum downpours in April and November. The area is approached by winds from a north easterly direction.

2.2 TOPOGRAPHY GEOLOGY AND SOILS²

2.2.1 In most of the areas to the north and west of Kiambu Urban Area (mostly small-scale farming or Shamba Area), the topography consists of broad flat-topped to round ridges separated by steep convex to uniform-sided valleys. The ridges are mainly covered with the fertile, deep (usually over 6 metres) dark-red friable clays (Kikuyu red loams) and dark greyish-brown mottled clays (Vlei soils).

2.2.2 In the areas mostly south and east of Kiambu Urban Area

DEVELOPMENT
PLAN
KIAMBU



GEOLOGY A
KIAMBU TOWN

-  DARK-RED BRICK
-  RED-FRIABLE
-  DARK GREY
-  SHALLOW STRATIFIED
-  SHALLOW YELLOW

SCALE 0 05 1

KURIA-GATHONI
M.A. PLANNING
YEAR II 1972/73

(mainly large-scale coffee growing area), the ridges become broader due to various streams joining to form rivers and valleys. The ridge tops have a gently undulating topography with red friable clays being the dominant soils. Towards the eastern parts, the topography becomes flatter and poorer drainage conditions pertain resulting in shallow yellow-brown to yellow-red friable clays.

2.2.3 With favourable climatic conditions (as mentioned earlier) and suitable soil types, it can be concluded that the whole of Kiambu town is suitable for agricultural development.

2.3 THE SETTLEMENT ZONES AND LAND USE³

2.3.1 The Settled Area: This is part of the expansive former European Settled Area and constitutes about 65% of the total town area. It is primarily a large-scale coffee growing area with occasional subsistence and horticultural farming at areas not covered by coffee and along river valleys. Settlements exist here in the form of few isolated homes of the managerial and administrative staff and small (and sometimes, large) villages commonly known as labour lines - for the lower cadres of farm staff. At some of these villages, a corner shop exists in the form of a "canteen". Kiambu Institute of Science & Technology and the Kiambu Secondary School are also situated here close to Kiambu Urban Area.

2.3.2 The Rural Area: This is part of what was formerly known as the "Kikuyu Reserve" and, as the name suggests, it is primarily rural in character and has two dominant areas :

2.3.2.1 The 'Shamba' Area: The main human activity here is small-

DEVELOPMENT PLAN KIambu

SETTLEMENT ZONES GENERAL LAND USE

-  AGRICULTURAL AREA
-  AGRICULTURAL AREA
-  BUILT-UP AREAS: KIAMBU
-  FOREST RESERVE - K

SCALE: 0 0.5 1 2

KURIA-GATHONI, J.
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TABLE 4 : SETTLEMENT AREAS

PLACE		Approximate Area in Hectares	Percent of the total Area
Kiambu Urban Area + Institutions		150	2.6%
The Rural Area	Ndumberi Village excluding Institutions	90	32.5%
	Kanunga Village excluding Institutions	69	
	Riabai Village excluding Institutions	51	
	Shamba Area excluding institutions	1640	
Settled Area (+ Kiambu Forest) + Institutions		3700	64.9%
		5700	100%

Source : Estimations from 1:50,000 base maps; village plans for Ndumberi, Kanunga and Riabai; Nairobi Urban studies - Regional studies sheets.

scale commercial and subsistence farming (on small holdings) typical of rural farming anywhere in Kikuyu land. The main cash crops are coffee and, of recent development, horticultural crops such as vegetables and flowers. Settlements occur mainly as individual isolated homes and/or as clusters of homesteads usually of related families. Existing in the area, also, is Riara Catholic Mission, a large religious and educational institution. Small trading centres and/or corner shops serving this area exist at Turitu, Gichocho, Kirigiti and Kiratina in addition to Ndumberi, Kanunga and Riabai shopping centres. Some dense settlements occur along the main roads and particularly along Kiambu/Githunguri Road and also along Kiambu/Kanunga Road. This is due to good accessibility offered by these roads. Kirigiti stadium and the Juvenile Remand Home and the Approved School are also located in this zone to the east of Kiambu Urban Area.

2.3.2.2 The Villages. These are the three villages of Ndumberi, Kanunga and Riabai. They are mainly "dormitories" either for their respective immediate 'shamba' areas or, even for commuters working in Nairobi, Kiambu Urban Area and other employment places in the surrounding areas. These villages have many vacant plots which are usually subjected to subsistence crop-growing. Each of the villages has a centre usually with little commercial and fairly minimal industrial activities.

2.3.3 The Kiambu Urban Area: This area includes Kiambu township proper. It is characteristically the most urban area of the entire Kiambu Town and comprises several scattered and at times, unco-ordinated land-uses. The most important of these include administrative (local and central government offices), commercial

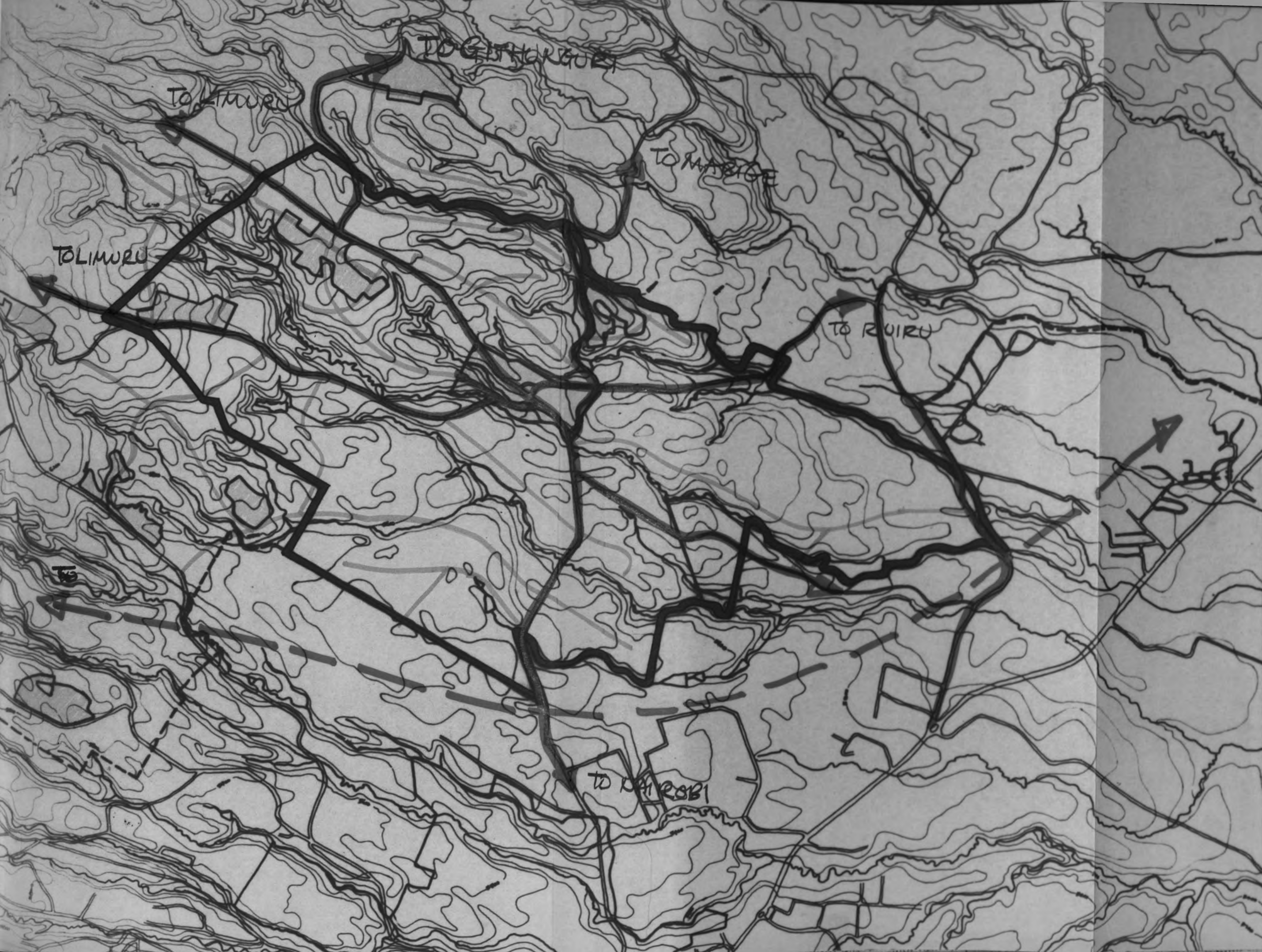
(wholesale and retail), residential, small-scale industries, and warehousing, health (Kiambu District Hospital), and educational (Kiambu Town Primary school). Other significant space users in the area are the government prison and the Kiambu Golf Course which occupies a large chunk of urban land.

2.3.4 The scatteredness and the incompatibility of most of the activities in the Urban Area result in creation of an inefficient and uneconomical urban structure. The pattern also creates land-use conflicts and reduces flexible expansion of such facilities as the hospital, commercial and the administration facilities.






2.4 THE INFRASTRUCTURE⁴

2.4.1 Kiambu Urban Area is well connected to the three outlying villages (Ndumberi, Riabai and Kanunga) by narrow all-weather tarmac roads while communication between villages themselves and elsewhere is by rough motorable tracks which are impassible during the rainy seasons. Most of these roads and tracks are running in a west-east direction following river valleys and ridges. Due to these valleys and ridges, vehicular accessibility in a north-south direction is rare and difficult; otherwise, it exists in form of a system of pedestrian footpaths. Transversing the area are water trunk pipe lines from Sasumua, Chania, and Ruiru dams heading for Nairobi. Also crossing the area is a high-voltage electricity transmission line from Jinja (Uganda) to Nairobi. A system of low-voltage electricity lines and telephone lines cross the area invariably in almost every direction. Water trunk pipelines and high-voltage electricity lines have way-leaves

DEVELOPMENT PLAN FOR KIAMBU TO



THE INFRASTRUCTURE LOCAL ROADS

-  MAIN ROADS - TARE
-  MINOR ACCESS ROADS /
-  PROPOSED ROADS BY N
-  BUILT-UP AREAS
-  STUDY AREA







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NAIROBI CITY COUNCIL

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YEAR II 1976/78

DEVELOPMENT PLAN FOR KIAMBU TO

THE INFRASTRUCTURE WATER & ELECTRICITY

-  ELECTRICITY LINES
-  WATER PIPE LINES
-  WATER RESERVOIR
-  ELECTRIC POWER STATION
-  THE STUDY AREA
- 



Scale 1:50,000

SOURCE: 1:50,000 base map

KURIA-GATHONI, J. UN
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YEAR II 1976/78

provided for them while other lines usually (in most cases) follow the road network.

2.5 COMMITTED AND PROPOSED DEVELOPMENT ⁵

2.5.1 Committed developments are few. Those proposed include reconstruction and realignment of the road from Kiambu to Gatukuyu (Gatundu) via Kambui and Marige as a regional road. This is a Ministry of Work's project and work has not started yet.

2.5.2 Reconstruction and alignment of the regional road from Kikuyu to Ruiru via Kiambu. This is also a Ministry of Work's project. Road work has already started from Kikuyu side and has reached Ndenderu village near Karuri (Banana Hill).

2.5.3 Construction of foul drainage system and a sewage settlement basin in Kiambu Urban Area by the Kiambu Town Council.

Work on sewage treatment basin has already started.

2.5.4 Reconstruction and improvement of Kiambu Market by the Town Council. Phase I of the project is completed.

2.6 PHYSICAL CONSTRAINTS TO DEVELOPMENT

2.6.1 The main physical constraints are principally steep slopes, and to some extent, marshy areas, built-up areas (particularly in Kiambu Urban Area), overhead H.V., electricity lines and water trunk lines from various places to Nairobi (through the town area), agricultural areas and also, the committed and proposed developments as mentioned above.

2.6.2 While some of these can be regarded as genuine negative constraints (e.g. steep slopes) a good number of the above factors can be viewed as opportunities, particularly the agricultural land and the proposed and/or committed road projects and also some built-up areas. Proposed new development of the town area should, at most, capitalize on these positive constraints.

NOTES AND REFERENCES

1. The primary sources of information are the Kenya National Atlas and the 1:50,000 base maps of the area.
2. Sources : Ministry of Agriculture (Soils of the Nairobi-Thika-Yatta-Machakos Area - prepared by the Directorate of Overseas Surveys, Department of Agriculture, Kenya); Ministry of Natural Resources, Geological Department; Kenya National Atlas.
3. Sources: 1:50,000 base map; field surveys and visits; Village maps of Ndumberi, Kanunga and Riabai; Nairobi Urban Study Regional Studies (unpublished).
4. Sources: 1:50,000 base map and field physical surveys.
5. Sources: Ministry of Works, Kiambu Town Council, Kiambu County Council.

3.0 SOCIAL ASPECTS

3.1 DEMOGRAPHIC CHARACTERISTICS¹

3.1.1 Determination of population accommodated within the present Kiambu Town boundaries has been difficult as there has not been any recent population census (the latest were in 1962 and 1969) based on the current town boundaries. Further, estimations of population have been difficult as the 1962 and 1969 census areas do not correspond to the present town boundaries. Nevertheless, using the aid of proportions, Kenya's urban and rural population growth rates (7% and 3% respectively) and the number of plots existing in the three villages of Ndumberi, Kanunga and Riabai, a fair population estimate of 39,120 was made for Kiambu Town in 1977. A more accurate population estimate of 42,500 was, however, established by a household survey covering all the parts of Kiambu Town namely, Kiambu Urban Area, the rural villages, as well as the agricultural areas (the Shamba and the Settled Areas).

3.1.2 The composition of the above population (42,500) is characterized by a high proportion (34.4%) of school age population (from 3 years to 17 years) and also a large proportion (32.1%) of active labour population (ranging from 18 to 55 years). The population below 3 years (children) and above 55 years (old people) is relatively low being 18.2% and 15.3% respectively.

3.1.3 Educationally, the population is characterized by a high proportion (76.1%) of uneducated and/or lowly educated people (up to and below primary education) and a low proportion (3.5%) of people with college education. On the whole, the population

TABLE 5 POPULATION DENSITIES

Area Population/ area/density	1977 Population (Survey)	Approximate Area in Hectares	Density in Persons per hectare
Kiambu Urban Area	4230	150	28.2
Ndumberi Village	5250	90	58.3
Kanunga Village	3910	69	56.7
Riabai Village	3250	51	63.7
Shamba Area	18580	1640	11.3
Settled Area	7280	3700	2.0
Totals/Average	42500	5700	7.5

Source: Worked out from the household survey results.

has a markedly low proportion (21.9%) of skilled people whereas the majority (78.1%) of the people over 18 years are categorically unskilled.

3.1.4 The bulk of the population is predominately rural in character and live in the Shamba Area and in the three rural villages of Ndumberi, Kanunga and Riabai. Residential densities are fairly low, particularly in the agricultural areas, and range from 2.0 persons per hectare (in the Settled Area) to 63.7 pph (Riabai Village). Residential densities in the villages are relatively higher (ranging from 58.3 to 63.7 pph) than that of Kiambu Urban Area (28.2 pph). The low density of the Urban Area can be attributed to the fact that there are many functions with a non-residential character and are large space users, e.g. the District Administration offices and the Golf Course.

3.1.5 Population Projections:

3.1.5.1 Using 1962 and 1969 (as well as 1977) population estimates the following population growth rates were established as set out below:

TABLE 6 : POPULATION GROWTH RATES

Area	1962 Popul. by census (estimate)	1969 Pop. by census (Estim.)	1977 Pop. by survey	Average Natural growth rate p.a.	Assumed Growth rate by Migr.	Average Growth rate up to to 2000A.D.
Kiambu Urban Area	2533	2776	4230	3.9%	2.5%	6.4%
Shamba Area + Villages	17530	21208	30990	2.1%	2.0%	4.1%
Settled Area	8511	4376	7280	1.1%	0.5%	1.6%

3.1.5.2 Applying the above growth rates to 1977 area populations, an aggregate population projection of 101,278 was found for the whole of the town area by the turn of the century (2000 A.D.). However, by applying an average growth rate of 5.1% p.a., as used by the Ministry of Finance and Planning, a higher population figure of 133,428 is obtained. It can, therefore, be concluded that the population expected to live within the boundaries of the study area by 2000 A.D. would well be in the region of 100,000 to 133,000 - the former figure being more optimistic one and the latter, the more pessimistic one. This gives an average of 116,500. The Ministry of Finance and Planning population figure is 126,000 for the 2000 A.D.

3.1.5.3 By applying various population ratios (as established by the household survey) for school-age populations it is estimated that by 2000 A.D. 15,496 (low) or 20,414 (high), 12,862 (low) or 16,945 (high) and 6,482 (low) or 8,539 (high) school-age children would require places for nursery school, primary school and secondary school respectively.

3.1.5.4 Similarly, by applying appropriate proportion for active labour population (from 18 years to 55 years) it is estimated that by 2000 A.D. between 32,510 (low) and 42,830 (high) people would require employment places for one form of job or the other particularly agricultural employment and other industrial and commercial activities requiring low skills and education.

TABLE 7 : ACTIVE LABOUR & SCHOOL AGE POPULATION (2000AD)

Category	1977 Ratios	2000 A.D. Low Projections (Pop = 101,278)	2000 A.D. High Projections (Pop = 133,428)
Active Labour (from 18 to 55 years)	0.321	32,510	42,830
Nursery School Age Population (from 3 to 5yrs)	0.153	15,496	20,414
Primary School Age Population (from 6 to 13 yrs)	0.127	12,862	16,945
Secondary School age Population (from 14 to 17yrs)	0.064	6,482	8,539

3.1.5.5 Using a household size of 6.21 persons per household, it is also projected that between 16,309 (low) and 21,422 (high) households would require appropriate housing and community facilities and services by the turn of the century.

3.2. COMMUNITY FACILITIES AND SERVICES²

3.2.1 Educational Facilities:

3.2.2.1 Nursery Schools : Presently, there are five nursery schools operating in the town. one in Kiambu Urban Area, one in each of the three villages, and one located at Kasarini. Altogether, 180 children are enrolled in these nurseries. A survey of the

school buildings reveals that the nursery schools in the villages are in complete deplorable condition and are built of non-permanent materials - mud and wattle. The ones at Kiambu Urban Area and Kasarini are of better construction being of permanent materials (stone and GCI).

3.2.2.2 Primary Schools: There are eleven (11) primary schools with a total student population of 5100. All the schools (except one which is single -streamed) are two-streamed at least up to standard two. While three are three-streamed up to standard three none of them is fully three-streamed. Nevertheless, all the schools are capable of being expanded to accommodate at least three-streams per class as they have adequate school compounds.

3.2.2.3 Secondary Schools : There are four (4) secondary schools situated in the study area. Two are fully government-aided while two are harambee-aided schools (Riara Boys' and Girls' Secondary Schools). These schools are of permanent, good construction. Kiambu Secondary School (the most recently built school) and Kanunga secondary school are government-aided schools. Kiambu Secondary School, in addition to housing staff, houses many people working outside the town, e.g. Nairobi.

3.2.2.4 Further Education: Located in the Settled Area, but in the close vicinity of Kiambu Urban Area is the Kiambu Institute of Science and Technology. This is a college of further education and offers post-secondary education training in various crafts such as masonry, Carpentry, plumbing as well as secretarial courses. In spite of its location in the town, the institute is a national one and offers opportunities to school-leavers from all parts of

the country. It occupies a large area which comprises tuition blocks, students' hostels, staff houses and a coffee farm. Staff houses were built to cater for present and future staff housing needs and as such most of them have been vacant. As is the case with Kiambu Secondary School, these houses are now rented by many people working in Nairobi and elsewhere.

3.2.2.5 Other Educational Facilities: Existing next to the Juvenile Remand Home - opposite Kirigiti Stadium - is the Approved School which offers training facilities to juveniles in the Remand Home. The school is not open to general public. There used to be a village polytechnic at Ndumberi Village some-time back but it is no longer operative. This used to offer vocational training for primary school-leavers and there is a growing pressure for it to be revived. There is also a general feeling among the members of the public that more training facilities should be established in the area to offer vocational training for primary school-leavers.

3.2.2.6 Determination of number of schools to be provided (2000 AD)

.6.1 Nursery Schools: Assuming a nursery school enrolment of 300 children per school there would be required a total of 51 (low) to 68 (high) nursery schools. These would be equitably distributed throughout the town area.

.6.2 Primary Schools: At 735 pupils per three-streamed school it is projected that a total of 18 (low) to 23 (high) primary schools would be required by the year 2000 A.D.

.6.3 Secondary Schools: At an enrolment of 720 students' per school (this also includes classes for higher school) it is projected that between 9 (low) and 12 (high) secondary schools would be required by the year 2000 A.D.

.6.4 Vocational Schools: Ndumberi Village Polytechnic should be revived. In addition, four other post-primary education training facilities should be established in the area preferably at Kiambu Urban Area, Kanunga village, Riabai village and Kasarini area.

.6.5 Kiambu Institute : Kiambu Institute would be sufficient to provide post-secondary education training facilities to Kiambu citizenry as well as other parts of the country. It is, however, recommended that it should be expanded to offer more facilities.

TABLE 8 : EXISTING & NEW SCHOOLS REQUIRED BY 2000 A.D.

Educational Facility	2000 A.D School-age Population		Total No. of schools required		Existing Schools 1977	New Schools required by 2000 A.D.	
	Low	High	Low	High		Low	High
Nursery Schools	15496	20414	51	68	5	46	63
Primary Schools	12862	16945	18	23	11	7	12
Secondary Schools	6482	8539	9	12	4	5	8
Village Polytech.	-	-	5	-	-	5	-
College of Further Educ.	-	-	1	-	1	-	-

3.2.2 Health Facilities:

3.2.2.1 The only health facility in the area is the Kiambu District General Hospital which is situated at the heart of Kiambu Urban Area. Recently, an ultra-modern outpatient department was built by the government as the first phase of a three-phase programme aimed at reconstruction and expansion of the hospital. The hospital is, however, intended to serve the whole of Kiambu District and as such will not satisfy the health needs of the residents of Kiambu town. There is a need for other minor health facilities. Hospital expansion is restricted on all sides by other unrelated developments and if it is going to remain on its present site, some of the restricting developments will have to be relocated elsewhere to allow easy expansion of the hospital. A more expensive and difficult alternative is to move out the hospital premises from the present site and locate them elsewhere where they can expand easily, e.g. at the outskirts of the Urban Area.

3.2.3 Markets:

3.2.3.1 Kangangi Market - at Kiambu Urban Area - is the main market serving, not only the local area, but also the entire region of Kiambu Town, i.e. including Nairobi, Ruiru, Karuri, Githunguri, and the small villages within the Kiambu hinterlands. It serves as the main collector for produce of market-gardening destined particularly for Nairobi. The market is a modern one and enjoys some important facilities such as the covered stalls, paved areas, stone walling, water supply and public toilets. It, nevertheless, lacks street-lighting and adequate space for customer vehicles and service vehicles.

TABLE 9 . MARKET SURVEY

MARKET / FACILITY		Kiambu Urban Area (Kangangi)	Ndumber Centre	Kanunga Centre	Riabai Centre
Fencing	Stone	x	-	-	-
	barbed wire	-	-	-	-
	None	-	x	x	x
Ground Surfacing	Tarmac concrete	x	-	-	-
	Murram	-	-	-	-
	Earth	-	x	x	x
Market Stalls	Covered	x	-	-	-
	Open	-	-	-	-
	None	-	x	x	x
Street Lighting	Present	-	-	-	-
	None	x	x	x	x
Vehicle Parking	Cars	-	-	-	-
	Lorried	-	-	-	-
Public Toilets	Water borne	x	-	-	-
	Pitlat.	-	-	-	-
Garbage Collection Service	Present	x	-	-	-
	None	-	x	x	x
Surface Water Drainage	Present	x	-	-	-
	None	-	x	x	x
Water Supply	Present	x	-	-	-
	None	-	x	x	x

3.2.3.2 Other minor markets exist at the village centres of Ndumberi, Kanunga and Riabai. These are but mere open spaces where minor market business can be conducted by local residents and generally lack a host of public facilities and services. To act as important market centres they obviously require to be greatly improved. In addition to these, another extra market facility requires to be located somewhere in the Settled Area, preferably in Kasarini/Thendegwa area.

3.2.4 Entertainment and Recreational Facilities:

Apart from cinema, a community hall in Kiambu Urban Area (with poor and inadequate amenities), a golf club in Kiambu Urban Area and a number of night clubs/bars, entertainment and recreational facilities are deplorably scarce in Kiambu Town and the residents heavily rely on facilities and amenities available in the City of Nairobi.

3.2.5 Public Institutions and Purposes:

3.2.5.1 Public Institutions:

.1.1 District Headquarters Offices: District Provincial Administration offices and County Council offices catering for various County Council departments. Office buildings cluster in one area.

.1.2 Police Station: District Headquarters for Police - Also in the same compound are police lines. The Police station is separated from the District Headquarters by just a road (Kiambu/Ruiru Rd).

.1.3 Law Courts and Post Office: are just opposite each other and adjacent to the Police Station. Thus, it can be seen that a definite sector housing all the above public institutions exists at one area of the Urban Area.

.1.4 Behind the Police Station and the Law Court are some houses for senior government officers.

.1.5 District General Hospital: Next to the Law Court and the Post Office - but separated by a minor road - is the district hospital consisting of hospital buildings and some staff houses. The hospital is situated just opposite the former European shops.

.1.6 Town Hall: Situated at the farthest end of the western side of the Town, on the main Kiambu/Githunguri Road is the Civic Centre - the seat of the Town Council.

.1.7 Government Prisons : Across the valley and just to the east of the former Indian shops is the Government Prison. Most of the river valley near the prison is farmed by the prison.

.1.8 Juvenile Remand Home: To the east of Kiambu Urban Area and opposite the Kirigiti Stadium. Just adjacent to the Remand Home and in connection with it is the Approved School.

3.2.5.2 Public Purposes: Included in this category are:

.2.1 Kirigiti Stadium: which is the most important show-ground in Kiambu District where the major district events are staged. It is a small stadium and lacks the necessary equipment and facilities for an up-to-date stadium.











.2.2 Public Cemeteries: A public cemetery once existed at the crossroads of Kiambu/Limuru Road and the Nairobi/Kiambu Road. The cemetery is no longer operative and the area it once occupied is now an open space. The new burial grounds for Kiambu Urban Area are situated just behind the former Indian shops. These are already filled-up and fresh areas require to be found. Other burial grounds exist in the villages but these are not frequently used and are therefore far from getting filled-up. Mission cemeteries also exist at Riara Catholic Mission and also at Kiambu Presbyterian Church.

2.3 Open Spaces and Forest Reserve: Many unplanned open spaces exist here and there both in Kiambu Urban Area and in the villages. Kiambu Forest - situated to the east of the Settled Area - is a beautiful site for pick-nicks and is also within easy reach of the residents of Kiambu Urban Area.

2.4 Shopping Centres: Shopping facilities exist at Kiambu Urban Area, Ndumberi, Kanunga, Riabai and at Turitu near Riara Mission. Other shopping facilities in the form of individual shops and Kiosks exist here and there particularly in the Shamba Area. In the Settled Area "canteens" are important shopping facilities supplying the important daily household goods such as milk and cigarettes.

DEVELOPMENT PLAN FOR KIAMBU TOWN

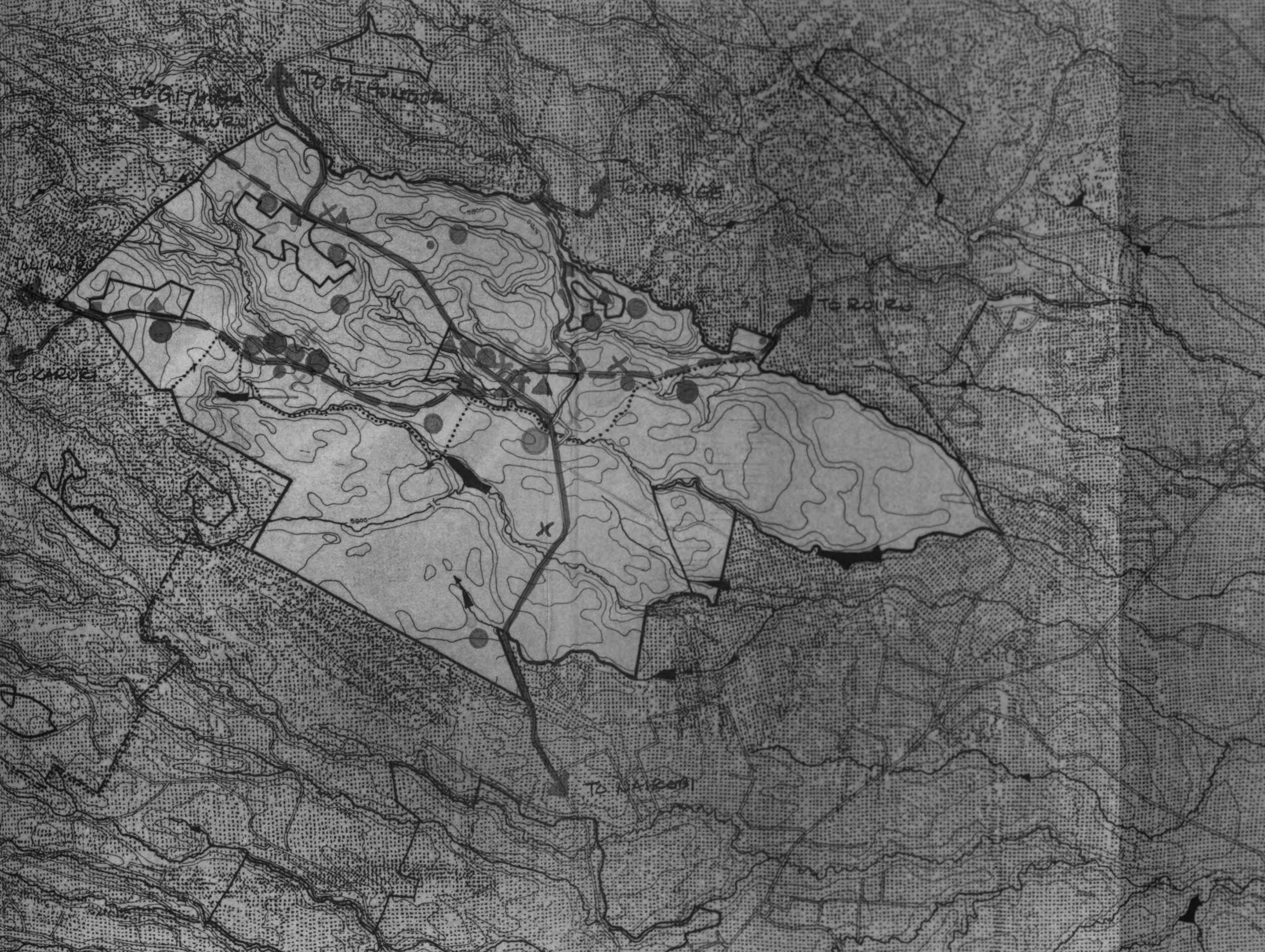
EXISTING COMMUNITY FACILITIES AND SERVICES

-  KIAMBU INSTITUTE OF SCIENCE
-  SECONDARY SCHOOLS
-  PRIMARY SCHOOLS
-  NURSERY SCHOOLS
-  APPROVED SCHOOL
-  DISTRICT HOSPITAL
-  MARKET/SHOPPING CENTRE
-  POST OFFICE
-  STADIUM/PLAYING FIELD
-  DISTRICT HEADQUARTERS/TOWN COMMISSION

SCALE : 

SOURCE : SURVEY

KURIA-GATHONI, E.J.
M.A. PLANNING
YEAR II 1976/78



3.2.6 Public Utilities

3.2.6.1 Water Supply: The following are the principal sources of water supply in Kiambu Town:-

.6.1 Rivers and Springs: These are the main water sources in the rural area, i.e. the Shamba Area and in the villages. On the whole, about 62.3% of the total population obtain their water direct from rivers.

.6.2 Boreholes: These are the main source of water supply in Kiambu Urban area and also in the Settled Area. A small number of boreholes also exist in the Shamba Area as well as in the villages. Altogether 37.7% of the total population depend on borehole water supply.

.6.3 Rains: In the rural area, rain water storage tanks are used by a limited number of people to collect and store rain water from house roofs.

.6.4 While water from springs and rain is reasonably clean and healthy for human consumption, that from rivers is frequently polluted by effluents from coffee pulping factories and during the rain seasons, it carries a lot of mud and soil. The rivers mostly affected are Riara and Kiu - the main rivers in the area.

.6.5 Water from boreholes is also somewhat unfit for human consumption as it contains a very high fluoride content (5.7 ppm as compared to W.H.O.'s standard of 1.5 ppm). To reduce the high fluoride content, borehole water consumed in Kiambu Urban Area

is augmented with water tapped from Nairobi City Council's aqueduct passing through the eastern part of the Urban Area. By this process, 682,000 litres of fresh water are introduced daily into the main circulation system thus diluting the salt concentration. This water also serves as additional supply for the Urban Area. This, however, is a short-term solution as this supply will be discontinued after June, 1978.³

3.2.6.2 Electricity Supply: Electricity does not pose a serious problem at present as there are ample supply lines from which connections can be made if need be. Already 55.2% of the households have power connections to their houses.

3.2.6.3 Sewage Disposal: Majority of the households (78.5%) use pit-latrines as the method of disposal. The method is common throughout the town area including Kiambu Urban Area. However, the method most prevalent in the Urban Area is the conservancy tank. Except in Kiambu Institute and Kiambu Secondary School, and also other areas in the Settled Area, septic tank is rarely used elsewhere.

3.2.6.4 Surface Water Drainage: Constructed surface water drainage is non-existent throughout the study area with an exception of some few places such as Kiambu Institute and Kiambu Secondary School. Elsewhere, the principal method of disposal is by natural drainage i.e. gulleys and streams.

3.2.7 Public Services:

3.2.7.1 Refuse Collection: Apart from Kiambu Urban Area and the

Kiambu Institute of Science and Technology where refuse collection service is rendered by the Kiambu Town Council collection and disposal of refuse in most areas is (94.3%) solely by individual arrangements or, in most cases, non-existent.

3.2.7.2 Telephone and Postal Services:

3.2.1. Except for Kiambu Urban Area and such other places as Kiambu Institute, these services are not available for public use elsewhere outside Kiambu Urban Area, telephones are only connected to private house. Until recently, there was a public telephone booth at Ndumberi shopping centre but it is no longer operative.

3.2.7.3 Street Lighting; Except for Kiambu Institute, this vital service is non-existent elsewhere.

3.2.7.4 Public Transport: A traffic survey in Kiambu Urban Area reveals that there is a **tremendous** amount of public transport vehicles (matatu and buses) plying between Kiambu Urban Area and other outlying villages, townships and also Nairobi. The major important routes for public transport are the Nairobi/Kiambu Road, Kiambu/Githunguri Road, Kiambu/Limuru Road, and Kiambu/Ruiru Road. While the first two roads are adequately wide to avoid road accidents the latter two are hazardously narrow and accidents may be frequent during peak hours.

3.2.8 Location of Community Facilities:

3.2.8.1 Shopping Facilities: 48.5% of the population have

their main shopping centres located more than 1 kilometre away. In the villages, kiosks stocking few household items e.g. vegetables and milk are located here and there at strategic positions.

3.2.8.2 Educational Facilities: Between 57% to 92.6% of the population have their nursery, primary and secondary schools located more than 1 kilometre away.

3.2.8.3 Health Facilities: More than 80% of the population travel more than 1 kilometre to receive their medical attention.

3.2.8.4 Playgrounds and other Recreational Facilities: More than 73.8% of the population do not have any recreational facilities located within easy reach.

3.2.8.5 Library and Clubs: More than 87% of the households are distantly located from Kiambu Social Club where the only inadequately equipped library exists.

3.2.8.6 On the whole, it can be concluded that location of the existing community facilities is critically inconvenient. The area worst affected is the Settled Area where very few community facilities are located.

3.3 HOUSING⁴

3.3.1 Types of dwelling: A housing survey revealed that majority of houses in the study area (68.5%) are of single detached type. In addition to the main family dwelling, most households have

additional subsidiary structures such as separate kitchens, food and garden-tools stores, poultry and animal sheds. In the villages (mainly in Ndumberi Village) some families have extra rooms (usually detached or semi-detached) for rental purposes. Terraced houses are significantly few (0.5%) and are primarily found in Kiambu Institute of Science and Technology as staff houses. Rental flats exist primarily in Kiambu Urban Area (usually above shops) but constitute a low proportion (14%) of the total residential houses.

3.3.2 Ownership of the dwelling: Majority of the houses (61.3%) are in direct ownership of the dweller-families. Most of the houses owned by dweller-families are found chiefly in the shamba Area and in the villages. Rental and staff houses are very few (18.9% and 19.8% respectively) and most of them are found in Kiambu Urban Area, Kiambu Institute of Science and Technology, Kiambu Secondary School, Ndumberi Village and in the rural areas peripherally situated in the close vicinity of Kiambu Urban Area.

3.3.3 House Construction: Most of the households (45.7%) have their family houses built of semi-permanent materials (e.g. timber and gci sheets) and built with the aid of the technical assistance provided by local craftsmen (fundis). Most of these houses are mainly found in the villages and in the Shamba Area. Permanent houses (usually requiring high-level skills) are primarily built by either fundis or building contractors and this class of buildings constitutes most of the residential houses in Kiambu Urban Area and in the Settled Area.

3.3.4 Building Materials and house Condition:

31.1% of the buildings are constructed of permanent materials such as stone, bricks, concrete and have their roofs constructed primarily of gci sheets. Other important roofing materials are asbestos sheets, clay and concrete tiles and roofing felt. 60% of the buildings are of semi-permanent construction mainly consisting of timber, mud and wattle and roofed with gci sheets. Most of these, despite their semi-permanent construction, are in pleasant and maintained condition. There are, however, poor houses (8.9%) chiefly constructed of scrap materials or mud and wattle with roofs constructed of grass thatch or scrap metals (tins). These are mostly unsightly and of poor condition.

3.3.5 Financing of House Construction: Most of the houses (67.8%) are built with funds obtained by family savings. Bank loan is another important source of house finance and constitutes 19.7% of the total number of residential houses in the study area. Although harambee groups exist in Kiambu (mainly in the Shamba Area) their financial contribution (9.2%) in house construction is relatively low. Apart from a few houses in Kiambu Urban Area constructed with mortgage facilities most residents do not appear to know that such facilities do in fact exist. The financial institutions currently involved in the financing of these few houses in Kiambu Urban Area are the National Housing Corporation and the Housing Finance Company of Kenya. Currently, there is a site (to the west of the former Indian shops) in Kiambu Urban Area earmarked for site-and-service scheme which is to be financed by the National Housing Corporation (NHC).

3.3.6 The National Housing Corporation⁵

3.3.6.1 The role of the National Housing Corporation (NHC) in house production is limited to two major areas: Firstly, production of complete standardized housing units for tenant purchase schemes. The tenant purchase schemes programme covers those with incomes ranging between Kshs.1,200/- to Kshs.3,000/= per month. Secondly, financing of the site-and-service schemes for the lower income families within the income regime of Kshs.300 to Kshs.1,200/= per month. In both cases, the operations of the corporation are limited to urban areas.

3.3.6.2 The site-and-service schemes are understood to mean housing schemes where a plot with basic services i.e. water and sanitary services, roads and other less essential services, like foot-paths surface water drainage, electricity, etc. is provided to a plot-holder so that he can start the construction of a house on a piece of land where he can stay permanently. These services can initially be constructed to various standards. A small material loan is available for those who require it as well as technical assistance in house construction.

NOTES AND REFERENCES

1. Demographic data and other relevant information materials are primarily based on the findings of the Household Survey as analysed and presented in Appendix IA and Appendix IB: Tables 17,18,19 and 20; Figures 1,2,3,and 4. Other supporting information is derived from the 1962 and 1969 population (census figures and the Kiambu District Development Plan 1976 published by the Ministry of Finance and Planning.

2. Data and other information materials are primarily based on field surveys: Household Survey (Appendices IA and IB - Tables 22; Figures 5 and 6), survey for educational facilities, Market survey and survey for public institutions and purposes.
3. Information on water supply to Kiambu from the Nairobi City Council's aqueducts is obtained from the N.C.C., Water and Sewerage Department and the Kiambu Town Council; that on the fluoride content and contamination in Kiambu rivers, from the Ministry of Water Development.
4. Material derived from the Household Survey Appendices IA and IB (Tables 23,24,25,26,27; Figures 7,8,9,10 and 11).
5. Source^{of} information is the National Housing Corporation - Guidelines for Administrative Procedure for site-and service Schemes (1976).

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Dear Mother

I received your kind letter of the 10th and was glad to hear from you. I am well and hope these few lines will find you the same.

I have not much news to write at present. The weather here is very warm and the crops are doing well. I have been busy with my school and have not had much time for writing.

I have not heard from you for some time and I am sure you are all well. I hope you will write soon and let me hear from you.

I am, dear Mother, your affectionate son,

John Smith

4.0 ECONOMIC ASPECTS

4.1 MAIN ECONOMIC ACTIVITIES

4.1.1 Agriculture:¹ Covering about 94% of the total town area, agriculture is the chief economic activity in the town. About 29.5% of Kiambu households derive their principal income from agriculture. It can be subdivided into two categories:

4.1.1.1 Large-Scale Farming:² This is the most important land-use in the study area occupying about 65% of the total town area and comprises large coffee estates extending east to north-west south of Kiambu Settled Area East. While coffee forms the most important product of the large-scale farming, other secondary activities to sustain it do also exist here. These include market-gardening for horticultural produce (e.g. flowers, fruits, vegetables, etc.,) and enjoy the advantage of the propinquity of Nairobi City - the largest urban market for agricultural produce in the region. Coffee and the better quality of horticultural produce are exported and therefore, help to earn foreign currency for Kiambu as well as the country as a whole. The coffee area is also a very important local employment area employing about 13.2% of Kiambu households. It is also the chief revenue-earner for Kiambu Town Council with 45% to 48% of the Council's revenue generating from coffee cess.

4.1.1.2 Small-Scale Farming:³ Covering about 29% of the total town area the Shamba Area chiefly caters for subsistence farming.

on small holdings, usually ranging from 2 to 5 hectares. With the proximity of the area to Nairobi and the intergitation with the large-scale farms transformation of subsistence farming to cash economy is on the increase. Coffee and a range of horticultural crops are now grown on the small holdings as cash crops. In addition to crop-production, most families in the Shamba Area keep one or more exotic cows on their small holdings and this also raises cash for the families. With these agricultural activities, it is clear why about 27% of Kiambu households are primarily engaged in working in the Shamba Area.

4.1.2 Commercial & Industrial Activities:

4.1.2.1 Commercial:⁴ Kiambu Urban Area is the principal trading centre in the town, with several retail shops bars and restaurants, a few wholesale stores and workshops. Two commercial banks, a co-operative bank for farmers, and a few private offices (lawyers, doctors, etc.) are also located here. A busy market, primarily handling agricultural produce, is an important commercial and trading facility serving not only Kiambu Town but also other villages and townships in the vicinity of Kiambu including Nairobi as well. Other few trading facilities (shops, bars, hotels, butcheries, etc.) exist in the village centres of Ndumberi, Kanunga, Riabai and also, at Turitu Trading Centre.

4.1.2.2 Small-Scale Industries:⁵ The only industrial activities existing in Kiambu Town consist of small-sized wood and metal workshops, garages, a bakery, and coffee-usking factories (mills). These industrial premises, together with the other commercial facilities as mentioned earlier constitute a main source of income

TABLE 10 : COMMERCIAL & INDUSTRIAL FACILITIES

Commercial/ind. facility / Centre	KIAMBU SHOPS 'A'	KIAMBU SHOPS 'B'	NDUMBEI SHOPS	KANUGA SHOPS	TURITU SHOPS	RIKAI SHOPS	TOTAL NO OF SHOPS
Wholesaleshop	-	2	-	-	-	-	2
General Grocer's	33	23	16	18	12	3	105
Hardware Shop	2	2	-	-	-	-	4
Clothes Shop	1	9	-	-	-	-	10
Tailoring shop	25	5	7	-	2	-	39
Music shop	2	1	-	-	-	-	3
Furniture shop	-	3	-	-	-	-	3
Shoe shop	2	-	-	-	-	-	2
Dry Cleaners'	2	-	-	-	-	-	2
Butchery	5	4	2	2	1	1	15
Hotel (large)	2	-	-	-	-	-	2
Bar only	10	4	3	4	6	2	29
Restaurant Only	3	2	-	2	2	1	10
Bar & Restaurant	11	-	2	-	-	-	13
Bakery	1	-	-	-	-	-	1
Dairy store	-	-	1	1	-	-	2
Wood Workshop	3	1	-	-	-	-	4
Metal Workshop	2	2	1	-	-	-	5
Garage	2	5	1	-	1	-	9
Beer Depot	1	-	-	-	-	-	1
Petrol Station	3	1	-	-	-	-	4
Bank	4	-	-	-	-	-	4
Studio	2	-	-	-	-	-	2

TABLE 11 : NO. OF SHOPS PER 1000 PEOPLE

Area	No. of Shops	Population	Shops/ 1000 People
Kiambu Urban Area	121	4,230	29
Ndumberi Village	23	5,250	4
Kanunga Village	18	3,910	5
Riabai Village	14	3,250	4
Shamba Area	3	18,580	0.2
Settled Area	-	7,280	0

TABLE 12 : NO. OF BARS/HOTELS PER 1000 PEOPLE

Area/ Shops / Population	No. of Bars/ Hotels	Population	Approx. Bars/Hotels per 1000 people
Kiambu Urban Area	32	4,230	8
Ndumberi Village	5	5,250	1
Kanunga Village	6	3,910	2
Riabai Village	8	3,250	2
Shamba Area	3	18,580	0.2
Settled Area	-	7,280	0

for more than 14.5% of Kiambu households.

4.1.3 Wage Employment:⁶ The principal sources of wage employment are the local government institutions (District administration offices, district hospital, police, prison and the law courts), banks, Kiambu Institute and other educational institutions in the area (primary and secondary schools), coffee farms, and of course, the commercial and industrial premises within and outside the town. Altogether, about 23.7% of Kiambu households derive their principal income by sustaining a regular or permanent wage-employment in the above institutions.

4.2 HOUSEHOLD INCOMES AND EXPENDITURE

4.2.1 Household Incomes:⁷ By a household survey it has been found that majority of Kiambu Urban Area's households are within a monthly income ranging between KShs.400/= to KShs.1999/=; about 39.6% of the households in the villages are within an income bracket of KShs.600 to 999/= per month; that 63.5% of the households in the Shamba Area have a monthly income ranging from KShs.200 to KShs.999/=; and that the majority of the households (41.8%) earn a total monthly income of KShs.600 to 999/=. The above income figures give an average household income of KShs.1503/= per month which is quite a reasonable income compared to household incomes in other small urban areas in the country. It is also found that the highest average household incomes are found in Kiambu Urban Area and the Settled Area (and in that order) and that the lowest monthly income per household is common among the households in the Shamba Area.

4.2.2 Expenditure⁸. The household expenditure for Kiambu households averages 76% of the total household income. This gives an average of 24% of the household income as the total family savings - quite a reasonable proportion of the household's income. It has also been found that households in the Urban Area generally spend more and save less than households in the other areas of the town which is characteristic of other urban areas in the country. Most of the households expenses go to buying food and travelling. The expenses on travelling rank so high because about 21.3% of the working population have to work to Nairobi and other centres outside the town. It was also found that while the average monthly house rent is KShs.66/50 per room of 9m² - which is quite low compared to a rent of KShs.100/- or more per room of the same size in Nairobi - households spend significantly very little (1.6% of their income) on recreation. This can be attributed to lack of recreational facilities in the study area. Because of lack of physical recreational facilities, residents (particularly men) resort to drinking during their free times.

4.3 KIAMBU TOWN COUNCIL'S INCOMES AND EXPENDITURE⁹

4.3.1 Kiambu Town Council is a small young council which came into existence four years ago (1974). It was formally an Urban Council which wholly depended on Kiambu County Council for its financing. When it was raised to a Town Council, it broke away administrative and financially from her 'mother'. However, some links still are existing between the two Councils since Kiambu County Council is the overall incharge of Local administration of Kiambu District and also because it holds so many properties (e.g. land and buildings) in possession which it awaits to transfer to Kiambu

TABLE 13 : INCOME ESTIMATES FOR KIAMBU TOWN COUNCIL
FOR 1976 AND 1977

SOURCE	1976 £	1977 £
Clerk's Department	870	1972
Treasurer's Department	1800	6000
Councillors' Department	-	-
Building and Works Department	-	10750
Surface Drainage	-	-
Street Lights	-	-
Water Supply	913	913
Sewerage	-	-
Night Soil	50	50
Conservancy	2200	2500
Social Hall	225	225
Youth Centre	1350	1350
Cemetary	-	100
Market & Trade	9197	15143
Licences	8090	8095
Coffee Cess (Settled Area)	30425	50112
Land & Plot rates	7494	11900
TOTAL INCOMES	63184	110,140
TOTAL EXPENDITURE	18178	18,613
SURPLUSES	45,006	91,527

Town Council.

4.3.2 From the list of sources of income, it will be noted that these are few, and among the existing ones, only a few of them actually have a significant contribution to the total revenue. By far, coffee cess is the chief source of revenue contributing about 45 to 48% of the total revenue according to Kiambu Town Council's estimates. The other two major sources of revenue are market and trade licences, and land and plot rates. The Council may also occasionally receive grants from the central government or Kiambu County Council. These are not fixed and may vary with particular projects for which they are intended.

4.3.3 Mainly because of lack of manpower and because of absence of a development plan covering the entire area of the town, only 17-29% of this income is spent and the rest is retained. About 57% of total expenditure goes to payment of staff wages and salaries. The Council currently has no community projects which would involve spending a large amount of its incomes. This means that there is an initial capital build-up which can be utilized when an appropriate project evolves.

4.4 LAND VALUES AND OWNERSHIP ¹⁰

4.4.1 Land within the boundaries of Kiambu Town is predominantly in private ownership. In the Rural Area (including the villages) it consists of small freehold parcels, averaging two hectares and owned either by an individual or by an individual on behalf of other family members. In the Settled Area, large chunks of coffee land are owned by individual farmers or companies and held on long

leases (usually 999 years) given by the former colonial government. In Kiambu Urban Area and also in the townships and other market and trading centres, commercial plots are held on short leases, ranging from 33 to 99 years. Residential plots in Kiambu Urban Area are also (some are not) on lease. Only small parcels of land (most of which is developed) are in ownership of the Central Government or Kiambu County Council. Kiambu Town Council - the chief agency for Kiambu Town development - presently does not own any land (except the site-and-service area just to the west of and adjacent to the former Indian Bazaar) but it is hoped that most of the property currently owned by the Kiambu County Council will be transferred to the Town Council in the due course.

4.4.2 Because of its fertility and agricultural potential, land in Kiambu Town is currently very expensive and is sold at soaring prices usually ranging from Shs.10,000/= to 15,000/= per acre in the Rural and Settled areas and similar prices per ¼acre plots in the townships/villages. A ¼acre residential plot costs more than Shs.20,000/= in Kiambu Urban Area.

4.4.3 From the above, it can be concluded that the pattern of land ownership and values prevalent in Kiambu Town pose a crucial obstacle to Kiambu Town Council in future when acquiring land for housing and other public purposes.

NOTES AND REFERENCES

1. Sources of information materials : 1:25,000 base map and Household Survey and Analysis Appendices IA and IB (Table 28,

- figure 12). Supporting information include field surveys and visits.
2. Ditto; Table 29, Fig. 13; Table 13 - Incomes and Estimates for Kiambu Town Council, 1976 and 1977.
 3. Ditto; Table 29, Fig. 13.
 4. and (5) Survey for commercial and industrial facilities (Table 10), Household Survey (Table 28, Fig. 12), market survey and survey for community facilities. Supporting information - field visits.
 6. Field visits and Household Survey, Appendices IA and IB (Tables 28 and 29, Fig. 12 and 13).
 7. Household Survey and Analysis Appendices IA and IB (Table 30, Fig. 14).
 8. Ditto. Table 31, Fig. 15.
 9. See Table 13 - Incomes and Estimates for Kiambu Town Council (1976 and 1977) - Source : Kiambu Town Council Annual Report 1976.
 10. Information primarily obtained from Kiambu Land Registry. Supporting information is obtained from the Town Council and personal interviews with land owners.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented, including the date, amount, and purpose of the transaction. This ensures transparency and allows for easy reconciliation of accounts.

The second section focuses on the regular review of financial statements. It suggests that businesses should conduct monthly reviews to identify any discrepancies or trends early on. This proactive approach helps in making informed decisions and adjusting the budget as needed.

The third part of the document addresses the role of technology in modern accounting. It highlights how software solutions can streamline processes, reduce errors, and provide real-time data analysis. However, it also notes the importance of proper data security and backup procedures to protect sensitive financial information.

The final section discusses the importance of staying up-to-date with changes in tax laws and regulations. It advises consulting with a professional accountant to ensure compliance and to take full advantage of available tax incentives and deductions.

5.0 SUMMARY CONCLUSIONS & GENERAL RECOMMENDATIONS

5.1 CONCLUSIONS

5.1.1 Kiambu Town in General:

5.1.1.1 The town is characterized by a mixture of a predominantly rural population and a small urban population resulting in a well-defined settlement pattern comprising the Shamba Area (predominantly small-scale subsistence farming), the Settled Area (predominantly large-scale coffee farming), the rural villages (Ndumberi, Kanunga and Riabai) and the most urban sector (Kiambu Urban Area).

5.1.1.2 Economically, the town has a strong agricultural base (as evidenced by large and small agricultural development) and a weak industrial and wage-employment base.

5.1.1.3 Socially, the population is characterized by a high proportion of people with low education levels and job skills.

5.1.1.4 Provision of appropriate community facilities and services is either unsatisfactory, inadequate or altogether non-existent.

5.1.1.5 Generally, accessibility both in the settlements (Kiambu Urban Area and in the villages) and in the rural areas (Shamba and Settled areas) - is deplorably unsatisfactory.

5.1.2 Kiambu Urban Area: The town is characterized by

5.1.2.1 An inefficient and uneconomical physical structure which cannot flexibly accommodate anticipated expansion of public and private urban land uses including new housing, commercial,

industrial and administrative areas.

5.1.2.2 An unsatisfactory through and internal vehicular circulation including parking facilities in the shopping areas for customer cars, service vehicles and public transport.

5.1.2.3 Incoherent general urban structure and shopping street pattern.

5.1.2.4 Lack of suitable and adequate community facilities such as the nursery schools, recreational and entertainment facilities.

5.1.2.5 Lack and/or absence of essential infrastructure and public services, for instance, reliable long-term water supply, public sewage disposal, surface water drainage and security street lighting.

5.1.2.6 Lack of diversified employment opportunities and many industrial activities.

5.1.3 The Villages: Generally, all the three villages are characterized by

5.1.3.1 Poor, narrow, and at times, impassable access roads,

5.1.3.2 Lack of essential community facilities such as nursery schools, health facilities, recreational and entertainment facilities, and public open space.

5.1.3.3 Lack of essential services and infrastructure, e.g.

adequate wholesome water supply, public refuse collection service, surface water drainage, public sewage disposal system and security street lighting.

5.1.3.4 Poor environmental conditions in and around the shopping centres and at the market places.

5.1.3.5 Lack of public purpose space for recreation and entertainment.

5.1.3.6 Lack and/or absence of adequate commercial and industrial employment opportunities.

5.1.3.7 Relatively low household income levels.

5.1.4 The Shamba and Settled Areas: Apart from the two areas having common problem of poor access roads, and a common characteristic of having agriculture as their chief economic base, the Shamba Area has additional problems of soil erosion and steep slopes and valleys and unreliable wholesome water supply. The Settled Area has an additional problem of having essential community facilities (shops, schools and health facilities) distantly located from population centres. (labour lines).

5.2 RECOMMENDATIONS

5.2.1 General Development Strategies:

5.2.1.1 Maintenance and protection of the existing strong

agricultural economic base by creating a coherent zoning system comprising definite areas for agriculture (both large and small scale) and permanent human settlements (villages and urban areas) thereby preventing unnecessary conflict of land uses and possible encroachment of urban and village development onto productive agricultural land.

5.2.1.2 Maintenance and upgrading of the rural villages (and where necessary, creation of additional ones) as the service centres for their respective immediate rural surroundings and, at the same time, development of Kiambu Urban Area as the principal shopping, industrial, cultural and administrative centre of the town as well as the district headquarters.

5.2.1.3 Introduction and direction of small-scale light industries and other commercial and industrial activities in line with low-level education and job skills prevalent among Kiambu residents.

5.2.1.4 Creation of new areas (where necessary) for public and private housing development and provision and development to appropriate levels and standard of essential community facilities, infrastructure and services at the main population centres and in the rural areas.

5.2.2 Development Strategy for Kiambu Urban Area:

5.2.2.1 Creation of an efficient and economical urban structure preferably by overhauling the existing inefficient system and creation of one flexibly capable of accommodating any short-and

long-term developments be they housing, commercial industrial, recreational or administrative and also by separation of unrelated land uses and relocation and regrouping of the like or related land uses.

5.2.2.2 Improvement of the general vehicular circulation system by making proper provision for through traffic (e.g. by-pass) and internal vehicle movement (by providing adequate parking facilities for private cars, public transport vehicles, and service vehicles plus adequate circulation space) particularly in the market area and at the bus station.

5.2.2.3 Creation of new areas for necessary community facilities (schools, open space, shopping, play fields, etc.) and housing for all income and social groups.

5.2.2.4 Construction of a central sewage collection and treatment system (preferably, a sewer and oxidation ponds) and also, of a surface water disposal system.

5.2.3 Development Strategies for Existing Villages:

5.2.3.1 Upgrading programme aimed to providing all-weather access roads to residential plots, creating of public open space at appropriate location in the villages, and providing suitable community facilities (schools, health, recreational etc.) to appropriate levels and standard.

5.2.3.2 Environmental improvement of the shopping centres by

long-term developments be they housing, commercial industrial, recreational or administrative and also by separation of unrelated land uses and relocation and regrouping of the like or related land uses.

5.2.2.2 Improvement of the general vehicular circulation system by making proper provision for through traffic (e.g. by-pass) and internal vehicle movement (by providing adequate parking facilities for private cars, public transport vehicles, and service vehicles plus adequate circulation space) particularly in the market area and at the bus station.

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5.2.3.1 Upgrading programme aimed to providing all-weather access roads to residential plots, creating of public open space at appropriate location in the villages, and providing suitable community facilities (schools, health, recreational etc.) to appropriate levels and standard.

5.2.3.2 Environmental improvement of the shopping centres by

constructing surface water drainage system (pavement and open channels), providing car parking spaces for private, public and service vehicles, providing a hard surface to market places and providing public convenience facilities to these markets, constructing covered stalls to these markets and planting trees where appropriate.

5.2.3.3 Provision of adequate wholesome water supply and construction of a central sewage collection and treatment system preferably utilizing sewage settlement basins or oxidation ponds.

5.2.4 Development Strategies for Shamba and Settled Areas:

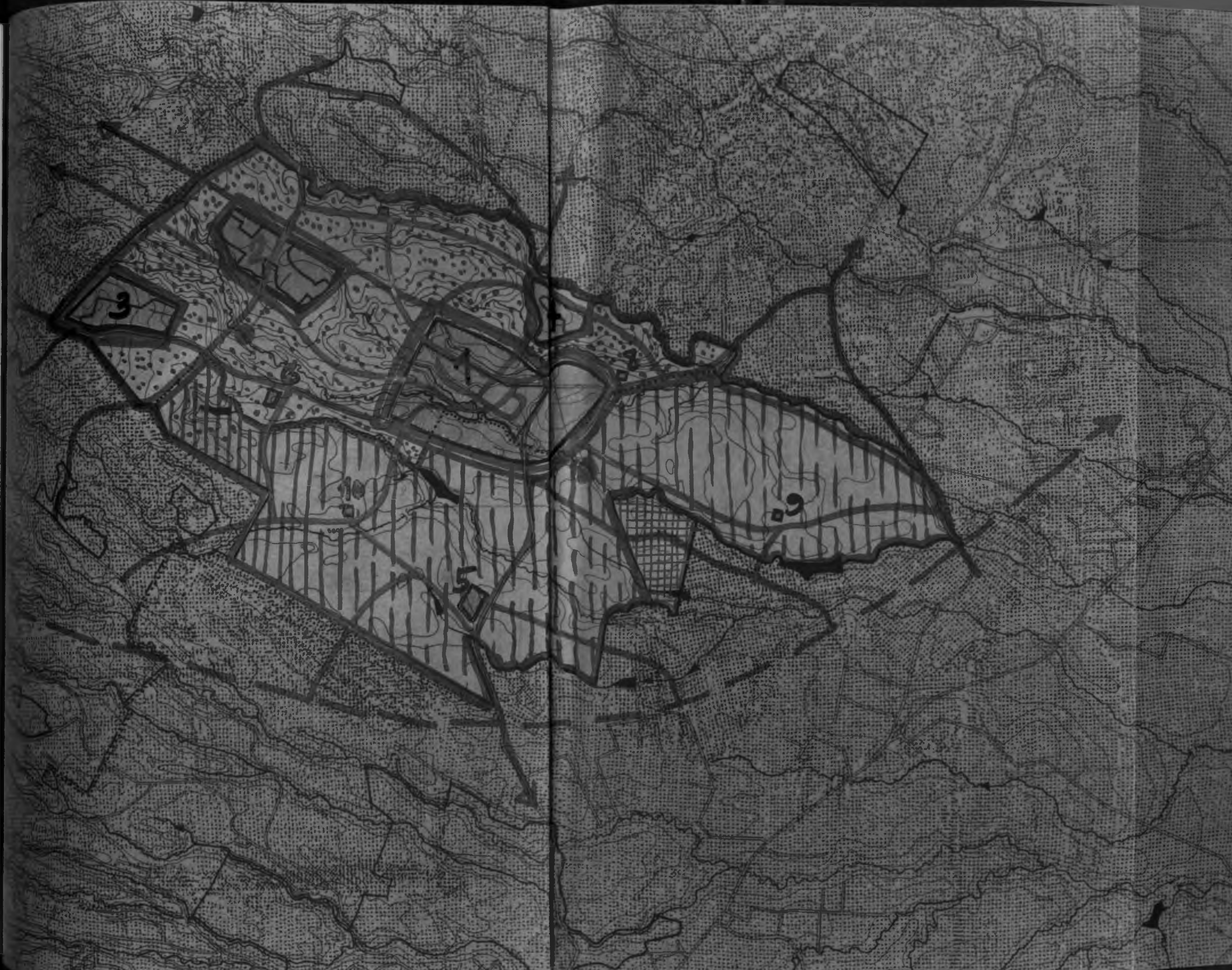
5.2.4.1 Construction of all-weather access roads preferably of murrum or tarmac depending on the importance of the road. Local cheap labour can be employed for road construction.

5.2.4.2 Provision of piped clean water to all rural residents preferably using water from locally available springs.

5.2.4.3 Provision of educational, shopping, health facilities to convenient distances. Corner-shops can be located at strategic positions.

5.2.4.4 Protection and enhancement of the country landscape by encouraging tree-planting and other conservation practices aimed at soil conservation e.g. ceasation of crop cultivation along river banks and terracing of steep slopes.

DEVELOPMENT PLAN FOR KIAMBU TOY



PROPOSED DEVELOPMENT ST

- | | | | |
|--|---|----|----------------------------|
| | MAIN POPULATION OR SERVICE CENTRES | 1 | KIAMBU
PRAIRIE
RURAL |
| | MINOR SHIPPING AND SERVICE CENTRES | 2 | NOU
RURAL |
| | SMALL-SCALE AGRIC. ZONE (SHAMBA AREA) MAX. DENSITY = 16 PPH/HA. | 3 | KIAMBU
RURAL |
| | LARGE-SCALE AGRIC. ZONE (SETTLED AREA) MAX. DENSITY = 6 PPH/HA. | 4 | RURAL |
| | FOREST RESERVE - KIAMBU FOREST | 5 | KIAMBU
LOCAL |
| | MAIN AND MINOR ROADS | 6 | TOWN
LOCAL |
| | PROPOSED RING ROAD BY NAIROBI CITY COUNCIL | 7 | GRAND
LOCAL |
| | SITE FOR SEWAGE TREATMENT (OXIDATION MUD) | 8 | KIAMBU
LOCAL |
| | | 9 | STATE |
| | | 10 | STATE |
| | | | |

SCALE: 0 0.5 1 2 3

KURIA-GATHONI, E.J.
M.A PLANNING
YEAR II 1976/78

UNIVERSITY
NAIROBI
URBAN AND REGIONAL
PLANNING

5.3 DISTRIBUTION OF POPULATION AND COMMUNITY FACILITIES

5.3.1 General: To avoid under-or over-provision of important but expensive community facilities, an average of the three population projections, viz; 101,000 (low projection by Survey), 133,000 (high projection by Survey) was obtained, i.e. 120,000. This population figure thus forms the basis on which ultimate housing and community facilities are provided up to the year 2000 A.D.

5.3.2 Population Distribution by Area: By keeping population densities in the agricultural areas (Shamba and Settled areas) as low as possible - 3ppha (approx.) in the Settled Area and 16ppha (approx.) in the Shamba Area - and consequently raising residential densities in the villages to 250ppha and in Kiambu Urban Area to 150 - 350ppha, the 2000 A.D. average population of 120,000 can comfortably and economically be accommodated within the present boundaries of Kiambu Town. This can well be done without any undue increases in residential areas, except for Kiambu Urban Area which requires some restructuring. The table b below shows the proposed population distribution and the resultant densities. It will be noted that population distribution essentially consists of concentration of the majority of the 2000 A.D. population (70%) to Kiambu Urban Area, Ndumberi, Kanunga and Riabai villages (with the bulk of the share (40%) going to Kiambu Urban Area) thus, leaving the Shamba and Settled areas with about a quarter of the population. This helps maintaining the latter areas as predominantly agricultural.

TABLE 14 : POPULATION DISTRIBUTION BY AREA & DENSITY (2000 A.D.)

A R E A	Total Net Area in ha	Average densities ppha	Accommodated popul.	Percentage Total %
Kiambu Urban Area + KIST & Prisons	approx. 180	150 250 350	48 000- 50 000	40
Ndumberi Village	approx. 72	250	18 000- 20 000	15
Kanunga Village	approx. 48	250	12 000- 15 000	10
Riabai Village	approx. 24	250	5 000- 6 000	5
Shamba Area	approx. 1500	approx. 16	20 000- 24 000	20
Settled Area	approx. 3600	3	10 000 - 12 000	10
Total	approx. 5424	-	113 000- 127 000	100%

5.3.3 Distribution of Housing Units (2000 A.D.). At 6.21 persons per household, it is projected that a total of 19320 households would be accommodated in the town. These households would require the same number of dwelling units, 12476 of which would be the new units required to be added to the existing stock of 6844. This, of course, does not include housing units which might be destroyed in the redevelopment programme or the old ones which would be replaced in the course of time. 87% of the additional units will be required to be constructed at Kiambu Urban Area, Ndumberi, Kanunga and Riabai villages with the majority of the shares (57%), of course, going to Kiambu Urban Area. As about 55% of Kiambu households are within

monthly income regime of KShs.300/= to KShs.1200/= (the range covered by the National Housing Corporation's site-and-service programme), it is recommended that long-term mortgage facilities and site-and-service schemes programme be introduced for house development particularly in the main settlement areas (Kiambu Urban Area and in the villages). In this regard, quasi-governmental bodies like the National Housing Corporation (NHC) and the Housing Finance Company of Kenya (HFCK) will play a significant role in housing development and financing.

TABLE 15 : DISTRIBUTION OF HOUSING UNITS (2000 A.D.)

A R E A	1977 Households or House Units	2000 A.D. Households or House Units	2000 A.D. Additional Units	Additional Units Percent % approx.
Kiambu Urban Area	681	7728	7047	57
Ndumberi Village	846	2898	2052	16
Kanunga Village	630	1932	1302	10
Riabai Village	523	966	443	4
Shamba Area	2992	3864	872	7
Settled Area	1172	1932	760	6
Total No.	6844	19320	12476	100

5.3.4 Distribution of Community Facilities: The table below indicates the number of existing community facilities, the total number required up to the year 2000 A.D. and the number of additional facilities required to be added to the existing stock. As the majority of the population will be accommodated in Kiambu Urban Area it is obvious then that the lion share of these

facilities will go to Kiambu Urban Area. It is recommended that every primary school should also have a nursery school in the same compound and that where a community centre is required a multi-purpose community centre - housing a nursery school, health centre, local administration offices, a social hall and, probably a village polytechnic (where applicable) - should be planned in preference to providing the above associated social facilities severally. To activate the somewhat "inactive" shopping centres it is also recommended that the designated industrial centres and the markets should be located within the respective shopping centres. In the Shamba and Settled areas school playing fields should be open for public use. The same thing applies to class-rooms which may also be used for other social functions (e.g. evening adult classes, worships, weekend social meetings, etc.) instead of building separate facilities for these functions.

TABLE 16 : DISTRIBUTION OF COMMUNITY FACILITIES (2000 A.D.)

COMMUNITY FACILITY	Kiambu Urban Area	Ndumberi Village	Kanunga Village	Riabai Village	Shamba Area	Settled Area	Total	Existing	Additional up to 2000
Population	48 000- 50 000	18 000- 20 000	12 000- 15 000	5 000- 6 000	20 000- 24 000	10 000- 12 000	113 000- 127 000	42 500	70 000- 84 500
Nursery schools R = 0.153 or catch pop. = 2000-2500	20 to 25	8 to 10	6 to 8	2 to 3	10 to 12	4 to 6	50 to 64	5	45 to 59
Primary schools R = 0.127 or catch pop. = 5000-6000	8 to 10	3 to 4	2 to 3	1 to 1	4 to 4	2 to 2	20 to 24	11	9 to 13
Secondary schools R = 0.064 or catch pop. = 10000-12000	4 to 5	1 to 1	1 to 2	- to -	1 to 2	1 to 1	8 to 11	4	4 to 7
Village Polytech. at all population centres	1	1	1	1	-	1	5	-	5
College of Higher Education	1	-	-	-	-	-	1	1	-
Health centre/ Health clinic catch pop. = 10000-12000	4	1	1	1	-	1	8	-	8
Main shopping centres 10 shops & above	4	2	1	1	2	1	11	6	5
Local Market catch pop. = 10000-12000	4 to 5	1 to 2	1	1	-	1	8 to 10	4	4 to 6
Industrial centre catch pop. = 10000-12000	1	1	1	1	-	1	5	-	5
Local Admin. offices/ centre catch pop. = 10000-12000	1	1	1	1	-	1	5	3	2
Playing field catch pop. = 10000-12000	4 to 5	1 to 2	1	-	-	1	7 to 9	2	5 to 7
Community centre catch pop. = 10000-12000	4 to 5	1 to 2	1	1	-	1	8 to 10	1	7 to 9

* NB R = ratio of school-age children to total population.

DEVELOPMENT PLAN KIAMBU

PROPOSED DISTRICT
POPULATION & CO.

-  PRIMARY SCHOOL
-  SECONDARY SCHOOL
-  VILLAGE POLYTECHNIC
-  KIAMBU INSTITUTE
-  SHOPPING CENTRE
-  MARKETS (C.M.A.)
-  HEALTH CENTRES
-  COMMUNITY CENTRE
-  MAJOR SPORTS/RECREATION
-  LOCAL ADMINISTRATION
-  FIRE STATION
-  MAJOR & SUB POST OFFICE
-  POLICE POSTS/STATIONS
-  INDUSTRIAL CENTRE

PAGE 1

BASE MAP SOURCE: 1:1

KURIA-GATHONI, E.
M.A. PLANNING
YEAR II 1976/78



5.4 PLAN IMPLEMENTATION

5.4.1 Formulation of Priorities:

5.4.1.1 From the nousehold survey, it is clear that housing does not pose a very serious problem at present. More attention should, therefore, be directed to the provision and/or improvement of the community facilities and the infrastructural services before a serious housing programme is embarked on. The urgency with which each particular facility or service is required to be provided or improved varies with settlement areas as shown below:

5.4.1.2 Kiambu Urban Area:

.2.1 Improvement of accessibility to the central area of the urban area by (a) constructing all-weather access roads to all shopping areas and, particularly at the market area; (b) constructing surface water drainage at the market and shopping area; (c) provision of parking spaces for service vehicles, public transport vehicles and cars in general; (d) construction of a central area by-pass route - Nairobi/Githunguri Road.

.2.2 Construction of a central sewage collection system and sewage treatment works (oxidation ponds).

.2.3 Improvement of Kirigiti area for recreational purposes.

.2.4 Installation of street lights, particularly around the market area.

.2.5 Construction of new public houses to absorb the residents of the Council houses near the market so that they can leave the area to allow commercial expansion into this housing area.

5.4.1.3 The Villages:

.3.1 Provision of adequate wholesome water to all people.

.3.2 Construction of new nursery schools in the villages.

.3.3 Improvement of village access roads by at least providing a murram surface on them.

.3.4 Surface water drainage to be provided at the market area and at the shopping centre.

.3.5 Provision of garbage collection and disposal service.

.3.6 Construction of a centralized sewage disposal system and sewage settlement basins.

.3.7 Creation of some open spaces in the villages for recreational purposes.

.3.8 Opening up of village polytechnics.

5.4.1.4 The Shamba Area:

.4.1 Improvement of primary access roads by at least providing murram surface on them.

.4.2 Construction of nursery schools.

.4.3 Provision of reliable supply of wholesome water for human consumption.

5.4.1.5 The Settled Area:

.5.1 Starting a new shopping centre at Kasarini.

.5.2 Construction of more nursery schools in the area.

.5.3 Improvement of access roads.

.5.4 Provision of a health facility at Kasarini.

5.4.1.6 While it has been recommended earlier that pure water can be supplied from local springs it is important to note that this is only a short-term solution. Long-term water problems can be solved by supplying water from a remote area or by making long-range arrangements with the Nairobi City Council to allow Kiambu to tap water from one of its (NCC) aqueducts passing through the town.

5.4.2 Phasing of the Plan: The plan can be divided into three phases based on the urgency with which recommendation for certain action areas can be implemented.

5.4.2.1 Phase I: This is a short-term plan covering a period of five years from 1977 to 1981. During this period the most urgent requirements of the town can be provided in order of priorities.

In this list are: Provision of wholesome water supply to the rural villages of Ndumberi, Kanunga and Riabai; Improvement of accessibility of Kiambu Urban Area's commercial and market areas; Construction of required number of new nursery schools, particularly in the villages and in Kiambu Urban Area; And improvement of important access roads both in the villages and in the Shamba Area.

5.4.2.2 Phase II: This is a medium-range plan taking a period of about 10 years and follows Phase I and extends to 1990.

During this period most of the priorities pertaining to each settlement area as discussed earlier in 5.4.1 above will be implemented. These will also include some of the projects which would remain uncompleted during Phase I and also some rehabilitation projects in the main settlement areas - Kiambu Urban Area, Ndumberi, Kanunga and Riabai villages.

5.4.2.3 Phase III: This is the final phase extending up to year 2000 A.D. and is expected to cover unfinished projects from earlier phases and other capital projects as proposed in the plan. It is important to note that no clear demarcation of phases has been suggested. Phases, as well as projects, may overrup because of some unforeseen circumstances such as lack of adequate finances, lack of administrative or technical staff necessary for implementation of certain projects or even some unnecessary delays caused by usual routine inefficiencies common in public offices. All these hitches are expected but what is more important is that priority projects must be completed approximately within the period during which they are programmed to take place.

5.4.3 Implementing Agents: The chief agents to effect most of the

policies pertaining to public projects are the central government and/or government ministries or their departments, Kiambu Town Council, quasi-governmental bodies (e.g. National Housing Corporation) and, to some extent, Kiambu County Council. Others who might be interested in public projects include social institutions such as local harambee self-help groups, missionaries, and welfare organizations such as Maendeleo ya Wanawake Organization and the Gikuyu Embu and Meru Association (GEMA). Private projects will primarily be implemented by individuals or private organizations and, at times, government or Council's aid will be provided where necessary. It is, therefore, strongly advocated that the spirit of full public participation in the implementation of the plan be fully employed to get the best out of the plan.

5.4.4 Kiambu Town Council: Kiambu Town Council, being the chief implementing agent, is a young council and is currently faced with a serious shortage of both administrative and technical manpower. Without the necessary manpower, it will be extremely difficult for the Council to embark on any capital projects as proposed by the plan. It is, therefore, recommended that recruitment of the necessary manpower (particularly the technical staff) should be a major priority of the Council. The Council has a good initial financial base to cope with this at least to a small extent. In case of difficulties, secondment of technical staff can be made from other well-established institutions such as the Nairobi City Council, Ministry of Works and the Ministry of Lands and Settlement.

A further recommendation is, the Council should from the earliest time embark on a planned training programme of the necessary man-

power either on the job or in the institutions of higher learning locally or abroad. Emphasis should be placed on the production of more semi-professionals to assist the fewer and difficulty to obtain full professionals. In this connection, graduates from the Kiambu Institute of Science and Technology and from the proposed village polytechnics can be of tremendous assistance.

5.4.5 Land for Public Purposes: The development plan entails, to a certain extent, requirement of additional land for public purposes. Land must, therefore, be made available for development when and where needed at reasonable prices. If land for public or publicly aided development is bought just prior to the beginning of the project, land speculation will inevitably increase acquisition prices. To keep down land costs for new development, it is recommended that, as in the case of housing for low-income families, privately owned land in various designated areas in the plan be acquired by government (on behalf of Kiambu Town Council) and held (along with other land already in public ownership) as a public land reserve. Pending development, present owners should be enabled to continue to use the land so acquired on a lease-back basis. On demand for development, the land would be made available at reasonable terms to individuals and private or public agencies in line with the proposed development policies and regulations.

5.5 STRUCTURE PLAN FOR KIAMBU URBAN AREA

5.5.1 Description of the Plan: Based on the broad development strategy for the whole of Kiambu Town, a more detailed framework to guide development and growth of Kiambu Urban Area has been

formulated closely interpreting social and economic development policies - as recommended earlier in the report - into a physical framework. The plan, essentially, entails an urban framework comprising the central business area, the industrial area, housing areas, recreational areas and areas for other community and public facilities.

5.5.1.1 The Central Business Area: This is a linear shopping strip on either side of the Nairobi/Kiambu Road spanning between the District Headquarters (to the east) and the Town Hall (to the west). On the northern side, the shopping street is flanked by the Kiambu District Hospital and to the south by proposed residential flats. It comprises the former European and African shops, the market, in addition to areas originally used or reserved for housing (including part of County Council's housing estate near the Nairobi/Kiambu Road). With the District Headquarters, the District General Hospital, and the Town Hall acting as important "magnets", much business is expected to be generated by country and local people plying between the "poles" through the shopping area. It is, therefore, proposed that the central area be developed as the "downtown" of Kiambu Town as well as for the surrounding rural areas outside the town boundaries.

5.5.1.2 Industrial Area: Situated to the south of the Central Business Area and separated from it by a river valley is the designated area for light industries. It includes the former Indian shops and the sites presently occupied by the Ministry of Works maintenance depot, government prison, and the administration police lines. The present shop premises may be used as warehouses for wholesale goods or converted into industrial premises to house

light and small industrial activities such as wood and metal workshops. When, finally, the prison and the police lines get moved to their respective designated areas, their present sites may be used for new industrial premises particularly those requiring large sites for their operations.

5.5.1.3 Housing Areas: Peripherally located and surrounding the central "core" comprising the Central Business Area, the Industrial Area, the District Headquarters, the Town Hall and the District Hospital are the new sites for low, medium and high density housing. In the new housing areas, community structure is developed on the basis of a unit housing block of 2000-2500 people - the community assumed to support a nursery school. Three or two nursery-school housing blocks combine to form a primary-school catchment population of 5000-6000 which is capable of supporting - in addition to a primary school - other community facilities such as a local shopping area and a public open space. A group of four to six nursery-school communities constitutes a secondary-school catchment population of 10000-12000 which is capable of supporting in addition to a secondary school - a larger shopping centre, community centre, a health centre/clinic, a playing field and a local market. It will be important to note that in addition to these new housing areas outside the central core, housing areas also do exist or are proposed at the central area for senior government officers, hospital staff, police and also private residents. These are expected to avail themselves of the community facilities existing or proposed in the central area.

5.5.1.4 Recreational Areas: Situated to the east of the Nairobi/Kiambu Road in a somewhat marshy area is the designated

site for recreational facilities such as the stadium, large playing fields, social clubs, and a public park. Apart from the stadium which is currently being used as such the remainder of the area is either used as vacant land or for subsistence farming. The golf course to the west of the designated recreational area is expected to shift into the new area thereby giving room for house development.

5.5.1.5 Other Public Purposes and Institutions: In addition to the District Hospital, town and district offices in the central area, other public and community facilities include: the Kiambu Institute (situated outside the central area along the Nairobi/Kiambu Road), the proposed village polytechnic also outside the central area and opposite (across the Nairobi/Kiambu Road) the Kiambu Institute, the government prison and the juvenile remand home to the east of the recreational area above. Other less important community facilities such as churches, incident open space are located here and there within the urban fabric. The proposed site for public cemeteries is adjoining the recreational area at Kirigiti.

5.5.1.6 Communication: The above urban land-uses are keenly interconnected by a system of internal road network and a series of pedestrian routes. They are, further, connected to the rural villages, the Shamba and Settled areas by a system of regional roads passing through or by-passing the town centre and also by other minor local roads.

5.5.2 Growth of the Urban Area: The framework, as has been described above, has been made sufficiently flexible to cater for

a population in the region of 50,000 without any noticeable deterioration of the urban form. It is, therefore, recommended that growth of the urban area beyond the town by-pass routes and the link road between Kiambu/Kanunga road and the Kiambu/Ndumberi road should be discouraged. This is necessary to prevent the infringement of the productive agricultural land by urban growth.

5.6 RECOMMENDATIONS FOR FURTHER WORK AND RESEARCH

5.6.1 For effective implementation of a development plan several studies and sectoral programmes of work have to be carried out (in addition to the principal recommendations as set out in the main development framework) by a team of or individual experts with appropriate expertise knowhow experience, financial and administrative ability. Kiambu is no exception and, therefore, the following are recommended for further studies and/or additional work:

5.6.1.1 Preparation of a detailed action plan for Kiambu Urban Area with more attention given to the central shopping area and the market area.

5.6.1.2 Preparation of detailed action plans and associated rehabilitation programmes for Ndumberi, Kanunga and Riabai villages.

5.6.1.3 Detailed study of the indigenous methods of construction with a view of adopting these in the proposed site-and-service schemes programmes.

5.6.1.4 Repealing or reviewing of the local planning and building by-laws to suit the prevailing local conditions.

5.6.1.5 Finding ways and means of enhancing and improving productivity of the small-scale agricultural holdings and also of effective financing and marketing of farm produce.

5.6.1.6 Finding ways and means of harnessing the local water resources (e.g. springs and rain water) for small-scale pure water supply particularly to the Shamba and Settled areas.

5.6.1.7 Seeking and promoting national/regional co-operation with the Nairobi City Council, Kiambu County Council, and the relevant governmental or quasi-governmental bodies in carrying out development policies pertaining to such programmes as regional road construction/improvement, public housing programmes and general development of the areas surrounding the town of Kiambu.

APPENDIX IA

SOCIO-ECONOMIC HOUSEHOLD SURVEY QUESTIONNAIRE

Date _____

Interviewer _____

- 1) Name of household head _____
- 2) Plot Number _____ Plot size _____
- 3) Place:
 - a) Kiambu Urban Area _____
 - b) Ndumberi Village _____
 - c) Kanunga Village _____
 - d) Riabai Village _____
 - e) Shamba Area _____
 - f) Settled Area _____
- 4) Number of Persons in the household _____

Age Group \ Sex	Below	3-5	6-12	13-17	18-55	56+	TOTAL
	3 yrs	yrs	yrs	yrs	yrs	yrs	
Males							
Females							
Total No.							

- 5) Education level for adults (18 yrs and over):-

	SKILLED	UNSKILLED
(a) Primary Education	_____	_____
(b) Secondary Education	_____	_____
(c) College Education	_____	_____
(d) Uneducated	_____	_____
- 6) What is your main source of income?
 - (a) Agriculture _____
 - (b) Business (Specify) _____
 - (c) Employment (Specify) _____
 - (d) Unemployed _____

7) Where do you work?

- a) Kiambu Urban Area _____
- b) Own Village/Shamba Area _____
- c) Settled Area _____
- d) Nairobi _____
- e) Elsewhere (specify) _____
- f) Don't know/not employed _____

8) Approximately how much (in KSh) do you get per month/year from your main source of income? _____

9) How much (in KShs.) per month/year do you get from your secondary sources of income? _____

10) What is the total income per month/year do other members of the household get? _____

11) Monthly household income brackets in KSh:

(to be computed after getting total household income)

- a) 0 to 99 _____ %
- b) 100 to 199 _____ %
- c) 200 to 299 _____ %
- d) 300 to 399 _____ %
- e) 400 to 599 _____ %
- f) 600 to 999 _____ %
- g) 1000 to 1499 _____ %
- h) 1500 to 1999 _____ %
- i) 2000 to 3999 _____ %
- j) 4000 and over _____ %

12) Approximately how much do you spend on (KShs)

- a) Clothes _____ (%)
- b) Education _____ (%)

- c) Food _____
- d) Travelling _____
- e) Relatives _____
- f) Housing _____
- g) Recreation _____
- h) Miscellaneous _____

13) How much per month do you save/borrow?

percent or fraction _____

14) Are you satisfied with your present income?

If no, how do you think you would improve it?

Discuss _____

15) Type of main house occupied by household:

- a) Flat _____
- b) Terraced house _____
- c) Semi-detached _____
- d) Single house _____

16) Ownership of the dwelling :

- a) Self-owner _____
- b) Rented _____
- c) Staff _____
- d) Other (specify) _____

17) Who built your house?

- a) Self _____
- b) Fundi/contractor _____
- c) Partly fundi/partly self _____
- d) Harambee group _____
- e) Other (specify) _____

18) Building materials of the dwelling:

- a) Permanent (stone, bricks) _____
- b) Semi-permanent, good condition
(mud + wattle, timber) _____
- c) Semi-permanent, poor condition
(scrap materials, thatch) _____
- d) Others (specify) _____

19) Financing of Construction :

- a) Family savings _____
- b) Tenant purchase _____
- c) Mortgage _____
- d) Bank loan _____
- e) Harambee self-help _____
- f) Other ways (specify) _____

20) Rent per month in KShs. (Rented house) _____

21) Number of habitable rooms (Rented house) _____

22) Approximately total floor area (m^2) _____

23) Services provided:

- a) Water supply (specify source) _____
- b) Sewage disposal (specify method) _____
- c) Electricity supply
(specify connected or unconnected) _____
- d) Garbage collection (specify collector) _____

24) Has the family got a means of transport?

- a) Bicycle, motorcycle _____
- b) Car _____
- c) Lorry _____

25) Are you satisfied with your access roads/parking?

- a) Yes _____
- b) No _____

26) Where do you go for

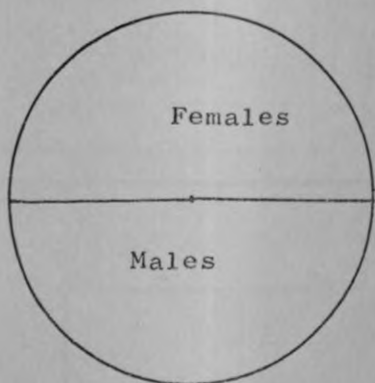
- | | (1 or under 1km) | (over 1km) |
|----------------------|------------------|------------|
| a) Shopping | _____ | _____ |
| b) Nursery school | _____ | _____ |
| c) Primary school | _____ | _____ |
| d) Secondary school | _____ | _____ |
| e) Health Centre | _____ | _____ |
| f) Library | _____ | _____ |
| g) Play ground, etc. | _____ | _____ |
| h) Entertainment | _____ | _____ |
| i) Others (specify) | _____ | _____ |

APPENDIX IB - ANALYSIS

TABLE 17 POPULATION BY AGE AND SEX

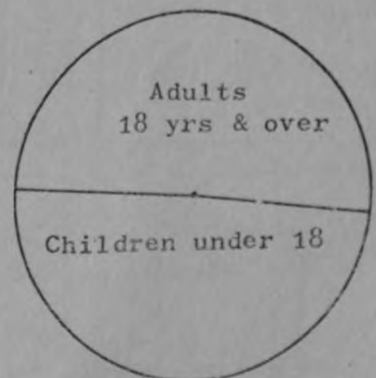
Place Age/Sex	Total No. of House-hold interviewed 10%	Age Category	Male	Female	Total for each age category	Total for each area (Interviewed)	Est. Pop. for each area 100%
Kiambu Urban Area	79	Over 18 yrs	96	95	191	423	4230
		Under 18yrs	127	105	232		
Ndumberi Village	87	Over 18 yrs	111	126	237	525	5250
		Under 18 yrs	141	147	288		
Kanunga Village	62	Over 18 yrs	78	101	179	391	3910
		Under 18 yrs	105	107	212		
Riabai Village	53	Over 18 yrs	77	77	154	325	3250
		Under 18 yrs	81	90	171		
Shamba Area	249	Over 18 yrs	388	477	865	1858	18580
		Under 18 yrs	492	501	993		
Settled Area	122	Over 18yrs	241	145	386	728	7280
		Under 18 yrs	169	173	342		
Totals	652		2106	2144	4250	4250	42500

Total Adults (over 18 yrs) = 2012
Total Children (Under 18yrs) =2238



a

FIG 1



b

APPENDIX IB - ANALYSIS

TABLE 18 : POPULATION DISTRIBUTION BY AGE GROUP

AREA AGE GROUP	Below 3 yrs	3 - 5 yrs	6 - 12 yrs	13 - 17 yrs	18 - 55 yrs	56yrs & over	Total Popul. Interviewed	Total Popul Estimated	Average size of household
Kiambu Urban Area	81	67	56	28	143	48	423	4230	5.35
Ndumberi Village	99	85	69	35	160	77	525	5250	6.03
Kanunga Village	73	59	53	27	126	53	391	3910	6.31
Riabai Village	62	50	38	21	112	42	325	3250	6.14
Shamba Area	258	275	240	120	519	346	1858	18580	7.46
Settled Area	102	116	82	42	304	82	728	7280	5.97
Total Number	775	652	538	273	1364	648	4250	42500	37.26
Total Percentage	18.2	15.3	12.7	6.4	32.1	15.3	100.0	-	-
Age Category		Nursery School Age	Primary School Age	Secondary School Age	Working age	Retirement age	* Overall average household size = 6.21 persons		

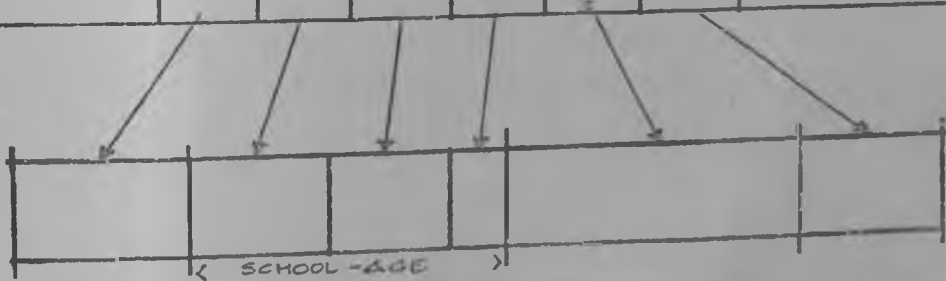


FIG 2

APPENDIX IB - ANALYSIS

TABLE 19 : EDUCATIONAL LEVELS & SKILLS (18 Yrs and Over).

Area Education level/ Skills	PRIMARY EDUCATION		SECONDARY EDUCATION		COLLEGE EDUCATION		Total Number
	Skilled	Un- skilled	Skilled	Un- skilled	Skilled	Un- Skilled	
Kiambu Urban Area	39	63	22	38	12	17	191
Ndumberi Village	46	126	20	33	4	8	237
Kanunga Village	25	112	16	21	2	3	179
Riabai Village	12	108	9	25	-	-	154
Shamba Area	105	561	58	129	9	3	865
Settled Area	44	292	11	27	7	5	386
Total Number	271	1262	136	273	34	36	2012
Total Percent	13.4	62.7	6.8	13.6	1.7	1.8	100.0
Total for ea each education levels	76.1%		20.4%		3.5%		100.0%

Skills : Skilled = 21.9%

Unskilled = 78.1%

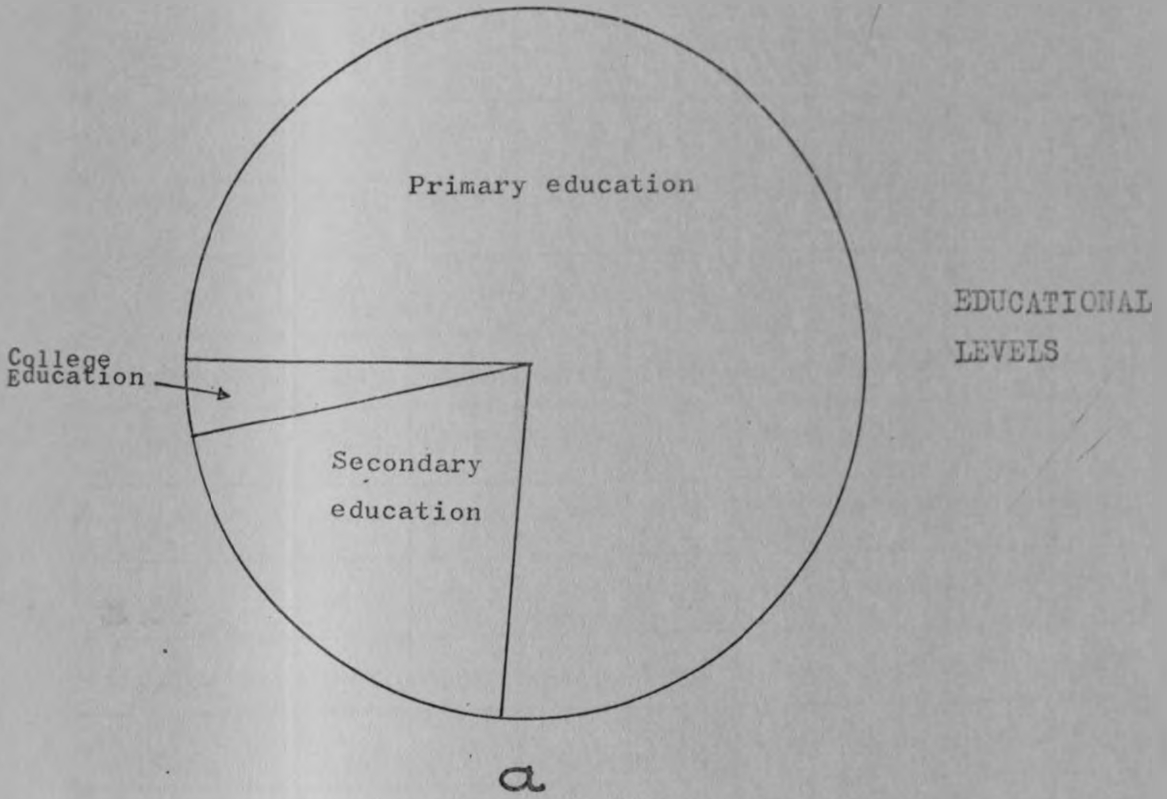


FIG 3

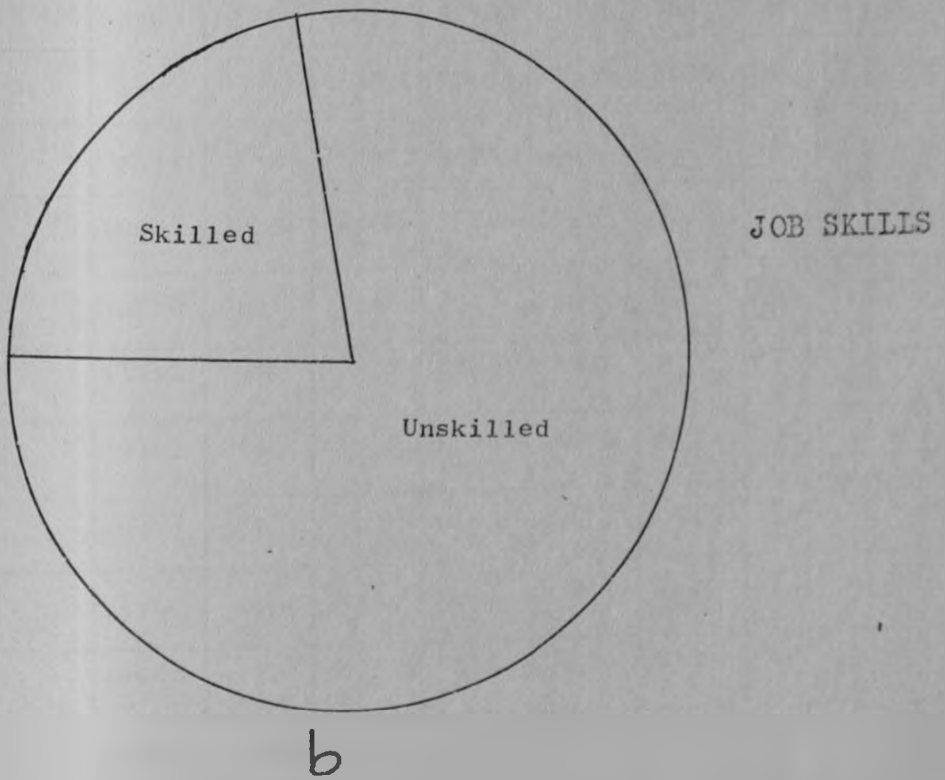
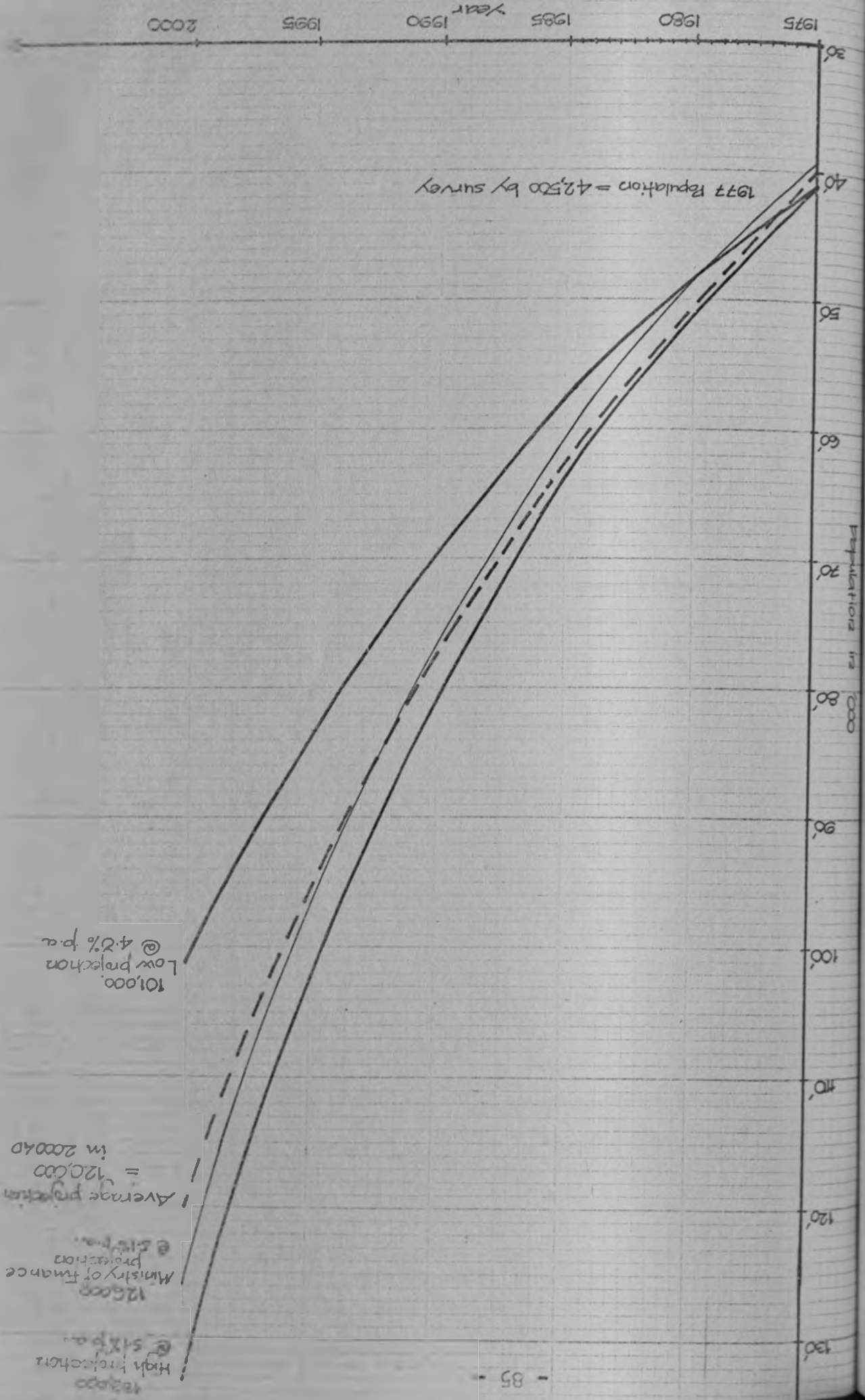


TABLE 20 : POPULATION PROJECTIONS BY AREA & YEAR

Year \ Area	Kiambu Urban Area (6.4%)	Ndumber Village (4.1%)	Kanungu Village (4.1%)	Ribab Village (4.1%)	Shamba Area (3.6%)	Settled Area (1.6%)	Low Popul. (4.0%)	Total Pop. (20.9%)
1977	4230	5250	3910	3250	18580	7280	42500	42500
1978	4501	5465	4070	3383	19249	7396	44064	44668
1979	4789	5689	4237	3522	19942	7514	45693	46946
1980	5095	5922	4411	3666	20660	7634	47388	49340
1981	5421	6165	4592	3816	21504	7756	49254	51856
1982	5768	6418	4780	3972	22278	7880	51096	54501
1983	6137	6681	4976	4135	23080	8006	53015	57281
1984	6530	6955	5180	4305	24026	8135	55131	60202
1985	6948	7240	5293	4482	24891	8265	57219	63272
1986	7393	7537	5613	4666	25777	8397	60383	66499
1987	7866	7846	5843	4857	26705	8531	61648	69890
1988	8369	8168	6983	5056	27666	8667	64009	73454
1989	8905	8503	6332	5263	28662	8806	66471	77200
1990	9475	8852	6592	5479	29694	8947	69039	81137
1991	10081	9215	6862	5704	30763	9090	71715	85275
1992	10726	9593	7144	5938	31879	9235	74506	89624
1993	11412	9986	7437	6181	33017	9383	77416	94195
1994	12142	10395	7742	6434	34206	9533	80452	98999
1995	12919	10821	8059	6698	35437	9686	83620	104048
1996	13746	11265	8389	6973	36713	9841	86927	109354
1997	14626	11728	8733	7259	38035	9998	90927	11493
1998	15562	12209	9191	7557	38940	10158	93617	120793
1999	16558	12710	9568	7867	40342	10321	97366	126953
2000	17618	13231	9960	8189	41794	10486	101278	133428

POPULATION PROJECTIONS

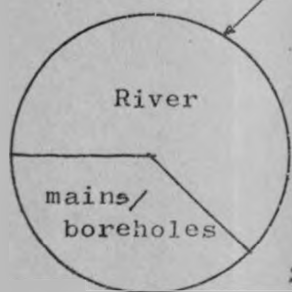
FIG 4



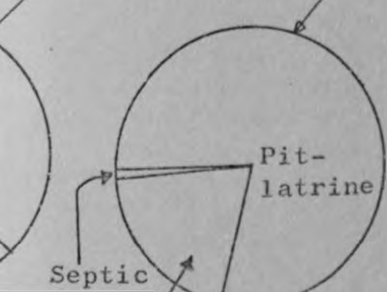
APPENDIX IB - ANALYSIS

TABLE 21 : TYPES OF SERVICES PROVIDED

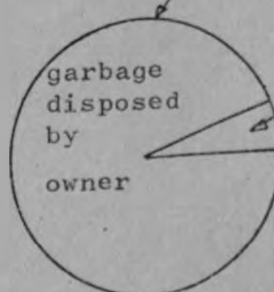
Place / Service	Water Supply		Sewerage Disposal			Electricity	Garbage Disposal		Total No. Interviewed
	River	Mains Bore holes	Pit Latrine	Conservancy	Septic		Town Council	Owner	
Kiambu Urban Area	2	77	49	26	4	71	37	32	79
Ndumberi Village	76	11	84	3	-	63	-	87	87
Kanuga Village	59	3	61	1	-	29	-	62	62
Riabai Village	53	-	53	-	-	14	-	53	53
Shamba Area	211	38	243	6	-	85	-	249	249
Settled Area	5	117	22	98	2	98	-	122	122
Total No.	406	246	512	134	6	360	37	615	652
Total Percentage	62.3	37.7	78.5	20.6	0.9	55.2	5.7	94.3	100.0



a



Conservancy b



c

FIG 5
K.T.C.

APPENDIX 1B - ANALYSIS

TABLE 22 : LOCATION OF COMMUNITY FACILITIES

AREA FACILITY LOCATION	TOTAL NO. OF PEOP. INTERVIEWED	SHOPPING		NURSERY SCHOOL		PRIMARY SCHOOL		SECONDARY SCHOOL		HEALTH CENTRE		PLAY GROUP		LIBRARY	
		≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM	≤ 1 KM	> 1 KM
Kiambu Urban	79	79	-	68	11	47	32	-	79	79	-	43	36	79	-
Ndumberi	87	79	8	45	42	44	43	4	83	-	87	45	42	-	87
Kanunga	62	58	4	58	4	6	56	6	56	-	62	17	45	-	62
Riabai	53	53	-	53	-	28	25	-	53	-	53	35	18	-	53
Shamba	249	53	196	48	201	104	145	38	211	12	237	22	227	-	249
Total No.	652	316		372		415		604		557		481		570	
Total Percen	100	48.5		57.0		63.7		92.6		80.8		73.8		87.1	

FIG 6



APPENDIX IB - ANALYSIS

TABLE 23 : HOUSE TYPES

Place / Type of House	Flats	Terraced Houses	Semi-Detached Houses	Single Houses	Total No.
Kiambu Urban Area	37	-	34	8	79
Ndumberi Village	18	-	14	55	87
Kanunga Village	10	-	11	41	62
Riabai Village	5	-	3	45	53
Shamba Area	11	-	20	218	249
Settled Area	10	4	28	80	122
Total No.	91	4	110	447	652
Total Percent	14.0	0.5	17.0	68.5	100.0

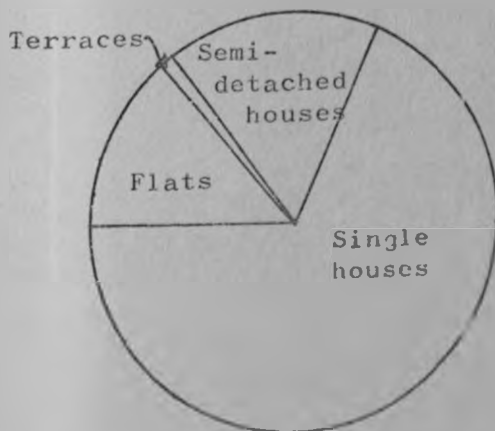


FIG 7

APPENDIX IB - ANALYSIS

TABLE 24 : OWNERSHIP OF THE DWELLING

Area House Ownership	Self- Owner	Rented	Staff	Total Number
Kiambu Urban Area	18	37	24	79
Ndumberi Village	52	30	5	87
Kanunga Village	51	9	2	62
Riabai Village	38	15	-	53
Shamba Area	234	13	2	249
Settled Area	7	19	96	122
Total Number	400	123	129	652
Total Percentage	61.3	18.9	19.8	100.0

FIG 8

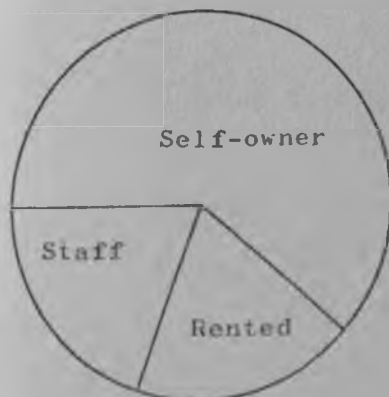
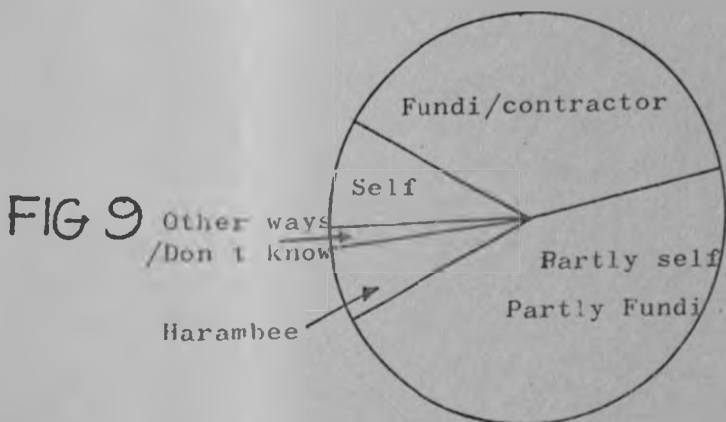


TABLE 25 THE BUILDER OF THE HOUSES

Area Builder	Self	Fundi/ Contractor	Partly Fundi/ Partly self	Harambee Group	Other way/ don't Know	Tota. Number
Kiambu Urban Area	5	65	8	-	1	79
Ndumberi Village	9	20	49	7	2	87
Kanunga Village	6	17	32	4	3	62
Riabai Village	13	15	20	3	2	53
Shamba Area	22	16	187	23	1	249
Settled Area	1	118	2	-	1	122
Total Number	56	251	298	37	10	652
Total Percentage	8.6	38.5	45.7	5.7	1.5	100.0

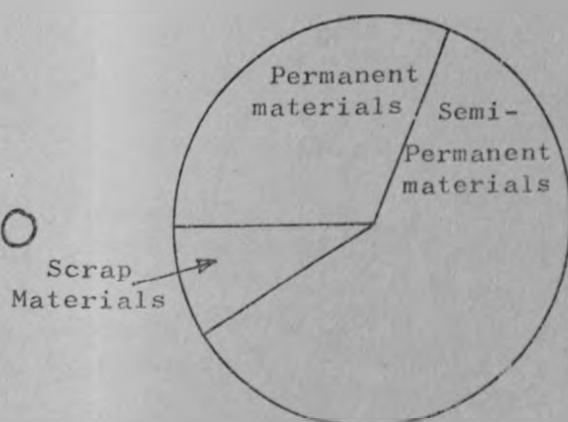


APPENDIX 1B - ANALYSIS

TABLE 26 . BUILDING MATERIALS

Area	Building Materials	Permanent Materials	Semi Permanent Materials	Scrap Materials & Others	Total No. of Houses
Kiambu Urban Area		61	13	5	79
Ndumberi Village		19	57	11	87
Kanunga Village		4	49	9	62
Riabai Village		2	45	6	53
Shamba Area		13	212	24	249
Settled Area		104	15	3	122
Total Number		203	391	58	652
Total Percentage		31.1	60.0	8.9	100.0

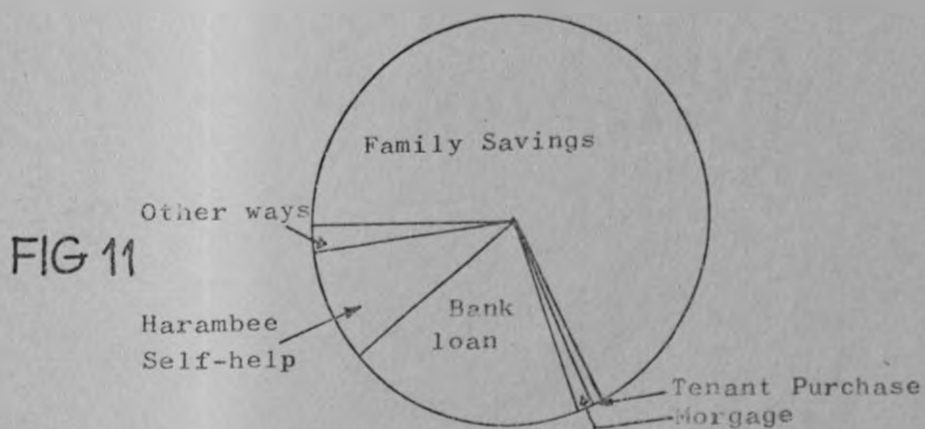
FIG 10



APPENDIX IB - ANALYSIS

TABLE 27 FINANCING OF HOUSE CONSTRUCTION

Area / Source of Income	Family Savings	Tenant Purchase	Mortgage	Bank Loan	Harambee Self-help	Other ways	Total No. of Houses
Kiambu Urban Area	4	1	2	10	-	1	18
Ndumberi Village	25	-	-	18	7	2	52
Kanunga Village	34	-	-	13	4	-	51
Riabai Village	28	-	-	6	3	1	38
Shamba Area	178	-	-	29	23	4	234
Settled Area	2	-	2	3	-	-	7
Total Number	271	1	4	79	37	8	400
Total Percent	67.8	0.3	1	19.7	9.2	2.0	100.0

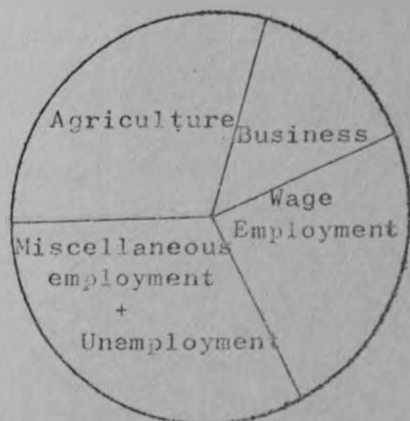


APPENDIX 1B - ANALYSIS

TABLE 28 : THE MAIN SOURCE OF INCOME

Area Source of Income	Agriculture	Business	Employment Wage	Unemployment + Miscellaneous Other	Total for each Area
Kiambu Urban Area	15	111	190	107	423
Ndumberi Village	261	134	92	38	525
Kanunga Village	187	101	49	54	391
Riabai Village	133	82	37	73	325
Shamba Area	614	179	213	852	1858
Settled Area	45	9	427	247	728
Total Number	1255	616	1008	1371	4250
Total Percentage	29.5	14.5	23.7	32.3	100.0

FIG12



APPENDIX IB - ANALYSIS

TABLE 29 : PLACE OF WORK

Area Place of Work	Kiambu Urban Area	Shamba Area or Own Village	Settled Area	Nairobi City	Elsewhere	Don't know Unemployed	Total No. (Interviewed)
Kiambu Urban Area	38	1	2	18	1	19	79
Ndumberi Village	19	43	1	20	-	4	87
Kanunga Village	9	34	2	12	1	4	62
Riabai Village	8	27	2	8	1	7	53
Shamba Area	25	74	27	51	9	63	249
Settled Area	13	-	52	15	3	39	122
Total No.	112	179	86	124	15	136	652
Total Percent	17.2	27.5	13.2	19.0	2.3	20.8	100.0%

FIG 13

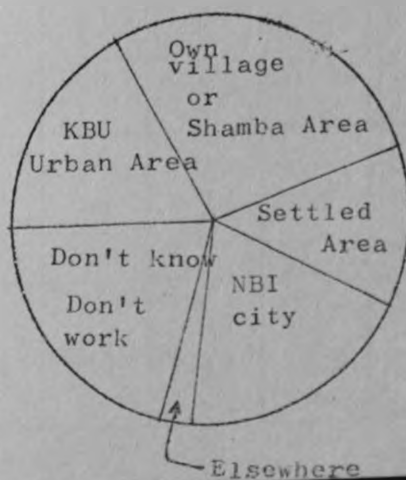


TABLE 30 : MONTHLY HOUSEHOLD INCOME BRACKETS

Income brackets KSh. p.m.	Place	Kiambu Urban Area	Ndumburi Village	Kanunga Village	Riabei Village	Shamba Area	Settled Area	Total No. house- hold	Total Percent
0-99		4	11	7	4	28	5	59	9
100-199		6	8	5	2	33	11	65	10
200-299		8	9	5	4	37	9	72	11
300-399		9	10	5	3	40	11	78	12
400-599		10	11	2	5	46	17	91	14
600-999		10	22	30	28	35	51	176	27
1000-1499		13	1	2	2	19	9	46	7
1500-1999		10	11	4	5	6	3	39	6
2000-3999		7	3	2	-	4	4	20	3
4000 +		2	1	-	-	1	2	6	1
Total No. of Households		79	87	62	53	249	122	652	100
Average Income per household in		2073	1496	1438	1459	1050	1504	1503	

60%

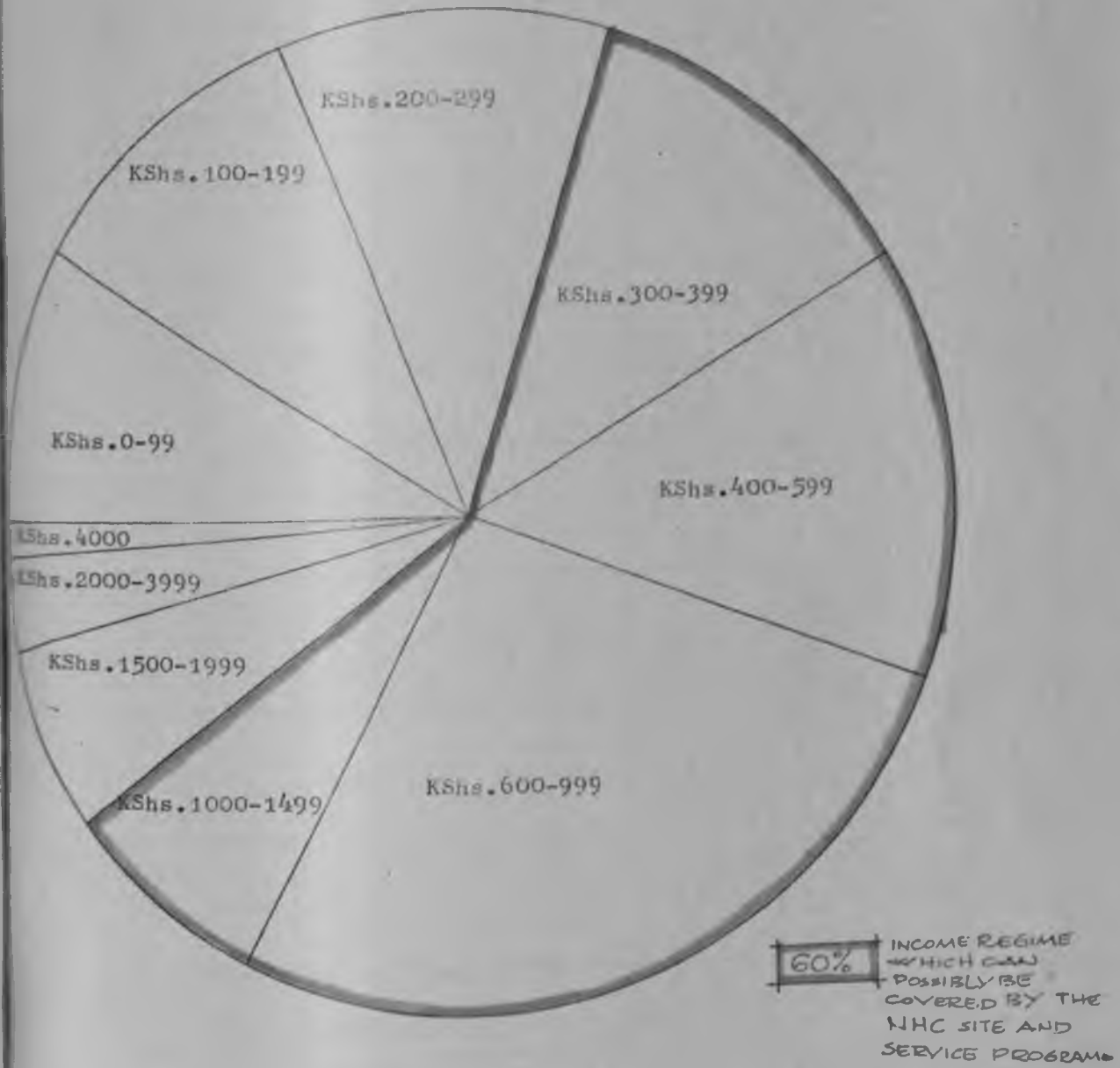


FIG 14

MONTHLY HOUSEHOLD INCOME BRACKETS

APPENDIX IB - ANALYSIS

TABLE 31 : HOUSEHOLD EXPENDITURE

Place Expend. Item (Ksh)	Clothes Ksh (Average)	Education Ksh (Average)	Food Ksh. (Average)	Travel Ksh. (Average)	Relatives Ksh. (Average)	Housing KShs. (Average)	Recreation KShs. (Average)	Miscellaneous KShs. (Average)	Total Average KShs.
Kiambu Urban Area	193	181	385	245	78	72	33	87	1274
Ndumberi Village	171	173	369	231	102	68	26	72	1214
Kanunga Village	162	178	351	199	107	55	23	64	1139
Riabai Village	159	177	349	187	98	50	20	68	1108
Shamba Area	148	183	306	201	134	30	18	77	1097
Settled Area	103	188	328	143	111	67	24	46	1010
Total Average Ksh	156	180	348	201	105	57	24	69	1140
Total Average Percentage	10.4	12.0	23.2	13.4	7.0	3.8	1.6	4.6	76%

SAVINGS	24%
---------	-----

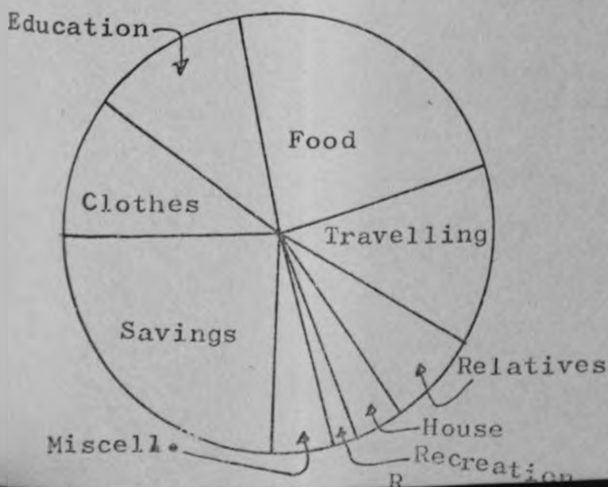


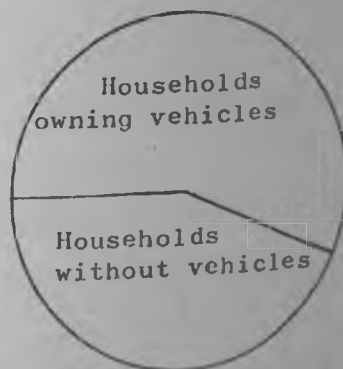
FIG 15

APPENDIX B - ANALYSIS

TABLE 32 : VEHICLE OWNERSHIP

Area	Households owning vehicles	Households owning Cars	Households owning Motor- cycle Bicycle	House- holds owning Lorry	Total house- holds owning Vehicle	Total No. of house- holds intervi
Kiambu Urban Area		34	2	5	41	79
Ndumberi Village		23	11	3	37	87
Kanunga Village		8	14	3	25	62
Riabai Village		9	9	1	19	53
Shamba Area		57	103	8	168	249
Settled Area		44	28	8	79	122
Total Number		175	167	27	369	652
Total Percentage		26.8	25.6	4.2	56.6	-

FIG 16



APPENDIX II - TRAFFIC SURVEY

TABLE 33 TRAFFIC COUNTS - STATION A

Time	Private cars		Public Vehicles		Goods Transport		TOTAL NO. OF VEHIC.	TOTAL NO. OF VEHIC. FROM KBU	TOTAL NO. OF VEHICLE PASSING THROUGH STATION
	To KBU	From KBU	To KBU	From KBU	To KBU	From KBU	TO KBU	FROM KBU	
6.30 - 7.30	27	103	22	44	4	2	53	149	202
7.30 - 8.30	25	152	26	52	3	3	54	202	256
8.30 - 9.30	22	148	35	39	1	5	58	192	250
9.30 - 10.30	30	57	37	15	5	2	72	74	146
10.30 - 11.30	39	35	30	9	8	9	77	53	130
11.30 - 12.30	46	50	23	21	11	3	80	74	154
12.30 - 1.30	24	48	31	9	14	6	69	63	132
1.30 - 2.30	31	30	43	13	10	11	84	54	138
2.30 - 3.30	18	12	38	32	12	7	68	51	119
3.30 - 4.30	108	33	46	20	14	17	168	70	238
4.30 - 5.30	141	23	64	25	19	10	224	58	282
5.30 - 6.30	100	49	33	17	8	13	141	79	220
Subtotal	606	740	428	296	109	88	1148	1119	2267
Grand Total	1346		724		192		2267		2267
Percentage	59.4%		31.9%		8.7%		100%		100%

APPENDIX II - TRAFFIC SURVEY

TABLE 34 TRAFFIC COUNTS - STATION H

Time	Private cars		Public Vehicle		Goods Transport		TOTAL NO. OF VEHIC. TO KBU	TOTAL NO. OF VEHIC. FROM KBU	TOTAL NO. OF VEHIC. PASS THROUGH THE STN
	To KBU	From KBU	To KBU	From KBU	To KBU	From KBU			
6.30 - 7.30	94	22	30	19	7	1	131	42	173
7.30 - 8.30	112	25	29	12	2	1	143	38	181
8.30 - 9.30	141	30	34	16	4	1	179	47	226
9.30 - 10.30	69	32	7	23	5	5	81	60	141
10.30 - 11.30	36	35	18	20	3	6	57	61	118
11.30 - 12.30	23	44	23	21	1	10	47	75	122
12.30 - 1.30	18	77	42	18	11	7	71	102	173
1.30 - 2.30	9	80	22	45	5	1	36	126	162
2.30 - 3.30	10	68	20	26	4	8	34	102	136
3.30 - 4.30	23	108	18	27	6	2	47	137	184
4.30 - 5.30	19	132	23	41	1	9	43	182	225
5.30 - 6.30	13	129	17	50	3	11	33	190	223
Subtotal	567	782	283	318	52	62	902	1162	2064
Grand Total	1349		601		114		2064		2064
Percentage	65.4%		29.1%		5.5%		100%		100%

APPENDIX II - TRAFFIC SURVEY

TABLE 35 TRAFFIC COUNTS - STATION C

Time	Private cars		Public Vehicles		Goods Transport		TOTAL NO. OF VEHICLE TO KBU	TOTAL NO. OF VEHICLE FROM KBU	TOTAL NO. OF VEHICLE PASSING THROUGH THE STATION
	To KBU	From KBU	To KBU	From KBU	To KBU	From KBU			
6.30 - 7.30	30	11	13	6	1	1	44	18	62
7.30 - 8.30	46	9	24	13	1	-	71	22	93
8.30 - 9.30	69	19	23	20	4	3	96	42	138
9.30 - 10.30	41	32	16	14	9	2	66	48	114
10.30 - 11.30	50	43	16	4	5	4	71	51	122
11.30 - 12.30	36	25	9	2	3	7	48	34	82
12.30 - 1.30	40	54	4	8	1	4	45	66	111
1.30 - 2.30	23	22	15	12	2	-	40	34	74
2.30 - 3.30	11	46	17	16	-	-	28	62	90
3.30 - 4.30	19	51	10	14	2	5	31	70	101
4.30 - 5.30	13	54	23	29	3	11	39	94	133
5.30 - 6.30	13	60	10	36	-	9	23	105	128
Subtotal	391	426	180	174	31	31	602	646	1248
Grand Total	817		354		77		1248		1248
Percentage	65.5%		28.4%		6.1%		100%		100%

APPENDIX II - TRAFFIC SURVEY

TABLE 36 TRAFFIC COUNTS - STATION D

Time	Private cars		Public Vehicles		Goods Transport		TOTAL NO. OF VEHIC. TO KBU	TOTAL NO. OF VEHIC. FROM KBU	TOTAL NO. OF VEHICLE PASSED THROUGH STATION
	To KBU	From KBU	To KBU	From KBU	To KBU	From KBU	To KBU	FROM KBU	THROUGH STATION
6.30 - 7.30	23	14	11	4	2	1	36	19	55
7.30 - 8.30	30	19	7	11	3	2	40	32	72
8.30 - 9.30	31	25	32	7	4	4	67	36	103
9.30 - 10.30	22	21	28	21	1	1	51	43	94
10.30 - 11.30	25	24	19	17	4	6	48	47	95
11.30 - 12.30	38	32	20	16	2	3	60	51	111
12.30 - 1.30	28	25	24	20	7	-	59	45	104
1.30 - 2.30	21	44	11	9	5	1	37	54	91
2.30 - 3.30	47	9	30	1	2	1	70	11	90
3.30 - 4.30	59	19	14	4	2	1	75	24	99
4.30 - 5.30	12	31	10	26	9	1	31	58	89
5.30 - 6.30	10	24	4	17	5	3	19	44	63
Subtotal	346	287	210	153	46	24	602	464	1066
Grand Total	633		363		70		1066		1066
Percentage	59.4%		34.1%		6.5%		100%		100%

VOLUME OF TRAFFIC
THROUGH STATION 'A'

VOLUME OF TRAFFIC
THROUGH STATION 'B'

VOLUME OF TRAFFIC
THROUGH STATION 'C'

VOLUME OF TRAFFIC
THROUGH STATION 'D'

COMPARISON OF TRAFFIC VOLUMES
THROUGH THE STATIONS

G-17

APPENDIX III - IMPORTANT URBAN STANDARDS FOR GUIDANCE

TABLE - COMMUNITY FACILITIES AND CATCHMENT POPULATION
37A

Catchment Population	Community Facilities	Unit Area in ha
10	Parking Area	-
20	Play Area	-
150 - 1 000	Market stall/kiosk Play area, social club (bar)	0.5 - 1
2 000 - 2 500 or (250 - 350 children of 3 - 5 yrs)	Nursery school	0.25 - 0.5
5 000 - 6 000 or (630 - 840 children of 6 - 13 yrs)	Primary school	2.5 - 3
5 000 - 6 000	Local shopping centre Playing field local market	0.3 - 0.5 1 - 1.5 0.25 - 0.3
10 000 - 12 000 or (720 - 810 children of 14 - 17 yrs)	Secondary school	4.5 - 5
12 000 - 20 000	Health centre Large community centre Major market/small Industrial centre Large open space Play field	0.5 0.5 - 1 0.5 - 1 1.0 - 1.5
20 000 - 80 000	Light industrial Area Police station/post	10 - 15 1 - 3

100 000 - 200 000	Major shopping centre	15 - 20
	Fire Station	0.5 - 1
	Major Sports centre/ Public park	20 - 40
	Cinema, Assembly Hall	0,5
	Further Education	10 - 15
	Area Administrative centre	10 - 15
	Bus Station	1 - 2
	Secondary Commercial centre	5 - 10

TABLE
37B - HOUSING STANDARDS

	Low	Medium	High
Density	100-150 ppha	200-250 ppha	350-450 ppha
Minimum plot size	- 0.025 ha or 1/16 acre.		
Plot coverage	- 33 1/3% - 75%		

TABLE
37C - APPROXIMATE DISTRIBUTION OF LAND USES

Residential	- 50% - 60%
Commercial	- 3% - 5%
Roads	- 15% - 20%
Open space	- 5% - 8%
Social facilities	- 8% - 10%

Sources: Nairobi Urban Study Appendices; Ministry of Lands and Settlement, Planning Standards; Ministry of Education Standards; Urban & Regional Planning Department, University of Nairobi.

APPENDIX IV - LENGTH & COST OF PROPOSED PRIMARY ROADS IN
TABLE 38 KIAMBU URBAN AREA (2000 A.D.)

ROAD SECTION (Map No. 13-----)	LENGTH
(1) - (2) - (3) - (4)	1.5 Km
(4) - (5) - (31) - (6)	1.5 Km
(7) - (8) - (9) - (10) - (11) - (4)	2.0 Km
(4) - (12) - (13)	1.3 Km
(14) - (15) - (16) - (17) - (18) - (19) - (20)	2.8 Km
(21) - (22) - (23) - (24) - (25) - (19) - (42) - (20) - (11)	2.2 Km
(26) - (27) - (28) - (29) - (30) - (31)	2.3 Km
(32) - (33) - (34) - (35) - (6)	2.2 Km
(6) - (36) - (13)	2.0 Km
(2) - (38) - (8) - (15) - (43) - (23)	1.7 Km
(33) - (28) - (24) - (45) - (18) - (41) - (10) - (40) - (3)	2.5 Km
(38) - (39) - (40)	1.0 Km
(44) - (16) - (9) - (39)	0.6 Km
(17) - (41) - (42)	0.7 Km
(43) - (44) - (45)	0.8 Km
(35) - (30) - (25)	0.8 Km
(34) - (29)	0.4 Km
(27) - (22)	0.3 Km
(5) - (37) - (12)	1.5 Km
(36) - (37)	0.2 Km
Total Length	28.3 Km
Existing Parts	4.8 Km
New Parts or Improvements	23.5 Km
Total Cost @ 400/= /m of tarmac road @ 1976 M.O.W. cost indices	KShs. 9.4 million

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