

DWELLINGS and LAND

**urbanization in developing countries
case studies in NAIROBI KENYA
Urban Settlement Design Program**

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CONTENTS

CONTENTS (1)
 PREFACE (1)
 INTRODUCTION: Nairobi Urban Context (2)

CASE STUDIES: Notes on Urban Land Utilization (4)
 Comparative Summary of Physical Data (6)
 Twenty Case Studies (13)

1. DAGORETTI Houses: private traditional (14)
2. KIRINYAGA VILLAGE Shanties: popular temporary (18)
3. KARURA VILLAGE Shanties: popular temporary (22)
4. MATIARE VALLEY Rooms: private tenements (26)
5. KAWANGWANGI Rooms: private tenements (30)
6. KARIOBANGI Rooms: public site-and-services (34)
7. BAHATI Rooms: public subsidized (38)
8. UPPER HILL Rooms: private employer-provided (42)
9. EASTLEIGH Rooms: private tenements (46)
10. RIVER ROAD Rooms: private tenements (50)
11. QUARRY ROAD (Detached) Houses: public subsidized (54)
12. QUARRY ROAD Houses: public subsidized (58)
13. KARIOBANGI SOUTH Houses: public subsidized (62)
14. UHURU-PHASE 4 Houses: public subsidized (66)
15. PUMWANI Apartments: public subsidized (70)
16. WESTLANDS Apartments: private rental (74)
17. WOODLEY-KIBERA Houses: public subsidized (78)
18. PARKLANDS Houses: private rental (82)
19. WOODLEY I Houses: public subsidized (86)
20. PARKLANDS (Detached) Houses: private ownership (90)

GLOSSARY (94)
 ABBREVIATIONS/EQUIVALENTS (95)
 BIBLIOGRAPHY (95)

PREFACE

CONTENT: This study contains twenty selected case studies of dwelling environments/ situations existing in the Nairobi urban area at the present time. The case studies include the full housing spectrum from very low income to high income types. Each case study is summarily described in similar terms: DRAWINGS: dwelling group, dwelling plan, and dwelling section; DESCRIPTIVE DATA: socio-economic and physical; and PHOTOGRAPHS: aerial, environment, and dwelling. The case studies have provided first-hand material with which to identify basic patterns in different aspects of the housing process, particularly in the matter of land utilization.

PURPOSE: This study attempts: a) to identify and describe a representative cross-section of housing in the Nairobi urban area illustrating the physical and socio-economic environment; b) to organize case studies into a comparative framework to facilitate analysis/evaluations; c) to relate the housing process to issues of land utilization.

APPLICATION: This study provides: a) a reference for the understanding of the housing environment/situation of urban areas, particularly Nairobi, Kenya; b) a reference for policy decisions relating to housing programs (See: "INTERIM URBANIZATION PROJECT DANDORA, Nairobi, Kenya: a progressive development including a SITE AND SERVICES model," Cambridge, Massachusetts, Spring 1973); c) a reference for the formulation of urban land policies in the context of rapid urbanization and its consequences: provision of more and more public services to a population that has less and less capacity to pay.

DATA: The information for the surveys was derived from various sources: theses and surveys performed by students from the University of Nairobi; surveys, drawings, maps and aerial photographs from the Nairobi City Council; and field surveys, studies and photographs by participants of the Urban Settlement Design Program, M.I.T. The preliminary work was carried out through the Urban Settlement Design Program at the Massachusetts Institute of Technology during Fall 1971/ Spring 1972. Detailed field surveys were carried out in Nairobi, Kenya, during the summer 1972. The work was completed during the spring and summer 1973.

URBAN SETTLEMENT DESIGN PROGRAM
 Cambridge, Massachusetts

Summer 1973

INTRODUCTION

NAIROBI URBAN CONTEXT

1. KENYA, LOCATED ON THE EQUATOR, IS THE SECOND LARGEST NATION OF THE THREE EAST AFRICAN COUNTRIES: TANZANIA, KENYA, UGANDA.

Kenya became independent in 1963, and a republic in 1964 with a parliamentary type of government. The strong centralized system includes a president who is popularly elected every 4 years. The country has an area of 224,960 square miles with a population of 11 million (1972).

2. NAIROBI, THE CAPITAL OF KENYA, IS LOCATED AT A PROMINENT GRADIENT CHANGE BETWEEN THE ATHI PLAINS AND THE MOUNTAIN HILLS, ON A HIGH PLATEAU 5,500 FEET ABOVE SEA LEVEL AND WITH A RESULTANT TEMPERATE CLIMATE.

Situated thirty miles south of the equator (latitude 1° 15' south and longitude 36° 45' east), the days are frequently warm and sunny and the nights cool, with temperatures varying from 3°C during the cool season (June, July, August) to 43°C in the hot season (December, January, February). The average annual rainfall is 43mm.

3. NAIROBI HAS DEVELOPED FROM A SMALL RAILWAY STATION AND COLONIAL ADMINISTRATION CENTER TO BECOME ONE OF EAST AFRICA'S LARGEST CITIES.

The establishment of the headquarters for the railways and the colonial administration in 1899 brought a corresponding economic and physical growth and development to the Nairobi area which led to the exploitation of the country's natural and physical resources. Nairobi is the primary center for social, political and economic activities and the hub for transportation and communication networks, not only in Kenya, but for all of East Africa. Over 21% of the labor force in Kenya is in Nairobi. The productive resources and the proximity of services offered in the Nairobi area have greatly stimulated further industrial activities and, consequently, the development of the neighboring towns Thika and Athi River.

4. THE STEADY ECONOMIC GROWTH AND PHYSICAL DEVELOPMENT OF NAIROBI HAS LED TO AN APPROXIMATE DOUBLING OF THE POPULATION WITH EACH SUCCEEDING DECADE.

The present population is approximately 600,000 people, with an annual growth rate of 27.5%, compared to a national average of 23%. The projected population in thirty years will rise to 2.5 million people. Two-thirds of the projected increase is

considered to be due to immigration from the rural areas. Nairobi accounts for 10% of the urban population and 21% of the employment force in Kenya. At present, approximately 75% of the Nairobi population is under the age of thirty years, of which 40% are males. The ethnic composition of the Nairobi population is 83% African, 13.2% Asian, and 3.8% European in 1969. The distribution of income and employment among these three ethnic groups reflect highly the socio-economic differentiation of the colonial period, which has continued into post-independence.

5. THE NAIROBI CITY AND REGION ARE ADMINISTERED BY THE NAIROBI CITY COUNCIL UNDER THE DIRECTION OF A MUNICIPAL Elected MAYOR.

The City Council is divided into various Departments, each under a director, which is responsible for Nairobi's social, economic, political and physical planning and general administrative functions.

6. SIXTY-FIVE TO SEVENTY-FIVE PERCENT OF THE NAIROBI POPULATION IS IN THE LOW INCOME SECTOR EARNING LESS THAN \$1,300 PER YEAR.

This sector is predominantly African with the remaining 25% Asians and Europeans in the middle to high income sectors. African, Asian and European per capita incomes stand in a ratio of 1 to 23 to 103; with the annual per capita income for Nairobi approximately \$325. The incomes do not reflect the fact that many in the low income sector own land, livestock and carry on intensive cultivation in the rural areas.

7. THE INITIAL PATTERN OF SETTLEMENT IN NAIROBI WAS STRICTLY ALONG RACIAL LINES.

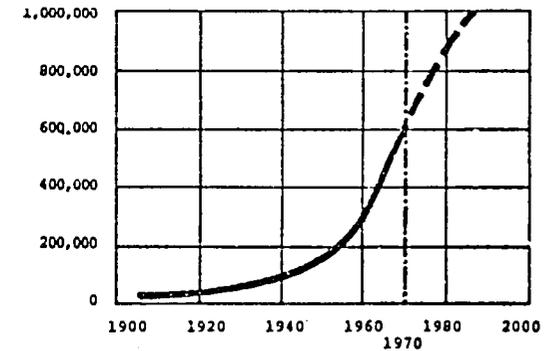
The European residential areas were limited approximately to the western, northwestern, and northern parts of the City (known as Upper Nairobi). The Asian residential areas extended from Eastleigh to parts of Westlands, into portions of the city center and into a southern section of the city. The African residential areas sprawled eastwards from the railway residential properties close to the city center into Eastlands and into the southwest section of the city. Squatters comprise 25% of the low income sector and make up 20% of the Nairobi population.

8. SIXTY-FIVE TO SEVENTY-FIVE PERCENT OF THE POPULATION OF NAIROBI IS OUTSIDE OF THE FORMAL RENTING MARKET.

The initial housing in Nairobi was constructed by the government for upper income European administrators and Asian laborers. Africans were excluded from Nairobi except for government-built simple room row housing for single male workers ('later lines'). At present, the housing increase of 22% per year does not match the population growth of 27.5% per year. Ninety percent of the land is occupied by 14% of the population.

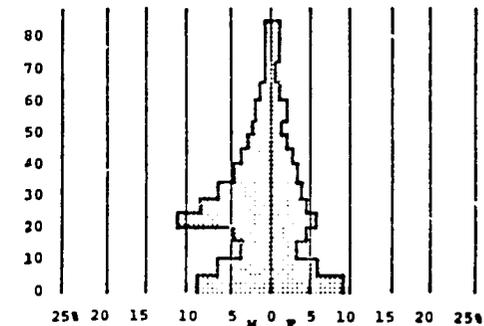
9. KENYA MIGHT BE CHARACTERIZED AS IN AN INCIPENT STAGE OF RAPID URBANIZATION WHEN COMPARED TO OTHER LESS DEVELOPED COUNTRIES.

Nairobi has an influential upper income group and a small but rising middle class. The low income sector, however, is at a take-off point before a rapid explosion. At this point in time, the low income people still dream of returning to their rural past. Housing tenure, investment patterns, house construction types, all still indicate the temporary status of the rural immigrant. If the pattern of other less developed countries emerges, the low income sector in Kenya will become a permanent exploding mass fed by both a rapid rural immigration and an exponential natural growth.



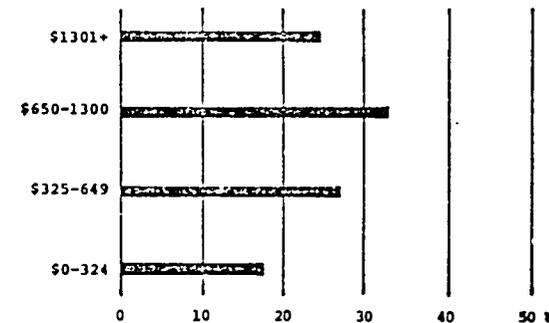
URBAN POPULATION GROWTH

Horizontal: dates Vertical: population



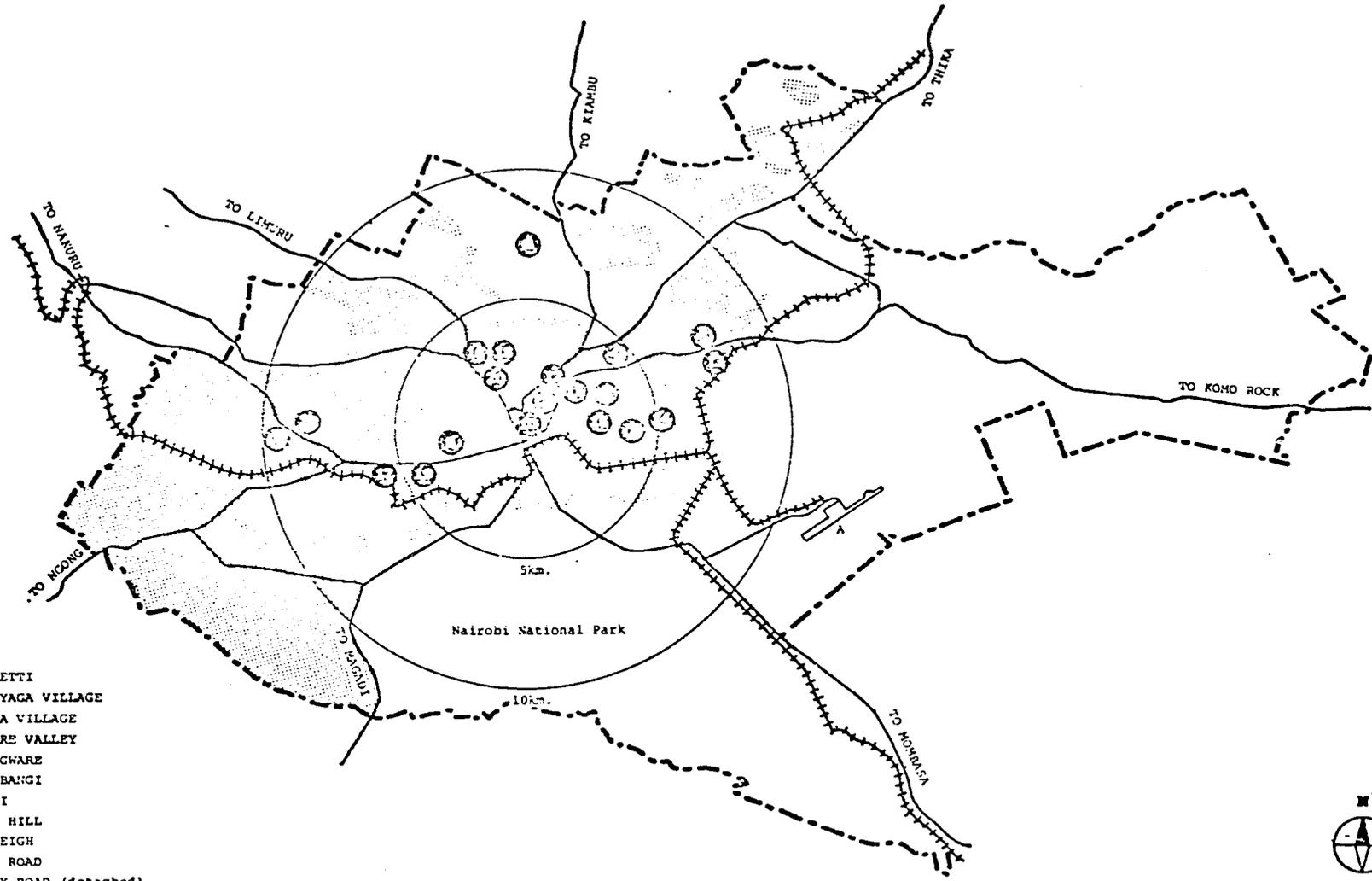
URBAN POPULATION DISTRIBUTION

Horizontal: percentages Vertical: ages



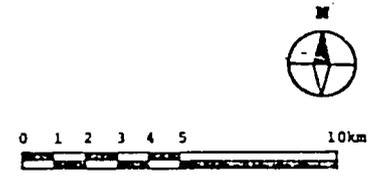
URBAN ANNUAL INCOME DISTRIBUTION

Horizontal: percentages Vertical: dollars per annum



1. DAGORETTI
2. KIRINYAGA VILLAGE
3. KARURA VILLAGE
4. MATSARE VALLEY
5. KAWANGWARE
6. KARIOBANGI
7. BAHATI
8. UPPER HILL
9. EASTLEIGH
10. RIVER ROAD
11. QUARRY ROAD (detached)
12. QUARRY ROAD
13. KARIOBANGI SOUTH
14. UHURU-PHASE 4
15. PUMWANI
16. WESTLANDS
17. WOODLEY-KIBERA
18. PARKLANDS
19. WOODLEY I
20. PARKLANDS (detached)

- KEY**
- A Airport
 - Nairobi Metropolitan Area
 - Primary Road Network
 - Railroad Network
 - ▨ Build-U. Area



Nairobi, Kenya
DWELLING CASE STUDIES: LOCATION

SOURCE: "SURVEY OF KENYA," Government of Kenya, maps, 1971
 QUALITY OF INFORMATION: Approximate

CASE STUDIES

NOTES ON URBAN LAND UTILIZATION

The twenty case studies of the Nairobi Urban Area are representative models of existing housing situations which illustrate different cases of land utilization.

The case studies have been distributed in the chart below in an attempt to relate them to their originating models and to see them in a broader time/process perspective.

Existing housing models are the most valuable source of information or reference in formulating urban land policies and housing programs. The models provide a guide to general yet basic questions of land use (for what?), land distribution (to whom?), land subdivision (how to?). The models also provide a guide to more specific questions: How do they relate to different cultures and values? What range of population densities do they permit? To what income groups are they accessible? How efficient is the land utilization which they provide?

In rapidly urbanizing areas the living conditions and the physical environment are DETERIORATING RAPIDLY FOR THE MAJORITY of the population.

This is undoubtedly the consequence of two combined factors: The population is GROWING at an EXPONENTIAL rate, and at the same time the rate of growth is HIGHER IN THE LOW INCOME sector.

The obvious/immediate/direct implications are: The public sector (government/municipality/administration) is not only faced with the problem of providing more and more services (water, sewage, electricity, streets, garbage collection, police, education, etc.) but, which is more critical, it is faced with the problem of providing these services to a growing population that has less and less the capacity to pay for them.

Urbanization is part of a complex system which includes varied but interdependent components: social, political, economic. Urbanization is a process conditioned by policies such as control of population growth and economic development.

Yet, within the process of urbanization there are some basic physical parameters that are essential in any social, political, economic context. These parameters include efficiency in land use, land distribution, and land subdivision. The magnitude/scale of urbanization makes these parameters critical. Unfortunately, these essential factors are completely ignored and as a result, urban land is wasted today at an unprecedented scale. Furthermore, the greater land waster/main squanderer is the public sector: governments/municipalities/administrations/international agencies.

ORIGINAL MODEL	I TRADITIONAL RURAL/VILLAGE HOUSES	II URBAN COURT/ROW HOUSES (Moslem, on coast)	III VICTORIAN SUBURBAN COTTAGE (HOUSE)	IV TOWN/GARDEN CITY ROW HOUSES/APARTMENTS
Physical Characteristics	Grouped in compounds, 1 story.	Clustered in lots, interior courts, 2-3 stories in compact configuration.	Isolated in one or more acres of land, 1-2 stories.	Aligned in narrow lots in towns or garden cities, 2-4 stories.
Population Density	LOW/MEDIUM density.	MEDIUM/HIGH density.	VERY LOW density.	MEDIUM/HIGH density.
Land/Layout	Social structure/organization is major constraint.	Social structure/configuration, people's activities/movements is major constraint.	Economic use of land is not constraint.	Economic use of land is relative constraint.
Users	AFRICAN traditional model used by TRIBAL groups.	MOSLEM traditional model used by ALL INCOME groups.	XIX Century ENGLISH model used by UPPER MIDDLE income groups. A small scale version of model (estate) used originally by high income groups.	UNIVERSAL/TRADITIONAL model used originally by MIDDLE/HIGH income groups.
AFRICAN MODEL	Model was developed in Africa.	Model was developed in Africa.	Model was imported to Africa in XIX Century by English.	Model was imported to Africa in XX Century by English.
Users Before Independence	AFRICAN TRIBAL groups.	AFRICAN, ASIAN, ARAB MIDDLE INCOME groups.	EUROPEAN MIDDLE/HIGH income groups.	Did not exist.
Users After Independence	AFRICAN VERY LOW INCOME groups. Three situations are recognized in Nairobi: 1) Enghufed in urban periphery: land is not scarce yet. 2) Squatting in city centers: plastic shanties crowded in junk yards. 3) "Temporary resettlements" (3 years old) on urban periphery: cardboard shanties crowded in forest.	AFRICAN, ASIAN, ARAB LOW/MIDDLE INCOME groups. Found in the East African Coast in old city sections (Mombasa, etc.).	Predominately EUROPEAN, ASIAN MIDDLE/HIGH income groups (few Africans). Became a symbol of SUPREMACY supported by African political leaders.	Predominately ASIAN, AFRICAN MIDDLE/HIGH income groups. Became a symbol of SUPREMACY supported by African political leaders.
Case Studies	1. DAGORETTI; 2. KIRINYAGA VILLAGE; 3. KARURA.	No cases in Nairobi.	8. UPPER HILL; 11. QUARRY ROAD; 12. QUARRY ROAD (detached); 19. WOODLEY I; 20. FARGLANDS (detached).	13. KAFIORANGI SOUTH; 14. UNURU-PHASE 4; 17. WOODLEY-KIRERA; 18. FARGLANDS.
LAND ISSUES	AFRICAN culture. Permits MEDIUM/HIGH densities. Accessible to VERY LOW/LOW income groups. VERY EFFICIENT land utilization (See case studies 2,3).	MOSLEM culture. Permits MEDIUM/HIGH densities. Accessible from LOW to MIDDLE income groups. VERY EFFICIENT land utilization.	WESTERN culture. Permits LOW densities. Accessible to MIDDLE/HIGH income groups. WASTFUL land use in urban areas, demands large areas of land (See case studies 8,11,12,19,20).	UNIVERSAL. Permits MEDIUM/HIGH densities. Accessible to MIDDLE/HIGH income groups. Town Row House layouts are EFFICIENT (no cases found); Garden City layouts are not (See case studies 13,14,17,18).
Comments	KIRINYAGA and KARURA VILLAGES are survival situations that exhibit EFFICIENT land utilization, maximization of small group/private responsibility. Model has potential for economic provision of communal utilities and services.	Model provides EFFICIENT land utilization, maximization of private responsibility, minimization of lines of utilities and services, public responsibility.	Model is becoming OBSOLETE in urban areas, but still proliferates in automobile dominated suburbia (U.S.A., Latin America).	Garden City layouts require REDESIGN to eliminate wasteful land use, green areas of no use, redundant circulation and service alleys, etc.

Paradoxically, the benevolently oriented public sector is committing suicide by promoting land policies that aggravate the already desperate problem of providing services. The land policies implemented today result in land waste and make more and more certain the possibility of total deterioration and chaos.

Waste of land in urban areas is characterized by the following:

- SETTLEMENTS ARE UNNECESSARILY OVER-EXTENDED BEYOND EXISTING UTILITIES NETWORKS, SERVICES, TRANSPORTATION. This forces costly expansion of infrastructure to sparsely populated areas.
- ONLY SMALL PORTIONS OF OCCUPIED LAND ARE FULLY UTILIZED. A great part of public as well as private land is wasted: in left over spaces, in vacant or open areas of no real use, and in redundant circulation areas/distances.
- ENVIRONMENTS ARE DESTROYED BY UNCONTROLLED DEVELOPMENT. Forests, river valleys, rich agricultural lands are lost.
- POLICIES/STANDARDS/MODELS TO PREVENT URBAN SPRAWL ARE INADEQUATE OR DO NOT EXIST. This is not justifiable as compact traditional models of development are readily available.

Waste of land is affecting today urban areas of East Africa, particularly in the form of URBAN SPRAWL. The waste of land is not a product of the native African cultures, nor of the established Moslem and Asian cultures. It is also not a product of the present social and economic reality. It is purely a Western import brought about, ironically, by the colonial rulers and perpetuated by "expatriates" as well as Africans indoctrinated in Western patterns. The garden city of yesterday, the new town of today or the automobile-oriented suburban patterns are all land waste imports.

In brief: Waste of land today in East African urban areas is the result of the proliferation of imported models developed by expatriates and western-instructed Africans and emulated by political leaders as a status

symbol. Because it is not based upon any strong social/cultural values/tradition or economic development, waste of land can be avoided if the Africans have the will and imagination in producing more appropriate models.

In East Africa the urbanization process is at the very beginning. Cities are relatively new and small; the largest, Nairobi, has only a population of 600,000 people. In Latin America, for example, Buenos Aires, Mexico City, Rio de Janeiro, San Pablo are much older, much larger in area and in population. Their rapid urbanization process started half a century ago. East Africa has the advantage of being at an early stage of urbanization and also has the opportunity of profiting from the recent experiences of other developing areas.

V INDUSTRIAL ROW HOUSES

Aligned in narrow lots, 1-2 stories.

HIGH density.

Economic use of land is major constraint.

XIX Century European Model used by LOW INCOME industrial labor. A small scale version of universal, traditional models (See IV TOWN ROW HOUSES) used originally by upper/middle income groups.

Model was imported to Africa in XIX Century by English, as a degraded model-'labor lines' (dwelling became only one room).

AFRICAN LOW INCOME groups.

AFRICAN LOW INCOME groups. Became a symbol of colonialism rejected by African political leaders.

4. MATIGRE VALLEY; 5. KANONGORE; 6. BAHATI.

WESTERN culture. Permits MEDIUM/HIGH densities. Accessible to LOW income groups. Model does not provide private or semi-public land for dwellings (See case studies 4,5,6).

Model is SUBSTANDARD for above reason. (See Land/Lot Utilization, page 6).

VI "Labor Camp" ROW/GROUP HOUSES

Uniformly distributed groups in common land of camp, 1 story.

MEDIUM/HIGH density.

Layout which provides minimum collective utilities, services, and facilitates supervision is major constraint.

XIX Century Colonial Model used by LOW income African labor. Camp layout is European Creation (military) for colonies. Dwelling unit is generally a local type, i.e., Swahili house.

Model was developed in Africa.

AFRICAN LOW INCOME groups.

AFRICAN LOW INCOME groups. Became a symbol of colonialism rejected by African political leaders.

6. KARIOBANGI.

WESTERN COLONIAL culture. Permits MEDIUM/HIGH densities. Accessible to MODERATELY LOW income groups. Model does not provide private or semi-public land for dwellings (See case study 6).

Model is SUBSTANDARD for above reason. (See Land/Lot Utilization, page 6).

VII TENEMENT COURT HOUSES

Aligned in lots, rooms around central courtyard, 1-4 stories.

HIGH density.

Economic use of land is major constraint.

UNIVERSAL/TRADITIONAL model used originally by ALL INCOME GROUPS as dwelling unit or as tenement.

Model was imported to Africa in the XIX Century by Asians as an extended family dwelling unit.

ASIAN MIDDLE income groups.

Predominately AFRICAN LOW income groups. Became a practical solution to housing demand as a tenement. Popularly accepted but not officially promoted.

9. EASTLEIGH; 10. RIVER ROAD.

UNIVERSAL. Permits HIGH densities. Accessible to LOW/MODERATELY LOW income groups. VERY EFFICIENT land utilization (See case studies 9,10).

Models as built can be EASILY UP-GRADED in terms of safety, ventilation, privacy, cooking facilities, toilets, showers, washing facilities, etc.

VIII WALK-UP APARTMENTS

Varied group configurations in commonly shared public/semi-public land, 3-4 stories.

MEDIUM/HIGH density.

Higher densities, not economic use of land, is major constraint.

EUROPEAN, U.S.A., XX Century model used originally by LOW/MIDDLE income groups, often as Public Housing.

Model was imported to Africa in the XX Century by Europeans.

Did not exist.

AFRICAN, ASIAN MIDDLE/HIGH income groups. Developed by public sector (See case study 15) and private sector (See case study 16).

15. PUMGONI; 16. WESTLANDS.

WESTERN culture. Permits MEDIUM/HIGH densities. Accessible to MIDDLE/HIGH income groups. VERY POOR land utilization (See case studies 15,16).

Model SHOULD BE GREATLY IMPROVED to use land more efficiently, to allow user control and responsibility over semi-public space, to determine optimum population ranges. The model, as Public Housing, becomes unlivable when certain population ranges are exceeded.

ORIGINAL MODEL

Physical Characteristics
Population Density
Land/Layout

Users

AFRICAN MODEL

Users Before Independence
Users After Independence

Case Studies

LAND ISSUES

Comments

COMPARATIVE SUMMARY OF PHYSICAL DATA

The physical data of the twenty case studies of dwelling environments existing in the Nairobi Urban Area is summarized in the data matrix and in the following comments. The matrix permits: a) a comprehensive view of the spectrum of dwelling types; b) a comparison and determination of trends and patterns.

(1) CATEGORY; (2) POPULATION PER CATEGORY: Number of people; (3) PER CENT OF TOTAL POPULATION; (4) NAME OF LOCALITY. The twenty case studies have been grouped in ten categories, identifying different income groups and selected physical characteristic:

Category/Income	Dwelling Unit Type	Developer
A V. Low-Low-M. Low	Shanties: Trad. Rural	Popular
B Low-M. Low	Rooms: Row, Group	Private, Popular
C Low	Rooms: Emp. Provided	Private
D Low	Rooms: Tenements	Private
E Middle	Houses: Detached	Public
F Middle	Houses: Row, 1 story	Public
G Middle	Houses: Row, 2 stories	Public
H Middle-High	Apartments	Public, Private
I High	Houses: Row, 2 stories	Public, Private
J Middle-High	Houses: Detached	Public, Private

Categories A-B-C-D include the very low and low income groups and represent the majority of the population (72%). Categories E-F-G-H-I-J include the middle and high income groups and represent the minority of the population (28 %).

(5) USER INCOME GROUP: Five income groups are distinguished: Very Low, Low, Moderately Low, Middle, High. The income level is the basic indicator. Income has a direct relationship to the quality and permanency of the dwelling, the size and the construction technology involved. The indicators follow an expected pattern: the higher the income, the higher is the level of the indicator.

Physical and financial resources are restricted or made available to the user/occupants as a direct function of the income. The lower income sectors are directly involved with the provision of shelter while the middle to high income sectors are relatively

uninvolved. The provision of a dwelling and its process becomes more of a service or a consumable commodity to the high income sectors while the provision of a dwelling to the low income sectors is more a matter of survival. (Note DAGORETTI, low income, popularly developed, mud and wattle construction, less than 50 m²; in contrast to PARKLANDS (detached), high income, privately developed, masonry/concrete construction, more than 101 m².)

(6) DWELLING UNIT TYPE: Four types are considered: Shanty, Room, Apartment, House. A well defined pattern is established in terms of income groups: SHANTY: very low incomes; ROOM: low, moderately low incomes; APARTMENTS: middle, high incomes; HOUSES: middle (subsidized by public), high incomes.

(7) DWELLING UNIT AREA: Three divisions of areas are considered: a) less than 50m²; b) 50 to 100m²; and c) 101m² or more. The expected pattern is followed: the larger the area, the higher the income.

In the lower income groups, the dwelling usually consists of one room only, while in the higher income strata a full complement of spaces in the dwelling is provided. The dwelling unit areas range from 12 m² (MATHARE VALLEY - 1 room) to a high of 166 m² (WOODLEY-KIBERA, 3 bedrooms, living room, kitchen, bathroom, servants' quarters). The small areas of the low income people are a result of the limited financial resources (Note BARATI 17 m²) or from limited construction resources of the squatters in constructing their dwellings (Note KARURA VILLAGE 17 m²). In 1964, 80 % of the dwellings were of one room (U.N. Report).

(8) DWELLING UNIT TENURE: Two types are considered: Rental and Ownership. Rental is predominant for all income groups. Ownership is found in very low income groups (Note DAGORETTI) and in very high income groups (Note PARKLANDS detached).

Rental situations dominate in the low income sector for a variety of reasons: 1) financial limitations preclude ownership of the dwelling (except for squatters); 2) many low income sectors are composed of single males who require non-permanent tenure; tenements answer this need (See EASTLEIGH); 3) families who have immigrated from the rural areas still have strong attachments to the rural villages and are not willing to invest in a dwelling. The middle and upper

income groups generally rent until they become financially able to afford the purchase of a dwelling unit.

In 1964, 44 % of the African households in Nairobi lived in housing provided by government and private employers (U.N. Report 1964). This included 3 % provided by employers for their servants (Note UPPER HILL).

(9) DWELLING UNIT - PERCENT INCOME FOR RENT/MORTGAGE: Two situations are considered: a) 0-20 % b) 21 % or more.

No clear trend emerges from the case studies. However, some conclusions are apparent: 1) Nothing is paid at the very low income levels; 2) 20 % or less of income is paid by low/middle income people in public subsidized housing; 3) the middle and higher income people tend to spend a higher proportion of their income on housing. In general, the percentage of income allotted for dwelling payments is around 20-25 %.

The payments must be considered with the knowledge that the dwelling in the low income sector frequently is a one-room unit for a complete family (Note KARIOBANGI).

"The costs generally run from \$8.40/m² for substandard urban or peri-urban settlements to \$8.40-\$12.00/m² for traditional Swahili houses on the coast, to \$33.50-\$42.00/m² for lowest cost "modern" urban dwellings sponsored by public agencies, and up to \$112.00-\$140.00/m² for upper-grade housing in Nairobi" (page 475, I.L.O. Report).

(10) LAND/LOT UTILIZATION: Three situations are considered: Public, Semi-public, Private. A rise in income roughly parallels the change from public to private use of land. Exceptions are in the low income rural settlements found on the outskirts of Nairobi (Note DAGORETTI) and in middle-high income, publicly built units (Note UHURU-PHASE 4).

The low income, high density, single-room rental units leave little private open areas (Note MATHARE VALLEY). The open areas surrounding the units are used for cooking, laundry, play areas for children, etc., as well as being public pedestrian routes which preclude privacy and individual maintenance and control. More "modern" higher income housing projects also tend to exhibit little privacy through faults of the physical layout (Note UHURU-PHASE 4).

DATA MATRIX

Category	Population per Category	% of Total Population	LOCALITIES	USE	DWELLING UNIT				LAND/LOT			DWELLING				DWELLING DEVELOPMENT						
				5	6	7a	7b	7c	10	11	12	13	14	15	16	17	18	19	20	21	22	23
				Income	Type	Area	Tenure	Rent/Unit	Utilization	Area	Tenure	Location	Type	No. Floors	Utilization	Phys. State	Mode	Developer	Builder	Construction Type	Date	Den.
	Very Low Low Moderately Low Middle High	Slanty Form Apts/Unit House	50m ² or less 51-100m ² 101m ² or more	Legal Rental Legal Ownership	20% or less of income 21% or more of income	Public Semi-public Private	m ²	Extra-local; rental Extra-local; ownership Local; rental Local; ownership	City Center Inner Ring Periphery	Detached Semi-detached Row/Group Walk-up High-rise	1 2 3 or more	Single Multiple	Bad Fair Good	Incremental Instant	Public Private	Self-Help Artisan Small Contractor Large Contractor	Shack Mud and Wattle Wood Masonry/Wood Masonry/Concrete Concrete	Year of Construction	People/m	Locality		
A	42,000	8%	1. C. GORETTI						NA										1958	36	1	
			2. KIRINYAGA VILLAGE						NA											1970	450	2
			3. KARURA VILLAGE						NA											1970	720	3
B	181,000	36%	4. MATHARE VALLEY					NA											1969	1600	4	
			5. KANANGWANE						NA											1964	552	5
			6. KARIOBANGI						NA											1963	532	6
C	26,000	5%	7. BARDI					NA											1953	320	7	
			8. UPPER HILL				(2)	NA	NA											1955	17	8
			9. EASTLEIGH						670											1945	480	9
D	118,000	23%	10. RIVER ROAD						820										1938	768	10	
			11. QUARRY ROAD (det.)						NA											1945	114	11
			12. QUARRY ROAD						NA											1955	72	12
E	32,000	6%	13. KARIOBANGI SOUTH						230										1969	258	13	
			14. UHURU - PHASE 4						NA											1970	312	14
			15. PUNDAWI						NA											1967	384	15
F	13,000	3%	16. WESTLANDS						2400										1964	250	16	
			17. WOOLEY - KIMERA						300											1969	264	17
			18. PARKLANDS						2500											1963	120	18
G	1,500	.3%	19. WOOLEY I						2120										1949	35	19	
			20. PARKLANDS (det.)						4300											1961	3	20
			Total																			

Note: (1) = Demolished (2) = Provided NA = Not Applicable

Continued: (10) LAND/LOT UTILIZATION

The public land generally tends to be inadequately maintained and under-utilized due to inefficient physical design, planning and/or layout. The land becomes a burden, financially and physically, to the City Council who maintains it.

An example of maximum efficiency in land utilization are those housing projects in the private category, where land is used in common, maintained by the user/occupants who are able to survey, police and identify with their immediate surroundings. Some tenements are of this type where common space focuses around household activities, i.e., laundering, cooking, etc., (Note EASTLEIGH).

In brief, the land/lot utilization reflects a paradoxical situation very common in developing countries: the very poor are usually crowded in a room or in a shanty. For this reason, the land around the shelter becomes essential as a living area for most of the daily activities: cooking, eating, washing, playing, socializing. Nairobi is particularly suitable for life outdoors because of the mild climate. The very poor, despite this essential need of space, have little or no control over the land around the shelter because it is ordinarily a public or semi-public path or alley. On the other extreme, the higher the income, the larger is the area of the dwelling and the larger the private land available. The land, however, is not a necessity for these income groups.

(11) LAND/LOT AREA: Lot boundaries were not defined and therefore not measurable in most of the cases considered. The few measurable cases range from 230 m² (KARIOLANGI SOUTH) to 4300 m² (PARKLANDS detached). There is no clear pattern or trend that may be discerned from the Land/Lot Area indicator.

(12) LAND/LOT TENURE: Four types are considered: Extralegal: rental and ownership; Legal: rental and ownership.

The Land/lot tenure pattern in Nairobi is predominantly legal rental, which is primarily found at low and middle income levels and less frequently at high income levels. Legal ownership is limited to middle and high income situations. Extralegal tenure (squatters - Note KIRINYAGA) are found in very low income situations. There is the exceptional case of Karura Village, where semi-public land (Salvation Army) was given in

usufruct to a group of squatters evacuated from the city center.

(13) DWELLING LOCATION: Three situations are considered: City Center, Inner Ring, and Periphery.

General observations can be made although there is not a marked pattern: The City Center is mostly occupied by very low and low income groups; the Inner Ring is occupied by all income groups except the very low; and the Periphery has a scattered population of very low and high income groups.

(14) DWELLING TYPES: Five physical situations are considered: Detached, Semi-detached, Row/Group, Walk-up, High-rise. There is not a significant pattern related with the income groups and dwelling types; only general observations can be made.

Detached dwelling types are found throughout the income spectrum, from traditional rural dwelling (Note DAGORETTI) to middle income (Note WOODLEY I) and high income (Note PARKLANDS detached). The detached unit is the favored dwelling model; it is a carry-over from the colonial period where it was used primarily by the higher income groups.

There is a large proportion of Row/Group housing types in the low income sector (Note KANANGWARE, QUARRY ROAD). Row housing was also imported during the colonial period but reserved for low income laborers (Note BAHATI). Because of past uses, there has been a hesitation to use row housing in low income developments in spite of the economic advantages to the user/occupant and the city through lower administration, maintenance and service costs.

Tenements (included under Row/Group) provide housing close to city center employment opportunities for a large proportion of the low income groups (Note EASTLEIGH, RIVER ROAD). This dwelling type reflects the Indian urban tradition imported by the Asian railroad laborers during the 1900's.

Walk-ups are only found in higher income groups (Note WESTLANDS) built by private developers; and in the middle income groups when built by public bodies for their employees (Note PUMWANI). High-rise residential units do not as yet constitute any appreciable amount of housing in Nairobi.

(15) DWELLING FLOORS: The number of floors considered are: a) One; b) Two; c) Three or more. Most dwellings are generally single floor units in all income levels because of the simplicity of construction, the availability of land, and the single story tradition.

Relatively few multi-story residential buildings exist. Multi-story units are found in either high density, low income tenements (Note RIVER ROAD) or in middle income apartments (Note PUMWANI). Walk-up apartments are becoming accepted as land values increase and location becomes a premium (Note WESTLANDS). Their height is generally limited to three to four floors.

(16) DWELLING UTILIZATION: Two situations are considered: Single and Multiple. Single utilization is found in middle and high income groups. Multiple utilization is typical of very low and low income groups.

The more common single occupancy, typically detached dwelling, stems from the traditional rural African models (Note DAGORETTI) and the imported European models (Note WOODLEY I).

Multiple dwelling occupation is in the form of tenements (Note EASTLEIGH) imported by Asian laborers in the 1900's, and in multi-unit apartments (Note WESTLANDS). The tenements are generally occupied by low income groups, primarily single males who immigrate from the rural areas. 57% of the population is housed in one-room dwellings with over three persons per room (U.N. Report 1964). The apartments are used by middle and high income families.

(17) DWELLING PHYSICAL STATE: Three conditions are considered: Bad, Fair, Good. The pattern of physical state is rather consistent: Bad states are found in very low incomes; Fair states are found in low and middle incomes; Good states are found in high incomes. Shanties are not included in the evaluation.

The physical state is a subjective qualification that may be only taken as a reference. It is determined by many factors of which the income may not be significant. For example: Social factors: Culture, degree of acculturation, individual/family habits; individual/family characteristics; Economic factors: Income level; Physical factors: Climate, local resources, dwelling/land tenure, dwelling/land utilization.

DATA MATRIX

Category	Population per Category	% of Total Population	LOCALITIES	USER	DWELLING UNIT			LAND/LOT			DWELLING					DWELLING DEVELOPMENT							
				5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
				Income	Type	Area	Tenure	Rent/ Mrt.	Utili- sation	Area	Tenure	Loca- tion	Type	No. Floors	Utili- zat'n	Fly. State	Mode	Devel- oper	Builder	Construction Type	Date	Den.	
				Very Low Low Moderately Low Middle High	Shanty Rums Apartment Rouer	50m ² or lgs 51 - 100m ² 101m ² or more	Legal Pental Legal Ownership	23% or less of income 21% or more of income	Public Semi-Public Private	m ²	Extralegal: rental Fittedlegal: ownership Legal: rental Legal: ownership	City Center Inner Ring Periphery	Detached Semi-Detached Row/Group Walk-up High-rise	1 2 3 or more	Single Multiple	Bad Fair Good	Incremental Instant	Popular Public Private	Self-Help Artisan Small Contractor Large Contractor	Stick Mud and Wattle Wood Masonry/Wood Masonry/Concrete Concrete	Year of Construction	People/m	Locality
A	42,000	8%	1. DAGORETTI 2. KIRINYAGA VILLAGE 3. KARURA VILLAGE							NA										1959	36	1	
			4. NATHARE VALLEY 5. KAMANGWAKE							NA										1970	450	2	
			6. KARIOBANGI 7. BAWATI							NA										1970	720	3	
B	181,000	36%	8. UPPER HILL 9. EASTLEIGH							NA										1969	1600	4	
			10. RIVER ROAD 11. QUARRY ROAD (det.)							NA										1964	552	5	
C	26,000	5%	12. QUARRY ROAD 13. KARIOBANGI SOUTH							NA										1963	532	6	
			14. UHUKU - PHASE 4 15. PUNGANI							NA										1953	320	7	
D	113,000	23%	16. WESTLANDS 17. MOOLEY - KIBERA							NA										1955	17	8	
			18. PARKLANDS 19. MOOLEY I							670										1945	480	9	
E	1,800	.4%	20. PARKLANDS (det.)							820										1954	768	10	
										NA										1945	1.4	11	
F	32,000	6%								NA										1955	72	12	
										230										1969	258	13	
G	1,500	.3%								NA										1970	312	14	
										NA										1967	234	15	
H	13,000	3%								2400										1964	150	16	
										300										1969	264	17	
I	31,000	6%								2500										1963	170	18	
										2120										1949	35	19	
J	63,000	12%								4300										1961	75	20	

(10) DWELLING TYPOLOGY: NAIROBI, KENYA

(18) DWELLING DEVELOPMENT MODE: Two modes are considered: Incremental and Instant. The pattern is very distinctive: Incremental development is found in the very low and low income levels; Instant development is used by the low and higher income levels (Note PUMWANI).

(19) DWELLING DEVELOPER: Three sectors are considered in the supply of housing: Popular, Public, and Private.

The expected developer pattern is generally apparent in Nairobi: the popular developer is primarily found in the lowest income groups, the public developer is found for the low/middle income groups and the private developer is found for the high income groups. Generally, the public and private developers directly correlate to traditional formal roles as found in other developed countries. These sectors generally are able to mobilize the necessary formal resources: financial credit, institutional services, contracting services, etc.

The public sector, however, has built extensive housing for the financially well-off middle to high income groups. The earlier need for government employee housing prompted the construction of many N.C.C. sponsored units (Note WOODLEY I 1949). The limited public resources for housing have continued to be spent in part on middle income units (Note WOODLEY-KIBERA 1969) when this need could be met by private resources.

The popular sector, the sector which is directly involved in the building process, is synonymous with the low income groups (Note DAGORETTI). This sector frequently has no alternative but to take a more direct and personal involvement in the housing process. Lacking in financial resources or access to private, commercial or public institutions, the low income popular sector must mobilize its meager physical and fiscal resources to seek alternatives outside of the formal, structured housing market. A common result in developing countries, therefore, is illegal squatting (Note KIRINYAGA VILLAGE).

In several prominent cases, however, the private sector in Nairobi is directly involved in providing housing for the low income group. "Company" housing is the outgrowth of a large backlog of demand (Note MATHARE VALLEY). The "company" housing provides a large supply of tenement rooms for the low income sector which are analogous to central city "cast off" housing in other developing countries.

(20) DWELLING BUILDER: Four situations are considered: Self-Help, Artisan, Small Contractor, Large Contractor.

The generally expected pattern may be seen from the case studies: self-help methods are employed by the very low income groups to build their own houses (Note DAGORETTI); artisans are employed by small scale entrepreneurs to build units for the low income (Note KAWANGWARE); small contractors build individualized units for the high income (Note PARKLANDS detached); and large contractors build large scale projects from the City Council for the low and middle income groups (Note BAHATI and WOODLEY I).

Contractor built housing is generally used by the public and private commercial sectors who have access to the institutionalized finance agencies. The popular sector is excluded from securing financial assistance for the services of a contractor by virtue of economics.

(21) DWELLING CONSTRUCTION TYPES: Six types are considered: Shacks, Mud and Wattle, Wood, Masonry/Wood, Masonry/Concrete, Concrete.

The pattern of construction types can be summarized as follows: the lower is the income group, the less permanent is the construction; the higher is the income group, the more permanent is the construction. This situation is in common with other developed as well as less developed countries.

At the low income end of the spectrum, traditional "mud and wattle" construction is still employed, which is approximately 3% of the dwellings in Nairobi (U.N. Report 1964) (Note DAGORETTI, a rural situation, and KARIOBANGI, where self-help methods were employed).

The most common materials are masonry and wood - the walls concrete block and the roof a wood structure (Note QUARRY ROAD). In the multi-story situation, floors are made of reinforced concrete slabs (Note PUMWANI).

Pre-cast prefabricated concrete elements have been used in the large UHURU-PHASE 4 project, a two story apartment block, and in the MATHARE VALLEY "company housing" which uses a semi-prefabricated wood system in the construction of single-story 6-room units.

There is a large proportion of relatively permanent stone structures throughout the income ranges. In

1964, 80% of the dwellings in Nairobi were of stone construction (U.N. Report). This is due, in part, to the European tradition imported during the colonial period (Note BAHATI, WOODLEY I).

(22) DWELLING DEVELOPMENT - YEAR OF CONSTRUCTION: Nairobi is a young city (See INTRODUCTION). The oldest case study is RIVER ROAD (tenements), located in the City Center and built in 1938. The latest case studies included were built in 1970 - UHURU-PHASE 4, KARURA VILLAGE.

(23) DWELLING DEVELOPMENT - DENSITY: Population densities are intended as indicators for each dwelling group. Therefore, samples were taken from selected, small, homogeneous areas that include the land of a group of dwellings and their circulation access. The areas do not include public land for community services. The largest area is PUMWANI (4.27 Has); the smallest is KIRINYAGA VILLAGE (0.10 Has). In the following table, densities are listed from low to high and related to users' income and dwelling unit type:

	Density P/ha	User Income Group	Dwelling Unit Type	Density Group
UPPER HILL	17	High	House	Very low
PARKLANDS (detached)	25	High	House	Very low
WOODLEY I	35	High	House	Very low
DAGORETTI	36	Very low	House	Very low
QUARRY ROAD	72	Middle	House	Low
QUARRY ROAD (detached)	114	Middle	House	Low
PARKLANDS	120	High	House	Low
WESTLANDS	150	High	Apartments	Low
KARIOBANGI SOUTH	258	Middle	House	Medium
WOODLEY-KIBERA	264	High	House	Medium
UHURU-PHASE 4	312	Middle	House	Medium
BAHATI	320	Low	Room	Medium
PUMWANI	384	Middle	Room	Medium
KIRINYAGA	450	Very low	Shanty	High
EASTLEIGH	480	Low	Room	High
KARIOBANGI	532	Low	Room	High
KAWANGWARE	552	Low	Room	High
NAKURA VILLAGE	720	Low	Shanty	High
RIVER ROAD	768	Low	Room	High
MATHARE VALLEY	1,600	Low	Room	Very high

There is a clear pattern between density and income group: lower densities characterize high income groups; medium densities are found in all income groups; higher densities characterize low income groups. An exception is DAGORETTI, which is a very low income, very low density traditional rural settlement engulfed by the growth of Nairobi. There is also a clear pattern between density and dwelling unit type: lower densities correspond to houses; medium densities correspond to houses and apartments; higher densities correspond to rooms and shanties.

DATA MATRIX

Category	Population per Category	% of Total Population	LOCALITIES	USER		DWELLING UNIT			LAND/LOT			DWELLING				DWELLING DEVELOPMENT							
				5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
				Income	Type	Area	Tenure	Rent/Mort.	Utili- zation	Area	Tenure	Loca- tion	Type	Floors	Utili- zat'n	Phy. State	Mode	Devel- oper	Builder	Construction Type	Date	Des.	
				Very Low Low Moderately Low Middle High	Shanty Kwasa Apartment House	50m ² or less 51-100m ² 101m ² or more	Legal Rental Legal Ownership	20% or less of income 21% or more of income	Public Semi-public Private	2 m	Extralegal: rental Extralegal: ownership Legal: rental Legal: ownership	City Center Inner Ring Periphery	Detached Semi-detached Row/group Walk-up High-rise	1 2 3 or more	Single Multiple	Bad Fair Good	Incremental Instant	Popular Public Private	Self-help Artisan Small Contractor Large Contractor	Shack Mud and walls Wood Masonry/Wood Masonry/Concrete Concrete	Year of Construction	People/m	Locality
A	42,000	8%	1. DAGORITTI 2. KIRINTAGA VILLAGE 3. KARURA VILLAGE							NA									1958	36	1		
			4. NATHARE VALLEY 5. KAMANGWARI 6. KARIOBANGI							NA									1970	450	2		
B	181,000	36%	7. BAWATI							NA									1970	720	3		
C	26,000	5%	8. UPPER HILL 9. EASTLEIGH				(2)	NA		NA									1969	1600	4		
D	118,000	23%	10. RIVER ROAD							670									1964	552	5		
E	1,800	.4%	11. QUARRY ROAD (det.) 12. QUARRY ROAD							820									1963	532	6		
F	32,000	6%	13. KARIOBANGI SOUTH							NA									1953	320	7		
G	1,500	.3%	14. URUKU - PHASE 4 15. PUNGWI							NA									1955	17	8		
H	13,000	3%	16. WESTLANDS 17. WOODLEY - KIBERA							230									1945	480	9		
I	31,000	6%	18. PARKLANDS 19. WOODLEY I							NA									1938	768	10		
J	63,000	12%	20. PARKLANDS (det.)					NA		300									1945	114	11		
	509,300	100%	Total							2400									1955	72	12		
										230									1969	258	13		
										NA									1970	312	14		
										NA									1967	384	15		
										2400									1964	150	16		
										300									1969	264	17		
										2500									1963	120	18		
										2120									1949	35	19		
										4300									1961	25	20		

Notes: (1) = Unaffordable (2) = Provided NA = Not Applicable



TWENTY CASE STUDIES

The following case studies depict selected dwelling environments/situations existing in the Nairobi Urban Area at the present time:

1. DAGORETTI	Houses: private traditional
2. KIPINYAGA VILLAGE	Shanties: popular temporary
3. KAPURA VILLAGE	Shanties: popular temporary
4. MATHARE VALLEY	Rooms: private tenements
5. KAWANGWARE	Rooms: private tenements
6. KARIOBANGI	Rooms: public site-and-services
7. BABATI	Rooms: public subsidized
8. UPPER HILL	Rooms: private employer-provided
9. EASTLEIGH	Rooms: private tenements
10. RIVER ROAD	Rooms: private tenements
11. QUARRY ROAD (Detached)	Houses: public subsidized
12. QUARRY ROAD	Houses: public subsidized
13. KARIOBANGI SOUTH	Houses: public subsidized
14. UHURU-PHASE 4	Houses: public subsidized
15. PUMWANI	Apartments: public subsidized
16. WESTLANDS	Apartments: private rental
17. WOODLEY-KIBERA	Houses: public subsidized
18. PARKLANDS	Houses: private rental
19. WOODLEY I	Houses: public subsidized
20. PARKLANDS (Detached)	Houses: private ownership

The case studies are arranged in sequence, from the very lowest income groups to the highest income groups. The case study numbers reflect this sequence.

Each case study contains descriptive information presented similarly for comparative purposes. The data for each case study is presented in four pages. The initial page presents DESCRIPTIVE DATA: a narrative containing History, User, Dwelling, and Comments; a Physical Data Chart, Socio-Economic Data Charts, and Selected Block Data - densities in terms of lots, dwelling units, and people. The second page contains DRAWINGS for each dwelling: Dwelling Plan, Dwelling Section, and Dwelling Group. The third and fourth pages contain PHOTOGRAPHS: the dwelling, the environment, and an aerial view.

(Opposite page) An oblique air photograph of Eastern Nairobi about 4 km from the City Center. It illustrates different patterns of land utilization, all contained in a small area of approximately 18 Ha. Some of the localities included in the case studies are shown, from left to right: first, EASTLEIGH, with its court type private tenements. Next, the Juja Road, main automobile route to the City Center, which runs from top to left in the photograph and separates Eastleigh from Mathare Valley Village II. Next: The COMPANY HOUSING tenements of Village II aligned in straight rows. They are bounded by the

Juja Road and a sharp drop in the land. The low land at the left of the drop is occupied by the SQUATTERS of Village II. An access road opened by the Nairobi City Council runs through the center of the settlement and provides the only automobile path. The last boundary is the irregular line of the Mathare River, reduced today to a narrow ditch. On the right, is open land not "urbanized" yet. The land belongs to the N.C.C. but is cultivated with maize by the nearby squatters. Photograph: B.S. Thethy (1970).

1 DAGORETTI

PHYSICAL DATA (Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 28
 tenure: LEGAL OWNERSHIP
LOT/LAND
 utilization: PRIVATE
 area (m²): -
 tenure: LEGAL OWNERSHIP
DWELLING
 location: PERIPHERY
 type: DETACHED
 number of floors: 1
 utilization: MULTIPLE: FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: PRIVATE
 builder: SELF-HELP
 construction type: MUD AND WATTLE
 year of construction: 1959
MATERIALS
 foundations: NONE
 floor: COMPACTED EARTH
 walls: MUD AND WATTLE
 roof: THATCH, TIMBER POST
DWELLING FACILITIES
 WC: 1
 shower: -
 kitchens: -
 rooms: 1
 other: PIT LATRINE, OUTDOOR WASHING,
 COOKING STOVE
COMMUNITY FACILITIES
 police: LIMITED
 fire protection: LIMITED
 refuse collection: NONE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: MARKETS, SMALL SHOPS
UTILITIES AND SERVICES
 water: LIMITED
 sewerage: LIMITED
 storm drainage: NONE
 electricity: NONE
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: NONE
 telephone: NONE

SOCIO-ECONOMIC DATA (Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: RIFT VALLEY
 education level: NONE
NUMBER OF USERS
 married: 1 MALE, 3 FEMALES
 single: -
 children: 15
 total: 19
MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1952
 urban - urban: -
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: VERY LOW
 employment: SUBSISTENCE FARMER
 distance to work: SAME PREMISES
 mode of travel: -
COSTS
 dwelling unit: \$36
 land - market value: \$21,450/BA
DWELLING UNIT PAYMENTS
 financing: SELF-FINANCED*
 rent/mortgage: N.A.
 % income for rent/mortgage: N.A.

DAGORETTI is a group of villages with both traditional rural settlements and uncontrolled urban settlements (see also KAWANGWAKE). The villages were developed by the popular and private sectors as early as the 19th Century. The location is on the western edge of the city, about 10 km from the city center.

HISTORY: As early as the 16th Century, the Kikuyu tribe occupied the area which became part of the Kikuyu Reserve under the colonial government in 1926. During the Emergency in 1952, thousands of Africans were sent to this "reserve" which was at that time outside the city boundary. In 1957, Karuta and Kangemi were developed as low-density satellite villages within Dagoretti. The entire area became part of the new city boundary in 1963. In 1970, Grade II Building By-laws and regulations were applied to the area, which made most of the development legal. The present population of Dagoretti is about 50,000 people, with an expected growth rate of 20% per annum.

USERS: The users are within the low income groups and constitute about 12% of the low income sector of the city. Many of them are engaged in subsistence farming and some supplement their incomes with casual employment in the city. Other employment sources and commercial activity are local markets and small shops within the dwelling units.

DWELLINGS: The dwellings in the rural settlements follow a traditional layout of circular mud and wattle huts grouped around a central open space enclosed by a fence made of bushes. Also, row type dwelling units are found (as in Mathare Valley). The open space around the dwellings acts as an enclosure for goats, cattle, and chicken. Subsistence farming ("shambas") is carried on around the units.

COMMENTS: Upgrading of Dagoretti from agricultural land to comply with Grade II Building By-laws has encouraged greater development and speculation by public and private sectors (see also KAWANGWAKE). Land values have risen from \$1,800/ha to \$21,450/ha over the last three years. The land speculation problem is especially acute in the land located closer towards the city center and along existing and planned highways. The provision and development of public services, infrastructure and other facilities planned over the next two years will further increase speculation pressures.

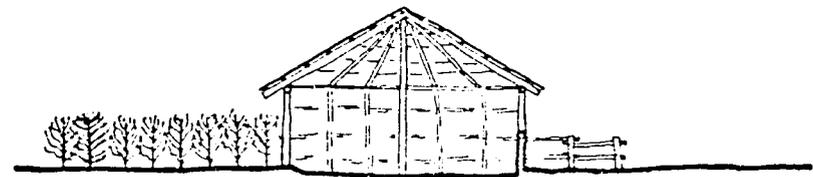
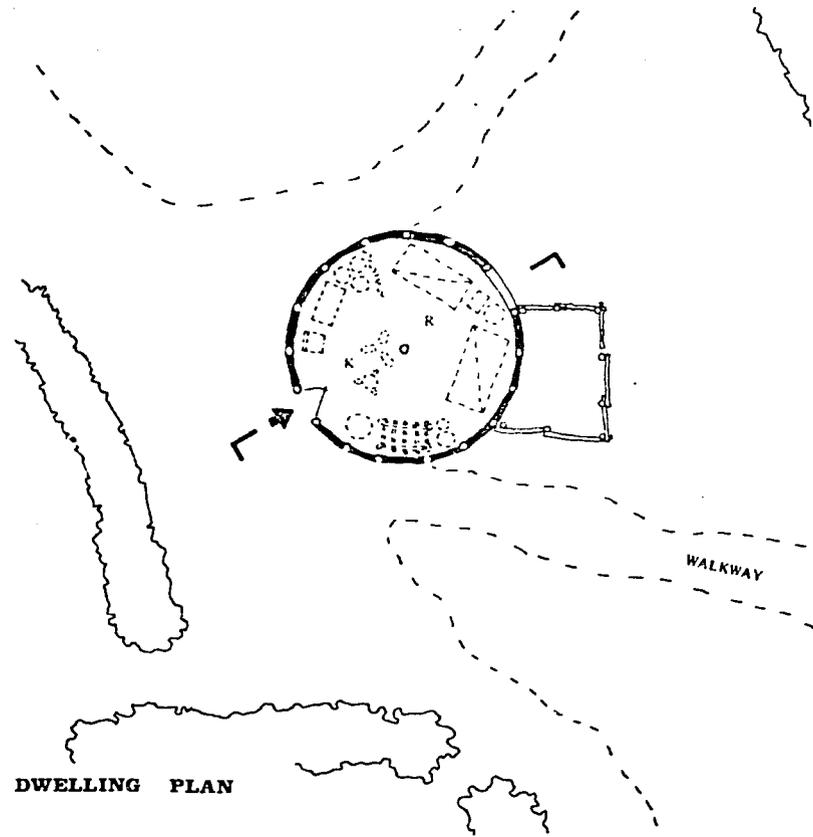
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

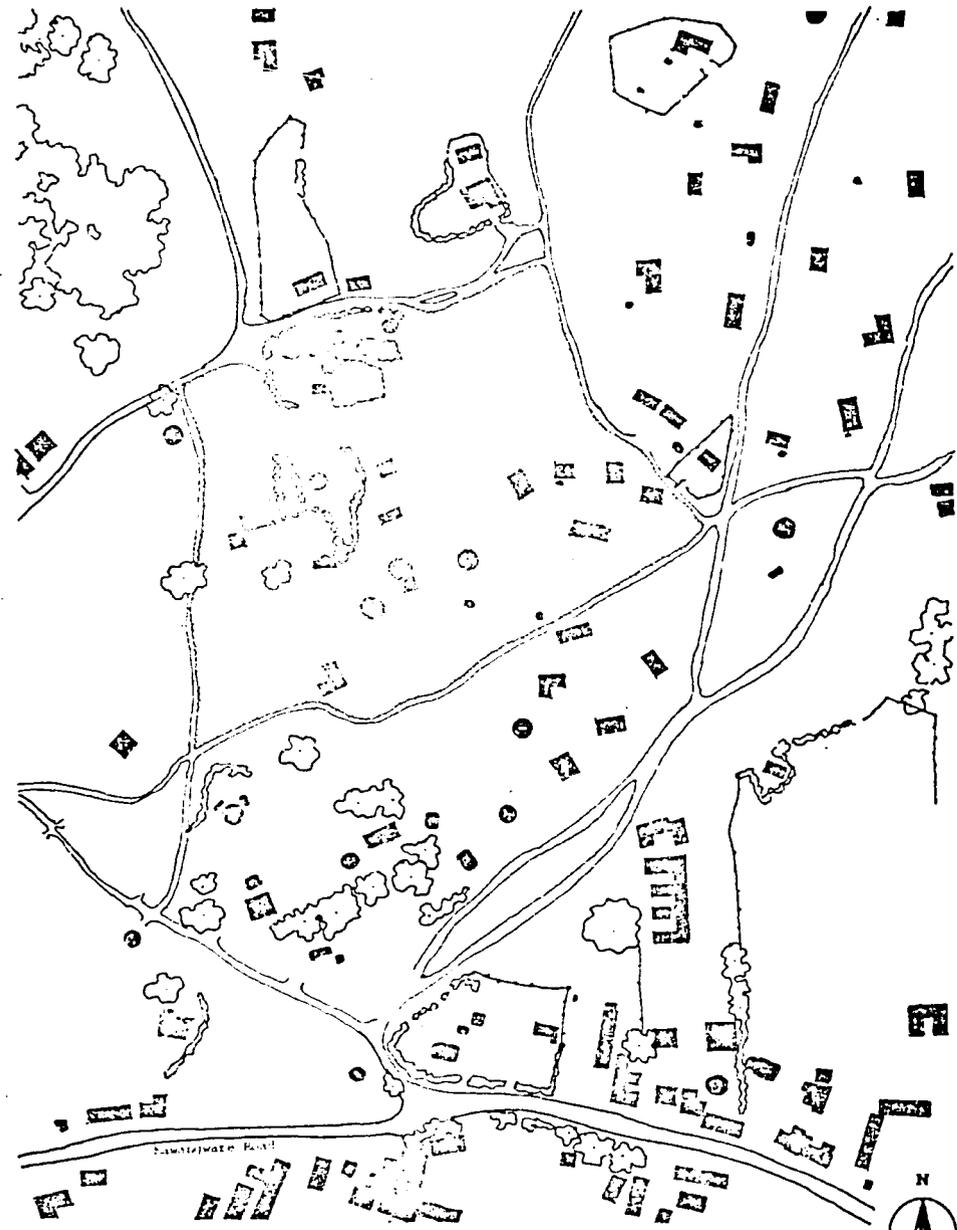
	Total Number	Area Hectares	Density N/ha
LOTS	-	-	-
HOUSE UNITS traditional rural	5	1.68	3
PEOPLE (12 per unit)	60	1.68	36

SOURCES:

Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (approximate) DAGORETTI STUDY, 1971
 Physical Data: (approximate) IBID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel; S.O.K. (aerial).
 General Information: DAGORETTI STUDY, 1971; MATHARE VALLEY REPORT, 1970; Field Surveys.



0 1 5 10m



0 10 50 100 150m





DAGORETTI: (opposite page - top left) In front of this group of traditional dwellings is a small vegetable garden, a "shamba," which provides some of the family needs. The open space around the dwellings is used for various activities: cooking, socializing, playing. (1972)

(opposite page - bottom left) This photograph shows the traditional rural construction of mud and wattle walls, timber and thatch roof. Firewood is stored for fuel for cooking. Chickens feed and children play in the open space. (1972)

(opposite page - right) A walkway is shown with children, adults and domestic animals. Roof construction is timber and flattened sheets from metal drums, like the one stored on top of the roof. (1972)

(right) In the aerial view notice the different phases of development: rural, rural-urban and urban. Winding streets, walkways and fences enclosing dwellings and small gardens are characteristic of the physical environment. (1972)



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2 KIRINYAGA VILLAGE

Shanties: popular temporary

KIRINYAGA VILLAGE is one of a series of uncontrolled settlements developed in 1970, providing temporary shelter for immigrants from rural areas. It is one of several settlements located along the Nairobi River, about 1 km from the city center. It is limited by private tenements on the south and public housing on the north.

HISTORY: Between September 1969 and January 1970 the Nairobi City Council demolished temporary dwellings in the area without resettlement plans. Kirinyaga Village is one of the settlements subsequently rebuilt by 200 families in September 1970. Some of these settlements were demolished again in 1971.

USERS: The very low income group often shares its shanty dwellings with newly arrived rural immigrants. Most are either unemployed or are in search of jobs in the city. Others work as domestic servants and messengers in the nearby tenements and offices in the city center. Subsistence farming, small-scale industries and food kiosks along the river valley provide additional sources of income. Farm produce is a prime staple for the many individuals who still have their families in the rural areas on small farms. A village committee has been set up and is responsible for internal affairs.

DWELLINGS: Most of the dwellings are small, crudely built, temporary dome-shaped units which are constructed from discarded plastic sheets and branches. The units are often hidden in the bushes along the river bed during the day when the M.C.C. Askaris (police) patrol the area. The open space around the dwellings is used for cooking and is completely neglected. Old abandoned cars have also been converted to provide temporary shelter. There are no sanitary facilities and water is often brought from nearby workshops and tenements.

COMMENTS: Temporary settlements such as Kirinyaga provide dwellings for about 1% of Nairobi's population. These settlements, however, are primary reception centers for people migrating from rural areas. The location of the village close to the city center provides vital opportunities for casual employment. An alternative should be developed in view of the Nairobi City Council's policy of clearing these areas.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: SHANTY
 area (m²): 13
 tenure: LEGAL OWNERSHIP

LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: EXTRA-LEGAL OWNERSHIP

DWELLING
 location: CITY CENTER
 type: DETACHED
 number of floors: 1
 utilization: SINGLE: INDIVIDUAL, FAMILY
 physical state: BAD

DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: POPULAR
 builder: SELF-HELP
 construction type: SHACK
 year of construction: 1970

MATERIALS
 foundations: NONE
 floor: COMPACTED EARTH
 walls: DOME: TWIGS, PLASTIC SHEETS
 roof: DOME: TWIGS, PLASTIC SHEETS

DWELLING FACILITIES
 wc: NONE
 shower: NONE
 kitchen: -
 rooms: 1
 other: COOKING STOVE

COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: NONE
 refuse collection: NONE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: SHOPS, FOOD KIOSKS, SMALL-SCALE INDUSTRIES

UTILITIES AND SERVICES
 water: LIMITED
 sewerage: NONE
 storm drainage: NONE
 electricity: NONE
 gas: NONE
 public transportation: ADEQUATE
 paved roads, walkways: NONE
 telephons: NONE

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: MURANGA
 education level: PRIMARY SCHOOL

NUMBER OF USERS
 married: 1 MALE (FAM. IN RURAL AREA)
 single: 1
 children: -
 totals: 2

MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1970
 urban - urban: -
 urban - rural: -
 why came to Nairobi: EMPLOYMENT

GENERAL: ECONOMIC
 user's income group: VERY LOW
 employment: DOMESTIC SERVANT/MESSENGER
 distance to work: 1 KM
 mode of travel: WALKING

COSTS
 dwelling unit: \$11.00
 land - market value: \$107,250-347,500/HA

DWELLING UNIT PAYMENTS
 financing: SELF-FINANCED
 rent/mortgage: N.A.
 % income for rent/mortgage: N.A.

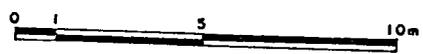
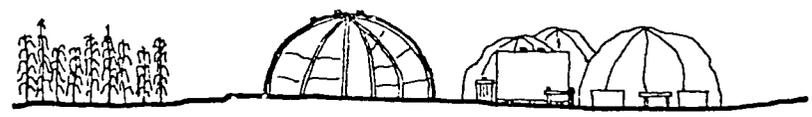
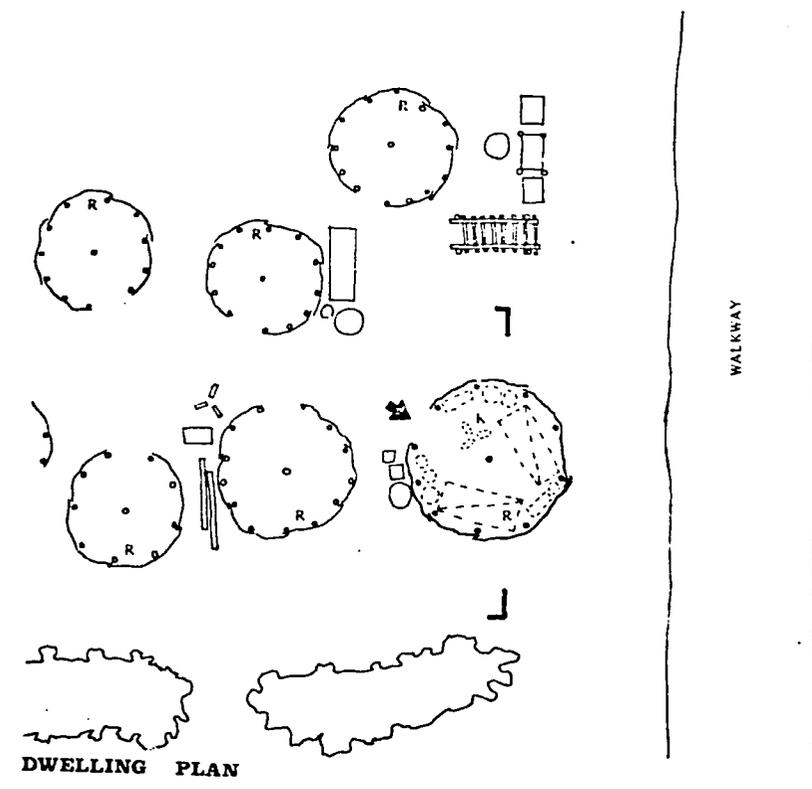
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

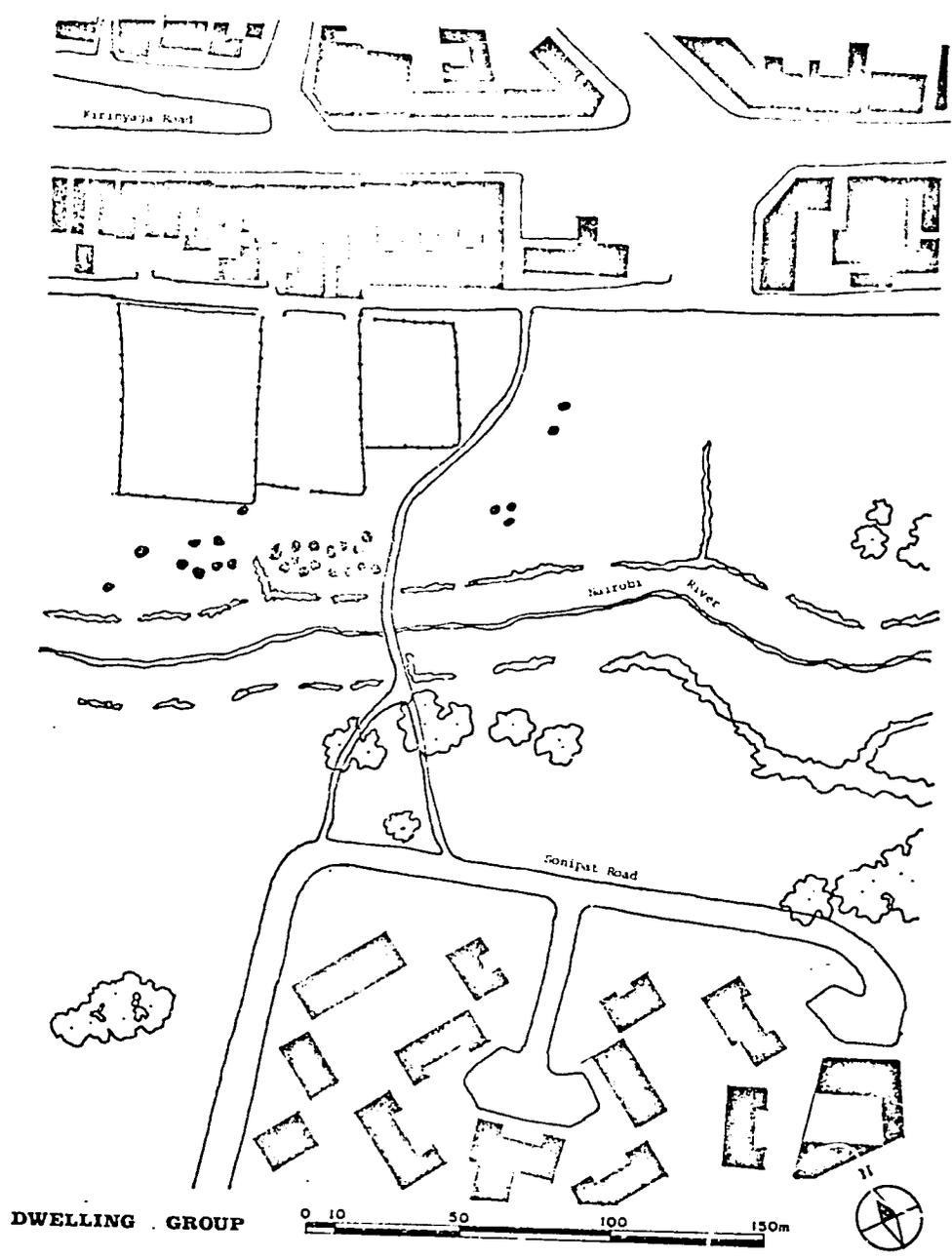
	Total Number	Area Hectares	Density N/HA
LOTS	-	-	-
SHANTY UNITS	15	0.1	150
PEOPLE (3 per unit)	45	0.1	450

SOURCES

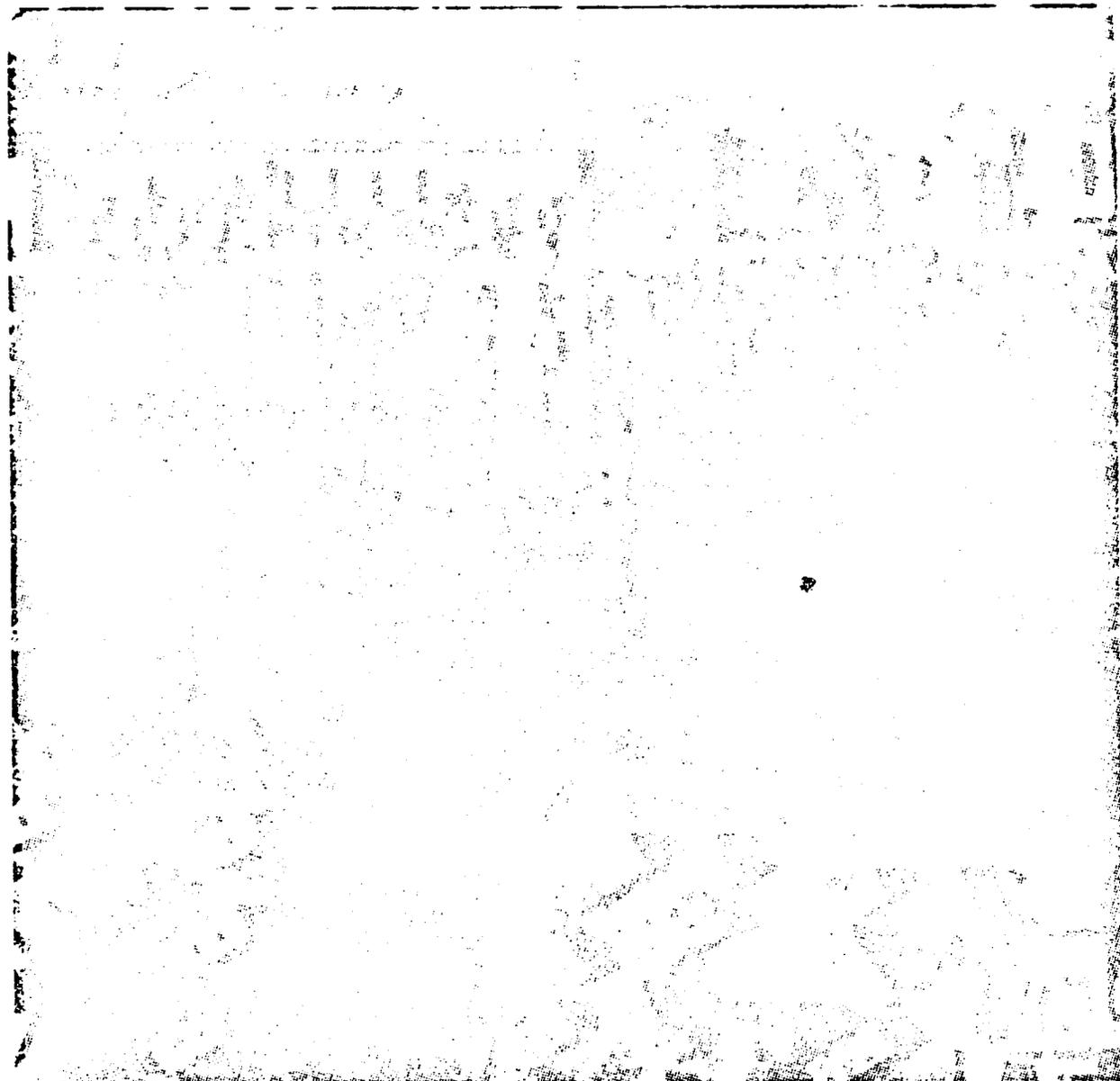
Dwelling Group: (accurate) Aerial Photograph, S.O.K., 1971.
 Dwelling Plan: (approximate) Field Survey, P.C.P., T.C., 1972.
 Physical Data: (approximate) IBID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel, A. Said; S.O.K. (aerial).
 General Information: NATHARE VALLEY REPORT, 1971; Field Surveys, 1969-1972.



WALKWAY







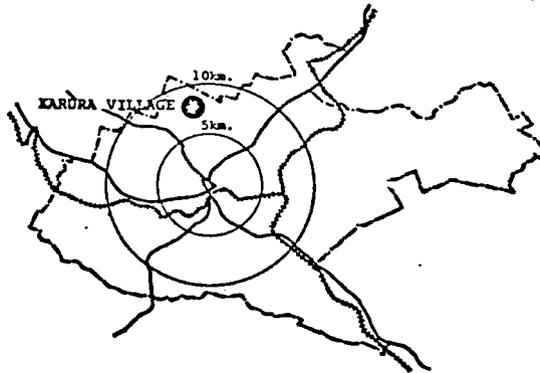
KIRINYAGA VILLAGE: (opposite page - top) This panoramic view shows a striking contrast in the city: a primitive squatter dwelling, the 20th Century waste, the new public subsidized walk-up apartment block on the right. The river valley is used for subsistence farming. (1971)

(opposite page - bottom) Temporary shanties are pictured here. At left is the skeleton/frame of a dome without the plastic skin or cover. At right is a wooden packing box used as a dwelling. Maize and garbage are intermingled in the foreground. (1971)

(right) An aerial view shows the private tenements, the temporary shanty settlements, the river valley and the public subsidized apartment blocks. (1971)

3 KARURA VILLAGE

Shanties: popular temporary



KARURA VILLAGE is a resettlement area providing temporary shelter for former Kaburini squatters, who were removed from the city center as a result of a slum clearance campaign in 1970. It is located in Karura Forest, about 10 km from the city center.

HISTORY: In January 1970 the N.C.C. provided about 15 tents for approximately 1,000 people in the Salvation Army land in Mji wa Huruma, Karura Forest. The population has increased by 70% over the last two years and in 1973 there were approximately 360 dwelling units with 1700 people, 50% being children. A village committee including the National Christian Council of Kenya (N.C.C.K.) is responsible for the regulation of internal affairs. The N.C.C.K., in conjunction with the City Council, maintains a primary school, a social hall and a communal kitchen which prepares meals for children and the elderly.

USERS: The people are in the very low income group with little or no income. The limited income is from small food kiosks, handicrafts, hawking and operating hand carts, temporary employment as casual laborers, begging, prostitution and illegal beer brewing (changaa). The latter has resulted in many social problems, and unemployment has continued to grow.

DWELLINGS: Apart from the original tents, most of the dwellings are small, crudely built shanties, made of discarded cartons and scrap timber. Shops are intermixed with dwellings and provide commodities as well as serve meals. The open space around the dwellings is used for cooking and for small "shambas" (subsistence gardens). Communal pit latrines, showers, the water supply and a garbage disposal service are provided by the City Council.

COMMENTS: The N.C.C., the N.C.C.K. and the users are working on a program for improvement and resettlement. Relocation is being considered to the Mathare Valley Redevelopment Project which includes serviced lots and a materials loan.

PHYSICAL DATA (Related to dwelling and Environment)

DWELLING UNIT
 type: SHANTY
 area (m²): 41
 tenure: LEGAL OWNERSHIP
LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: PUBLIC LAND IN USUFRUCT
DWELLING
 location: PERIPHERY
 type: DETACHED
 number of floors: 1
 utilization: MULTIPLE: INDIV./FAMILY
 physical state: BAD
DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: POPULAR
 builder: SELF-HELP
 construction type: SHACK
 year of construction: 1970
MATERIALS
 foundations: NONE
 floor: COMPACTED EARTH
 walls: CARTONS, SCRAP TIMBER
 roof: CARTONS, SCRAP PLASTIC, METAL SHEETS
DWELLING FACILITIES
 wc: -
 shower: -
 kitchen: -
 rooms: 3
 other: COOKING STOVE

COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: LIMITED
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: COMMUNAL PIT LATRINES AND SHOWERS, SMALL SHOPS, NCCK COMMUNITY KITCHEN, SOCIAL HALL
UTILITIES AND SERVICES
 water: LIMITED
 sewerage: NONE
 storm drainage: NONE
 electricity: LIMITED
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: NONE
 telephone: LIMITED

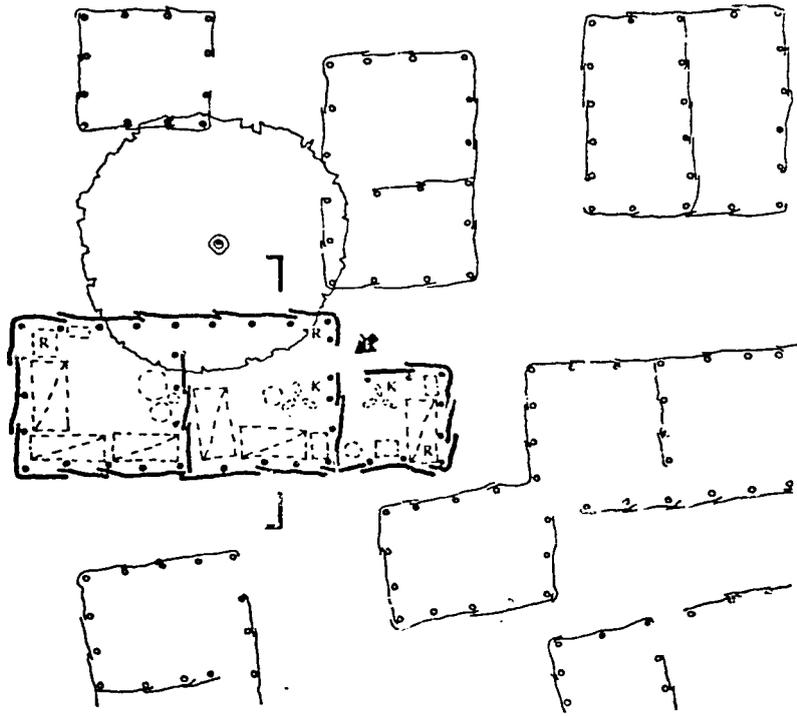
SOCIO-ECONOMIC DATA (Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: RIFT VALLEY
 education level: NONE
NUMBER OF USERS
 married: -
 single: 2 FEMALES
 children: 9
 total: 11
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1965
 urban - urban: 1970
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: VERY LOW
 employment: LABOR
 distance to work: 2 KM
 mode of travel: WALKING
COSTS
 dwelling unit: \$10
 land - market value: LESS THAN \$7,150/HA
DWELLING UNIT PAYMENTS
 financing: SELF-FINANCED
 rent/mortgage: N.A.
 % income for rent/mortgage: N.A.

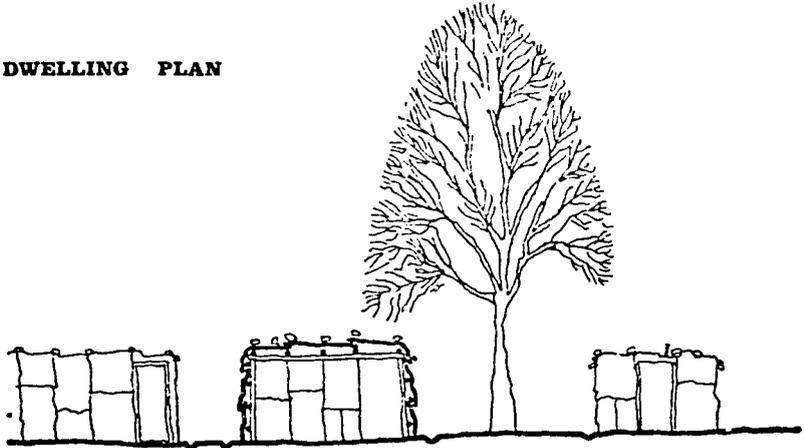
SELECTED BLOCK DATA (Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density N/Ha
LOTS	-	-	-
SHANTY UNITS	180	1.50	120
PEOPLE (6 per unit)	1080	1.50	720

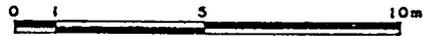
SOURCES
 Dwelling Group: (accurate) CASE STUDIES, NAIROBI, 1971.
 Dwelling Plans: (accurate) IBID.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.
 Photographs: A. Seid; B. Thethy (oblique).
 General Information: CASE STUDIES, NAIROBI, 1971; Field Surveys, 1969-1972; MJI WA HURUMA, N.C.C., 1972.



DWELLING PLAN



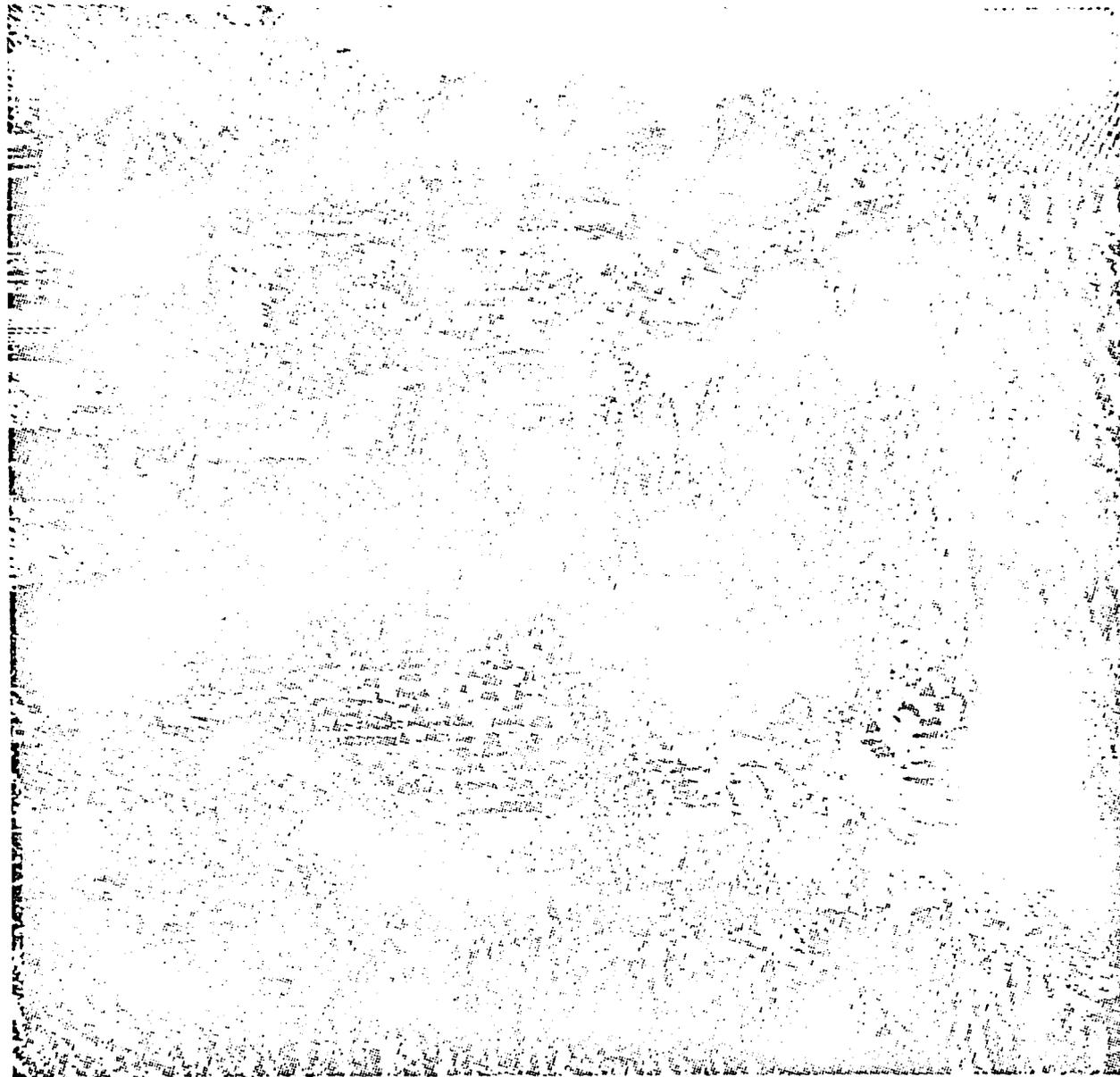
DWELLING SECTION



DWELLING GROUP







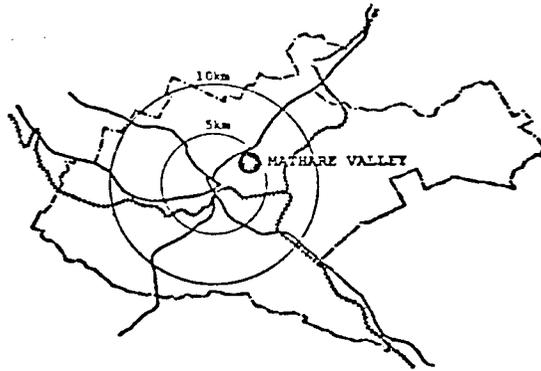
KARURA VILLAGE: (opposite page - top) This view from the entrance to the village shows that the temporary settlement is surrounded by the thick Karura Forest. At left, two tanks of galvanized iron are the only water supply of the settlement. The settlement is enclosed by a barbed wire fence on three sides and the Karura River on the other. (1972)

(opposite page - bottom) A shop/dwelling unit run by a local entrepreneur sells household commodities, as well as serves meals. Note the thick forest in the background and the drainage ditch in the bottom right corner. In the foreground is one of the members of the survey team. (1972)

(right) An oblique air view of the village shows coffee plantations in the north, the Karura Forest and the village in the south. Notice the central access to the settlement. Temporary communal pit latrine and shower blocks provided by the Nairobi City Council are located on the periphery. (1971)

4 MATHARE VALLEY

Rooms: private tenements



MATHARE VALLEY contains a series of nine uncontrolled settlements initially settled in 1939 which became a primary source of shelter for very low and low income groups. The settlements are located along the southern banks of the Mathare and Gitathuru Rivers, about 5 km from the city center.

HISTORY: The Valley was subdivided during the 1930's into lots of 0.5 to 6 Ha and used by Asian entrepreneurs for quarrying. Authorized residential development was limited to a few private houses. The illegal development began in 1939, out of view from authorities and from the main road. The illegal villages were demolished by the colonial government and rebuilt in rural Kikuyu reserves during the emergency of the 1950's. The "squatter villages" were rebuilt in the lower valley in 1954 and grew rapidly after Independence in 1963. In 1971, companies and co-operative societies built single-room tenements which now house 40,000 low income people. An additional 20,000 live in former "squatter villages." Village and company organizations are responsible for the regulation of internal affairs.

USERS: The very low, low and moderately low income groups live in the villages where self-employment is predominant: tailoring, cobbling, small-scale industries and illegal trading. Within the company housing, wage-earning is predominant: casual laborers, servants, masons, carpenters and mechanics employed in the city center.

DWELLINGS: Most are an adaptation of traditional mud and wattle dwellings. 4 to 6 rooms are arranged back to back (barracks) or around a central passage (Swahili houses). Each room is rented as a separate dwelling unit. Construction in the company housing is cheap; timber clap siding or corrugated iron sheets nailed to gumpoles. The open space between the dwellings is generally eroded and is used for varied outdoor activities. The squatter villages have built WCs and showers on a self-help basis with assistance from missionary groups. The company houses are being provided communal pit latrines and showers.

COMMENTS: The companies and co-operative societies represent an important resource in the provision of dwellings for the low income groups. However, effective rent control is required to avoid excessive rents. Services and employment opportunities should be provided to improve the Valley settlements. The high densities achieved by the single-room units at the expense of public open areas make the open space surrounding each unit a vital resource.

PHYSICAL DATA (Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 12
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: LEGAL RENTAL
DWELLING
 location: INNER RING
 type: ROW/GROUP
 number of floors: 1
 utilization: MULTIPLE: INDIV./FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: WOOD
 year of construction: 1969
MATERIALS
 foundations: RAMMED STONE FOOTINGS
 floor: COMPACTED EARTH
 walls: TIMBER CLAP SIDING
 roof: CORRUGATED GALVANIZED IRON SHEETING, TIMBER PURLINS
DWELLING FACILITIES
 WC: -
 shower: -
 kitchen: -
 rooms: 6 (1-2 PER UNIT)
 other: WC/SHOWER PROVIDED SEPARATELY, COOKING STOVE

COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: LIMITED
 refuse collection: LIMITED
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: MARKET, SMALL-SCALE INDUSTRIES, SHOPS
UTILITIES AND SERVICES
 water: LIMITED
 sewerage: LIMITED
 storm drainage: LIMITED
 electricity: LIMITED
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: LIMITED
 telephone: NONE

SOCIO-ECONOMIC DATA (Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: KIAMBU
 education level: PRIMARY SCHOOL
NUMBER OF USERS (SINGLE UNIT)
 married: 1 MALE, 1 FEMALE
 single: -
 children: 2
 total: 4
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1965
 urban - urban: 1969
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: LOW
 employment: RETAILER
 distance to work: 2 KM
 mode of travel: WALKING
COSTS
 dwelling unit: \$115 (12m² ROOM)
 land - market value: \$7,150-14,300/HA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$17/MONTH
 % income for rent/mortgage: 25%

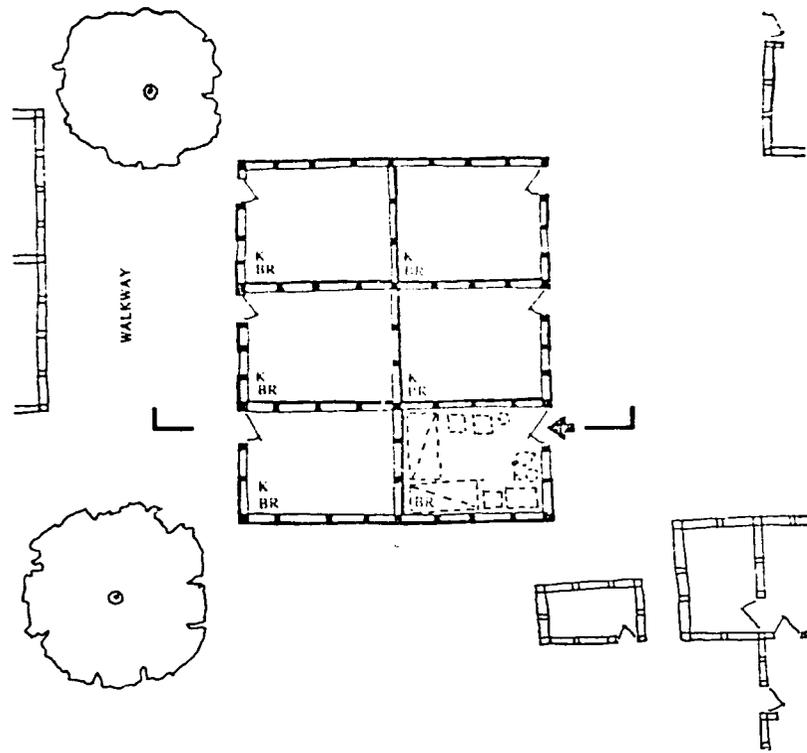
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

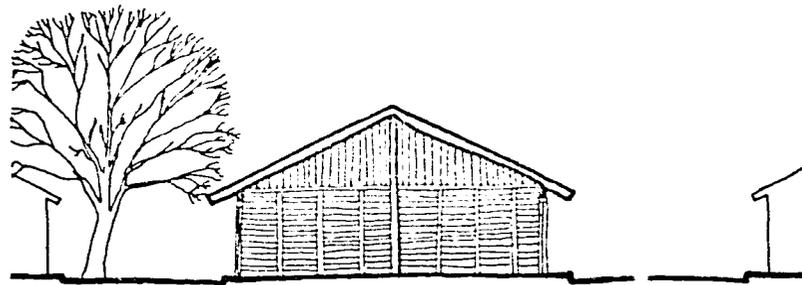
	Total Number	Area Hectares	Density N/HA
LOTS	-	-	-
ROOM UNITS	160	0.40	400
PEOPLE (4 per unit)	640	0.40	1600

SOURCES

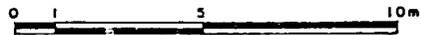
Dwelling Group: (accurate) Map, N.C.C., 1971.
 Dwelling Plan: (accurate) IBID.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel; G. Thethy (oblique).
 General Information: DETAILED ANALYSIS AND EVALUATION, MATHARE VALLEY, 1972; MATHARE VALLEY REPORT, 1970; Field Surveys, 1969-1972.



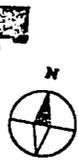
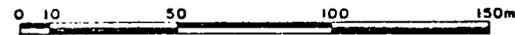
DWELLING PLAN



DWELLING SECTION



DWELLING GROUP





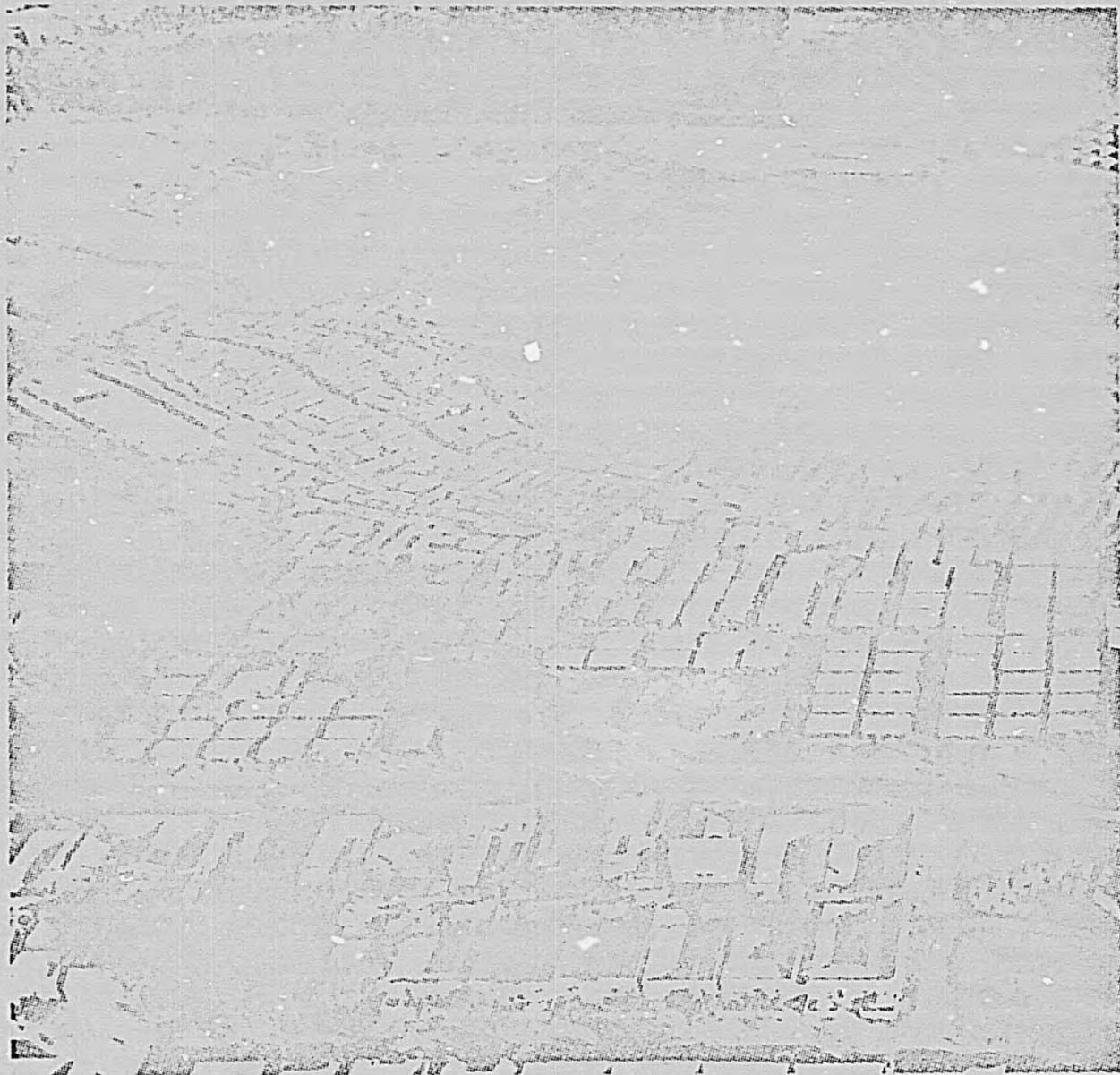
MATHARE VALLEY: (opposite page - top left) In this "company" housing the walkway between the dwellings is very much alive with people engaged in several activities. In the foreground are clotheslines for laundry, "jiko" (a stove) stored on top of a charcoal sack and plants hanging from the eaves. (1972)

(opposite page - top right) A long row of water cans awaits filling from a water tap in the "company" housing area. The tap also provides a meeting place for the women. Bicycles, like the one in the background, are a popular mode of transportation. (1972)

(opposite page - bottom left) In the lower part of the valley "squatter" housing has a rural character with traditional dwellings built around an 'enclosure' for cattle and other domestic animals. Walls of dwellings are of mud and wattle, roofs of flattened sheets from metal drums, held by rocks when nails are not available. (1972)

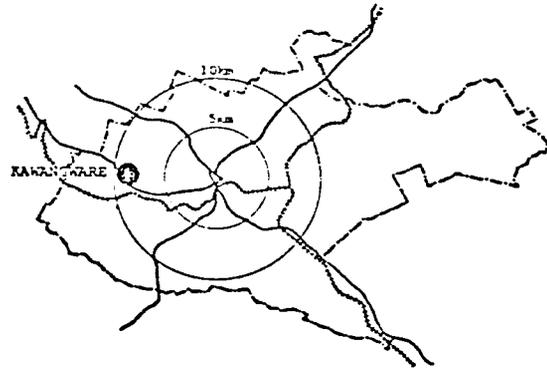
(opposite page - bottom right) Walkways in the "squatter" housing follow the contours in the valley. Open space is used by children to play. One of them is playing with a discarded auto tire. Notice also the plants hanging from the eaves. (1972)

(right) This oblique air view shows the Eastleigh tenements in the foreground, Juja Road, the "company" housing, the "squatter" housing and the Mathare River Valley. Notice the land use pattern in the two localities. In the top right corner are the Mathare Primary School, the Police Depot and the Mental Hospital. (1970)



5 KAWANGWARE

Rooms: private tenements



KAWANGWARE is a semi-rural settlement within the Kiruta section of Dagoretti developed mainly by popular and private sectors. It is in the southeastern part of Dagoretti, about 10 km from the city center.

HISTORY: The development of townships and satellite villages in 1957, the extension of the city boundary to include Dagoretti in 1963, and the implementation of Grade II building by-laws in 1970 have encouraged rapid growth in Kawangware over the last ten years. The present population is about 5,000, which is expected to grow at 15% per annum.

USERS: The very low and low income group users have been unable to support their families at even subsistence levels, and many have been forced to sell land to speculative middle and high income builders (compare with KATHARE VALLEY). Employment is primarily casual city employment with a few self-employed who derive their income from small-scale industries, tailoring and hawking. A local market and some small shops within the dwellings provide other limited employment sources. Subsistence farming is a prime source of foodstuffs.

DWELLINGS: Most of the dwellings are U-shaped and parallel row type tenements built of timber clap siding on cupoles with corrug. roofing. Prefabricated timber panel dwellings, which are very similar to the "cubing" housing in the Kathare Valley, have also been used experimentally. Traditional rural mud and wattle huts and stone temporary tenements are also found along the main road (see HIVER ROAD). The open space around the dwellings is used for socializing, laundering, playing and maintaining domestic animals. Pit latrines and showers are provided as separate units.

COMMENTS: Kawangware, with its high rate of growth, will be one of the principal areas in Dagoretti to experience strong speculation pressures over the next few years. The Nairobi City Council is already working on a development plan for the eastern part of Dagoretti including Kawangware.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 14
 tenure: LEGAL RENTAL
LOT LAND
 utilization: SEMI-PUBLIC
 area (m²): -
 tenure: LEGAL RENTAL
DWELLING
 location: PERIPHERY
 type: ROW/GROUP
 number of floors: 1
 utilization: MULTIPLE: INDIV./FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: PRIVATE
 builder: ARTISAN
 construction type: WOOD
 year of construction: 1964
MATERIALS
 foundations: RAMMED STONE FOOTINGS
 floor: COMPACTED EARTH
 walls: TIMBER CLAP SIDING
 roof: C.C.I. SHEETING, TIMBER PURLINS
DWELLING FACILITIES
 WC: -
 shower: -
 kitchen: -
 rooms: 8-16 (1 PER UNIT)
 other: WC/SHOWER PROVIDED SEPARATELY, COOKING STOVE
COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: LIMITED
 refuse collection: LIMITED
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: ADEQUATE
 other facilities: MARKET, SMALL SHOPS, SMALL-SCALE INDUSTRIES
UTILITIES AND SERVICES
 water: LIMITED
 sewerage: LIMITED
 storm drainage: LIMITED
 electricity: LIMITED
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: LIMITED
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: LIMURU
 education level: PRIMARY SCHOOL
NUMBER OF USERS
 (SINGLE UNIT)
 married: 1 MALE (FAMILY IN RURAL AREA)
 single: -
 children: -
 total: 1
MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1971
 urban - urban: -
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: LOW
 employment: SHOP OWNER
 distance to work: SAME PREMISES
 mode of travel: -
COSTS
 dwelling unit: \$115 (14m² ROOM)
 land - market value: LESS THAN \$21,450/HA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$8.50/MONTH
 % income for rent/mortgage: 15%

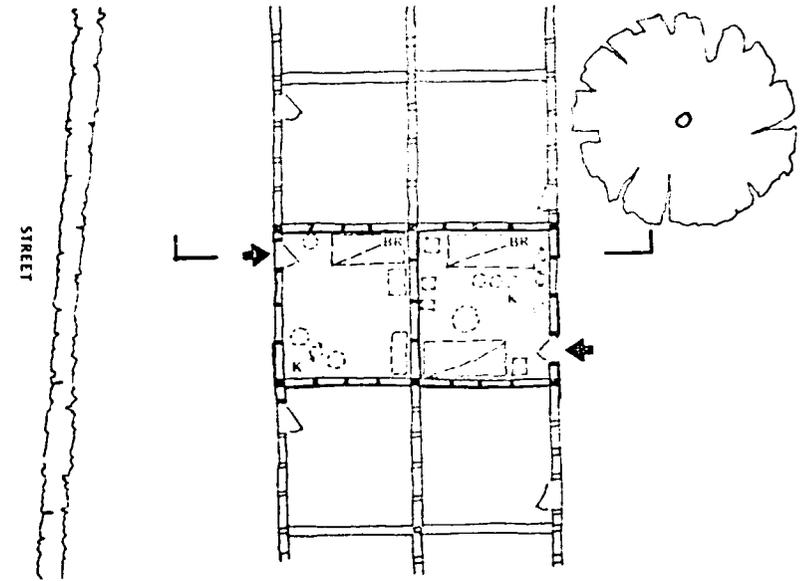
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

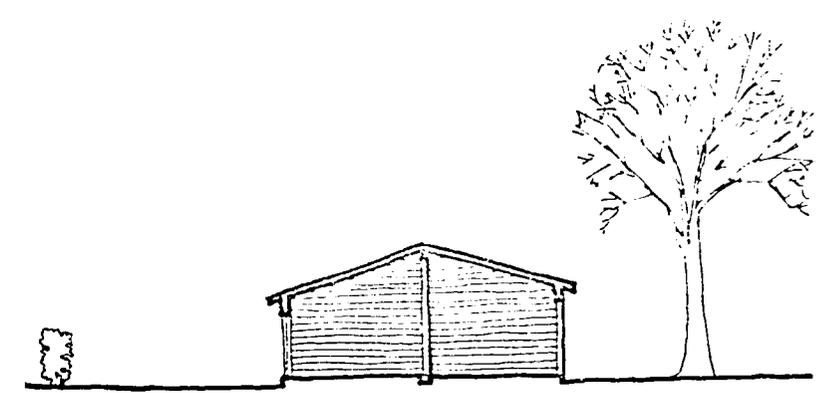
	Total Number	Area Hectares	Density N/HA
LOTS	-	-	-
ROOM UNITS	144	1.04	138
PEOPLE (4 per unit)	576	1.04	552

SOURCES

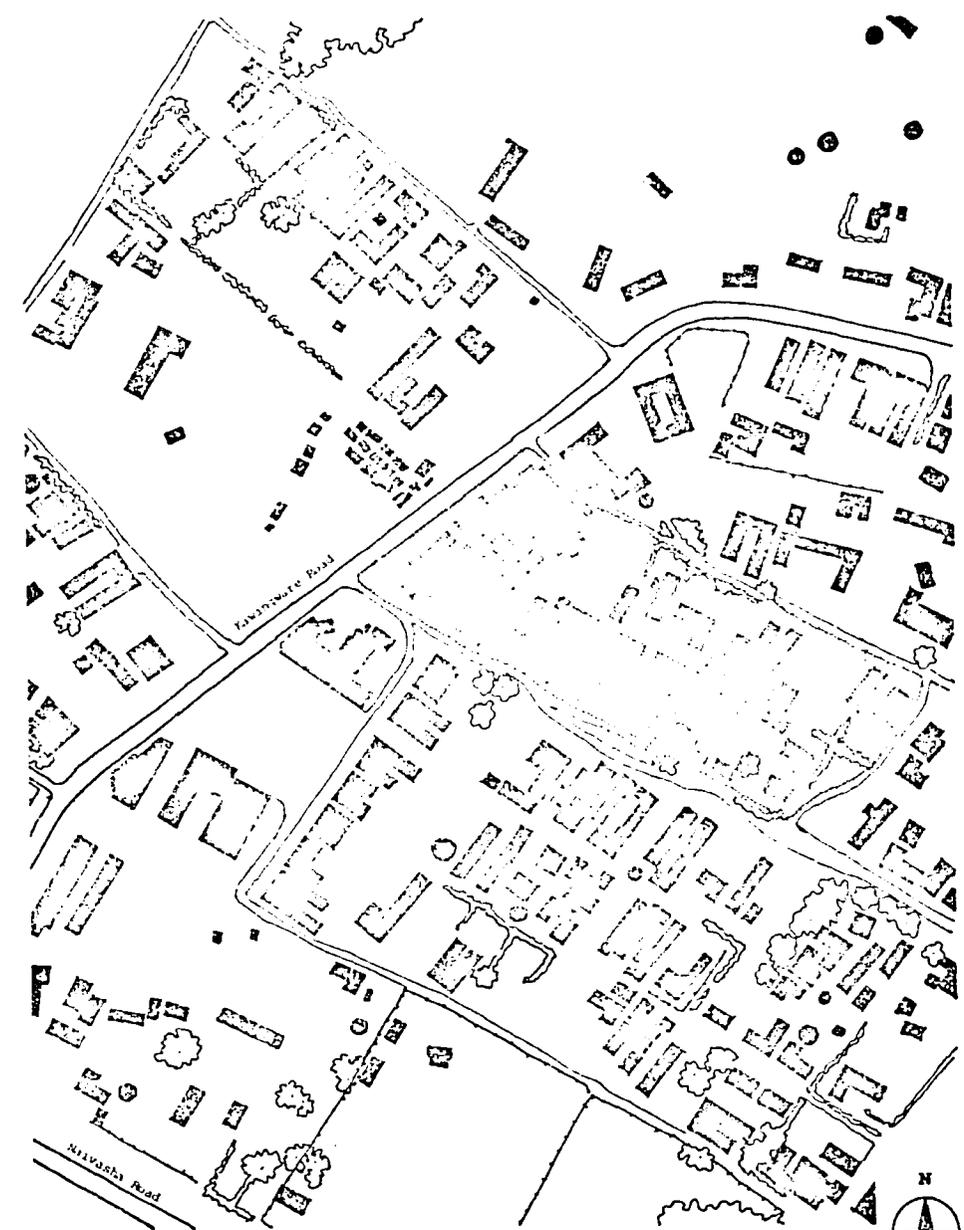
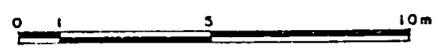
Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (accurate) IBID.
 Physical Data: (approximate) DAGORETTI STUDY, 1971.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.
 Photographs: T.S. Chuma, S.O.K. (serial).
 General Information: DAGORETTI STUDY, 1971; EASTERN DAGORETTI, DRAFT REPORT, 1971; Field Surveys, 1969-1972.



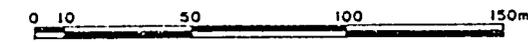
DWELLING PLAN



DWELLING SECTION



DWELLING GROUP





KAWANGWARI: (opposite page - top) The view is of the main commercial street. Notice a popular hotel in the foreground with the privately developed row tenement dwellings in the background. Fences are used to define the lot boundary. There is no segregation of pedestrian walkways and vehicular roads. (1973)

(opposite page - bottom left) The photograph shows the privately developed row tenements. The open space between the dwelling units is used for various activities: socializing, laundering, playing. The walls of the dwellings are wood planks, and the roof is of corrugated galvanized iron sheets. (1973)

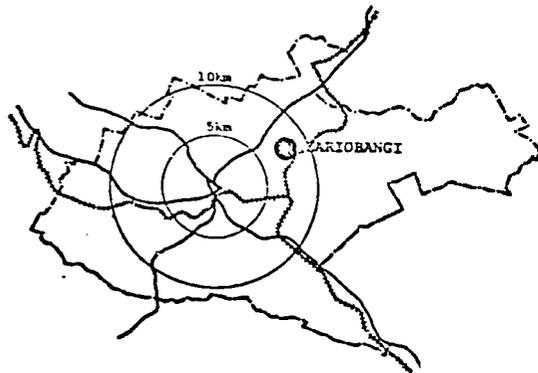
(opposite page - bottom right) Traditional mud-and-wattle dwellings are shown built around an enclosure for domestic animals. The roof is made of timber poles with the central post projecting and covered with flattened sheets from metal drums, like the one being used for collecting rain water. (1972)

(right) The aerial view of the locality depicts the main commercial street connecting to a major highway (Naivasha N. rd). Most of the commercial activity is carried out in the open-air market. The layout is very similar to other 'satellite' villages in Dagoretti. (1971)



6 KARIOBANGI

Rooms: public site-and-services



KARIOBANGI, developed in 1964, is the second site-and-services project by the Nairobi City Council. (The first in 1923 was in Pumwani.) It is located 8 km east of the city center, and limited by the Outer Ring Road on the east and the Muthara and Githaru Rivers on the north and south.

HISTORY: The project was designed to solve Nairobi's illegal housing problems as recommended in 1954. By 1964, 723 lots, each 167 m², were allocated to low income people on 10 to 15 year leases. 84% of the original owners sold the lots to absentee African landlords, who developed the existing mud-and-wattle dwellings and sublet them as speculative tenements.

USERS: Moderately low income people presently occupy the project instead of the planned very low income families. Employment is primarily in the nearby industrial areas and in Ruaraka, and some have commercial enterprises in Kariobangi. An adjacent market also offers a diverse range of commercial activity including small scale industries.

DWELLINGS: Each consists of a 4 room group of mud-and-wattle units built by skilled and semi-skilled laborers with the help of the users. Four dwellings share a common service core. The open space around the dwellings is neglected because, perhaps, the layout does not permit control by the families who share the area.

COMMENTS: Site-and-Services projects in Nairobi provide for only 3-5% of the city's low income population needs. The selling of the lots to higher income people, the initially poor physical appearance of the user built units, and overcrowding have made these projects 'unpopular' with the city council. However, a similar but more recent project already has limited occupancy in spite of official inaction. Popular temporary settlements continue to rapidly develop on the periphery of the Kariobangi project; this aspect should be considered in future projects.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 14
 tenure: LEGAL RENTAL

LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: LEGAL RENTAL

DWELLING
 location: PERIPHERY
 type: ROW/GROUP
 number of floors: 1
 utilization: MULTIPLE: INDIV. FAMILY
 physical state: FAIR

DWELLING DEVELOPMENT
 mode: INCREMENTAL
 developer: PRIVATE
 builder: ARTISAN/SMALL CONTRACTOR
 construction type: MUD-WATTLE/MASONRY, WOOD
 year of construction: 1963

MATERIALS
 foundations: CONCRETE FOOTING/STRIP
 floor: COMPACTED EARTH/CONCRETE
 walls: MUD-WATTLE/STONE/CONC.
 roof: C.G.I. SHEETING, BLOCKS
 TIMBER PURLINS

DWELLING FACILITIES
 WC: -
 shower: -
 kitchen: -
 rooms: 4 (1-2 PER UNIT)
 other: WC/SHOWER PROVIDED SEPARATELY, COOKING STOVE

COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: LIMITED
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: MARKET, SMALL SHOPS, CHURCH, CLINIC

UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: LIMITED
 electricity: LIMITED
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: LIMITED
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: KIAMBU
 education level: NONE

NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: -
 children: 2
 total: 4

MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1963
 urban - urban: 1965
 urban - rural: -
 why came to Nairobi: EMPLOYMENT

GENERAL: ECONOMIC
 user's income group: MODERATELY LOW
 employment: MERCHANT
 distance to work: 2 KM
 mode of travel: WALKING

COSTS
 dwelling unit: \$126 (14 m² room)
 land - market value: LESS THAN \$7,150/EA

DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$15/MONTH
 % income for rent/mortgage: 10%

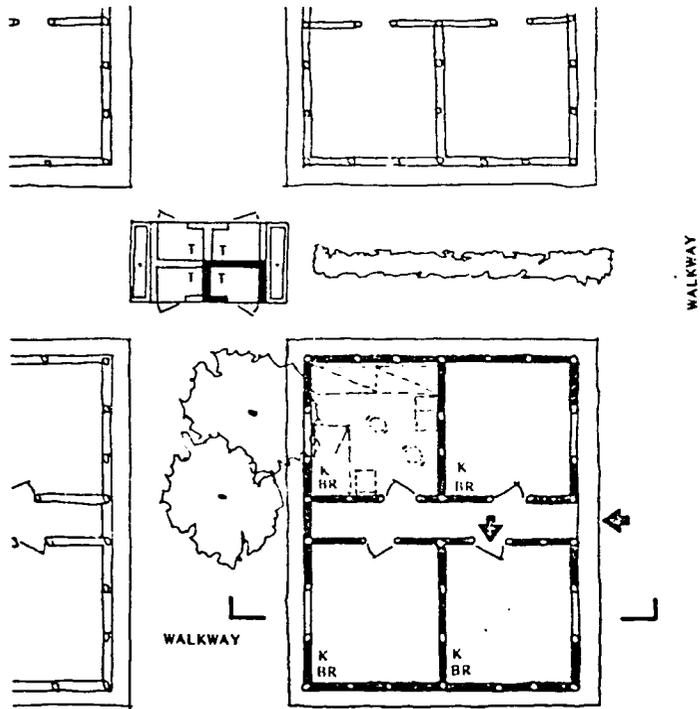
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

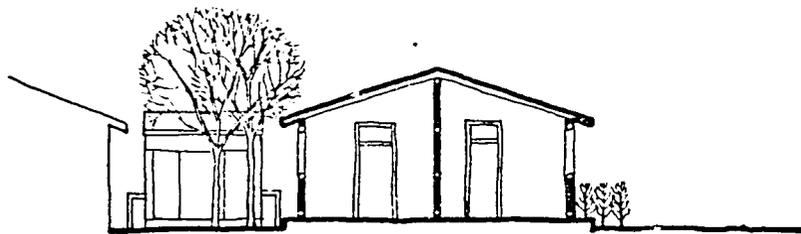
	Total Number	Area Hectares	Density M/Ha
LOTS	-	-	-
ROOM UNITS	112	0.92	133
PEOPLE (4 per unit)	448	0.92	532

SOURCES

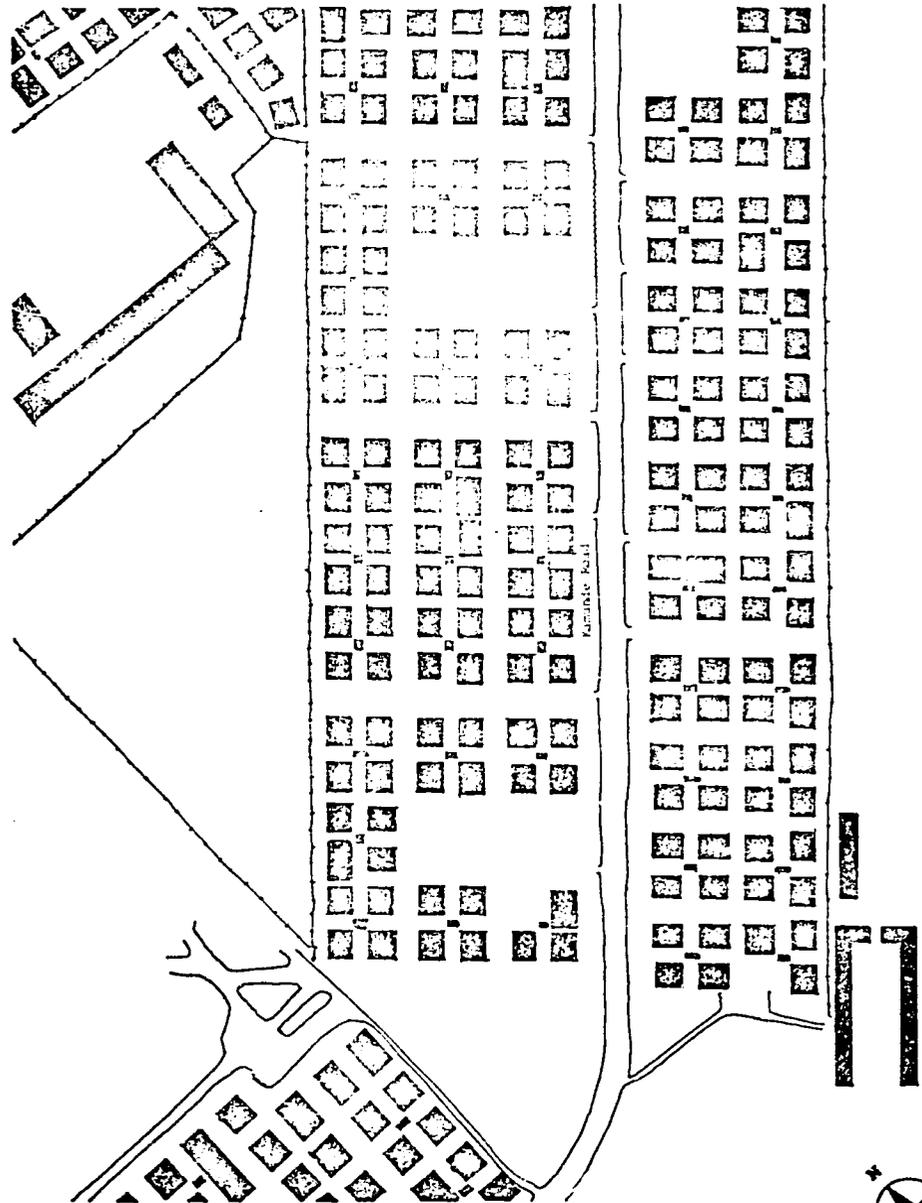
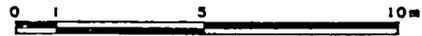
Dwelling Group: (accurate) SITE AND SERVICE ANALYSIS, 1970; Maps and Photographs, S.o.K., 1971.
 Dwelling Plan: (accurate) ISID.
 Physical Data: (accurate) CASE STUDIES, NAIROBI, 1971.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel; S.o.K. (aerial).
 General Information: MUTHARA VALLEY REPORT, 1971; METHODOLOGY AND ANALYSIS OF LOW INCOME HOUSING SYSTEM, NAIROBI, M.I.T., 1972; Field Surveys, 1969-1972.



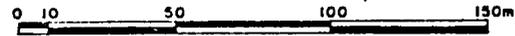
DWELLING PLAN

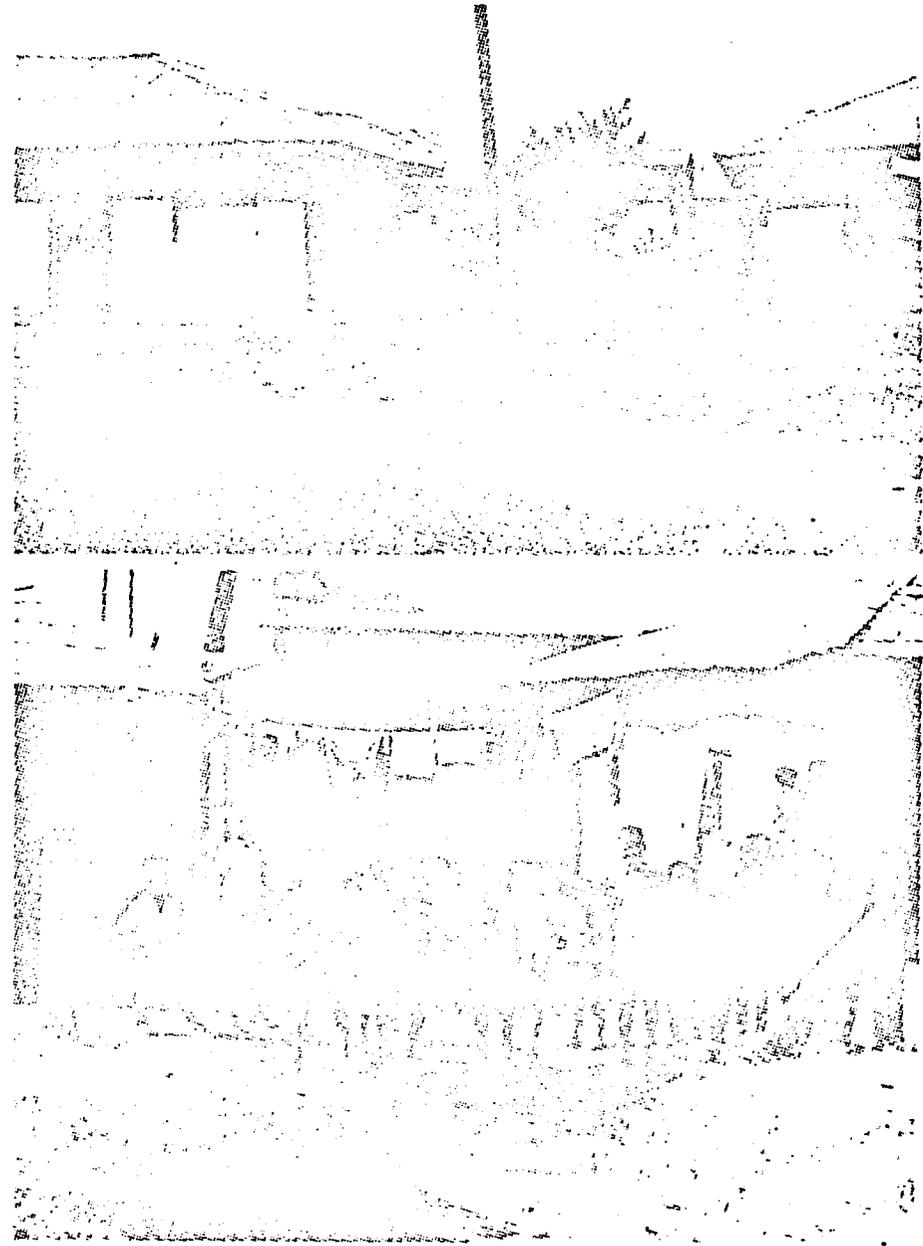
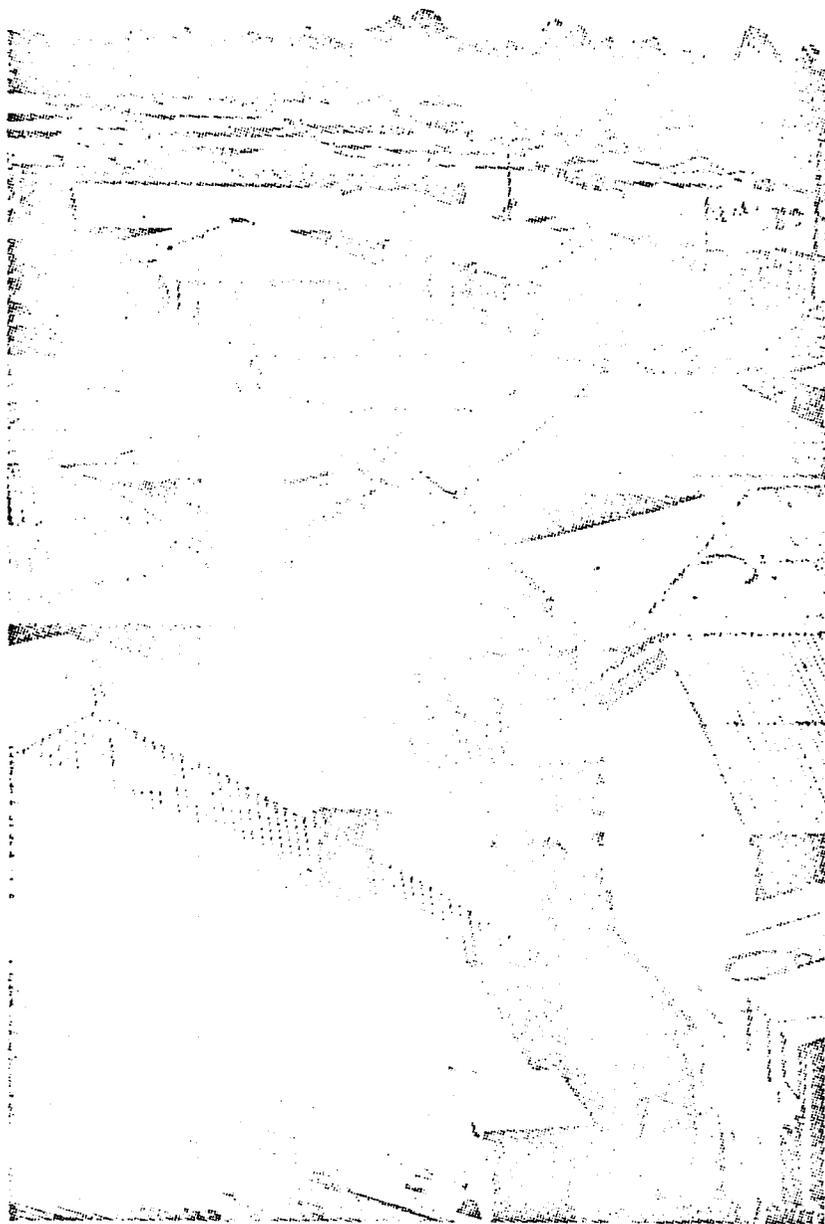


DWELLING SECTION



DWELLING GROUP

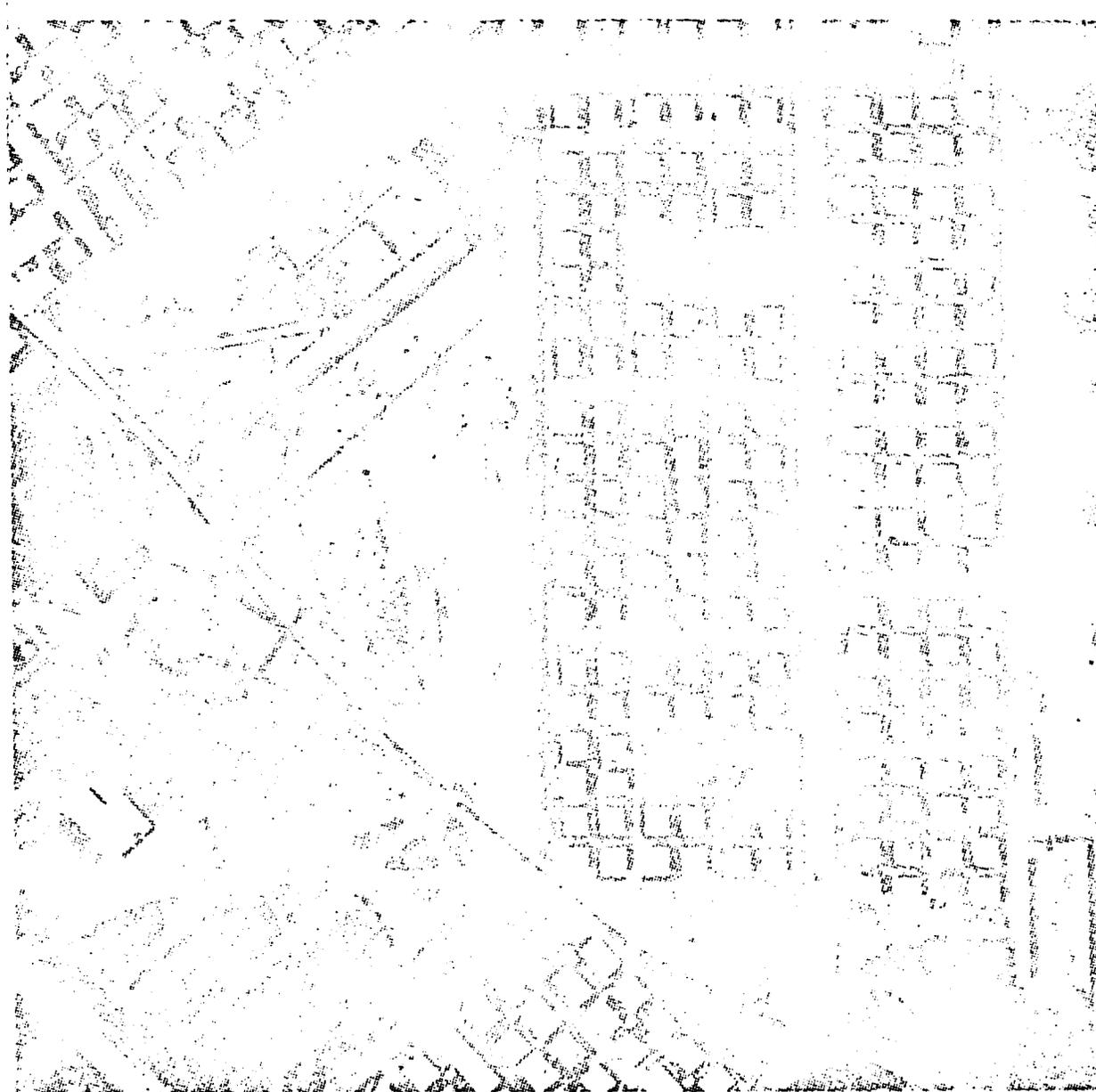




KARIBANGI: (opposite page - left) This photograph gives an air view of an alley between the dwellings and the sanitary blocks containing toilets and showers. Each sanitary block serves a group of four dwelling units. The alley is used for drying laundry. The open space around the dwellings is neglected mainly because it is "everybody's land" and "nobody's responsibility." The layout does not permit control by the families who share the area. (1972)

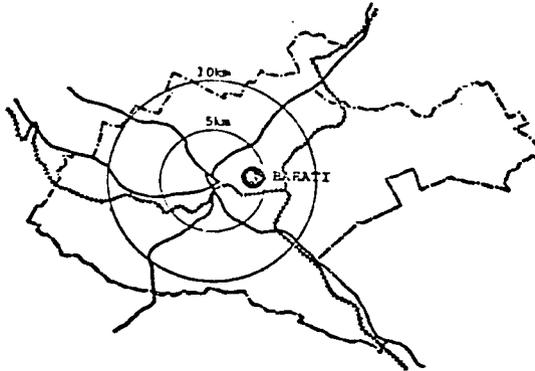
(opposite page - top right) The "street" in front of the dwelling units, as well as the space between dwelling units, is used for outdoor household activity, including a play area for children. The overhead electricity line suggests that some dwellings are served with electricity. (1972)

(opposite page - bottom right) The outdoor washing slab (with laundry) is part of the sanitary block which serves the dwelling groups. Children lined up in the foreground play in groups in the open space. The open ditch is for storm water drainage. (1972)



7 BAHATI

Rooms: public subsidized



BAHATI is a row housing estate developed in 1953 by the colonial administration to provide an "official housing area" for African laborers. The location is in Eastlands, about 5 km from the city center. It is bordered by other public housing estates and by the Nairobi River on the north.

HISTORY: 50 years after the establishment of Nairobi in 1899, the colonial government prepared a 'Master Plan for a colonial capital' to create a garden city in East Africa. This plan indicated 'residential zones' for Europeans and Asians and an 'official housing area' called Eastlands to accommodate the African population. The area is still predominantly African with about 12,000 people in Eastlands including Bahati.

USERS: The low income users often sub-rent their single room dwelling units. Most are employed as laborers working in near-by offices, in workshops, with the railways, at the City Council and in other public institutions. Some are self-employed and are engaged in small-scale industries and businesses within the area.

DWELLINGS: The row house construction is masonry walls and tiled pitch-roofs. Each 4 or 8 room group has a small cooking area and encloses a communal open area which is used for varied activities: socializing, playing, washing, etc. Sanitary blocks with toilets and showers are provided but are poorly maintained.

COMMENTS: The dwellings are a degraded version of 19th Century industrial row housing. This 1 room row housing type is unfavorably viewed as reminiscent of colonial "labor lines." However, these units have provided shelter for a large proportion of the people migrating from the rural areas, but with the result of overcrowding and high density.

PHYSICAL DATA

(Related to dwelling and Environment).

DWELLING UNIT	
type:	ROOM
area (m ²):	17
tenure:	LEGAL RENTAL
LOT/LAND	
utilization:	PUBLIC
area (m ²):	-
tenure:	LEGAL RENTAL
DWELLING	
location:	INNER RING
type:	ROW/GROUP
number of floors:	1
utilization:	MULTIPLE: INDIV./FAMILY
physical state:	FAIR
DWELLING DEVELOPMENT	
mode:	INSTANT
developer:	PUBLIC
builder:	LARGE CONTRACTOR
construction type:	MASONRY/WOOD
year of construction:	1953
MATERIALS	
foundations:	CONCRETE STRIP
floor:	CONCRETE
walls:	MASONRY
roof:	"MANGLORE" TILES, TIMBER PURLINS
DWELLING FACILITIES	
WC:	-
shower:	-
kitchen:	8 (1 PER UNIT)
rooms:	8 (1 PER UNIT)
other:	WC/SHOWER PROVIDED SEPARATELY
COMMUNITY FACILITIES	
police:	ADEQUATE
fire protection:	ADEQUATE
refuse collection:	ADEQUATE
health:	LIMITED
schools, playgrounds:	LIMITED
recreation, open spaces:	ADEQUATE
other facilities:	HEALTH CENTER, SHOPS, CHURCH
UTILITIES AND SERVICES	
water:	LIMITED
sewerage:	LIMITED
storm drainage:	LIMITED
electricity:	LIMITED
gas:	LIMITED
public transportation:	LIMITED
paved roads, walkways:	ADEQUATE
telephone:	LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL	
user's ethnic origin:	KIKUYU
place of birth:	MURANGA
education level:	NONE
NUMBER OF USDP'S (SINGLE UNIT)	
married:	-
single:	1 MALE, 1 FEMALE
children:	9
total:	11
MIGRATION PATTERN	
number of moves:	1
rural - urban:	1954
urban - urban:	-
urban - rural:	-
why came to Nairobi:	EMPLOYMENT
GENERAL: ECONOMIC	
user's income group:	LOW
employment:	BUTCHER
distance to work:	4 KM
mode of travel:	BUS
COSTS	
dwelling unit:	N.A.
land - market value:	\$28,600-35,750/EA
DWELLING UNIT PAYMENTS	
financing:	N.A.
rent/mortgage:	\$5.60/MONTH
income for rent/mortgage:	160

SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density N/Ha
LOTS	-	-	-
ROOM UNITS	48	0.60	80
PEOPLE (4 per unit)	192	0.60	320

SOURCES

Dwelling Group: (accurate) Drawings, N.C.C.; Maps and Photographs, S.o.K., 1971.
 Dwelling Plan: (accurate) IBID.
 Physical Data: (accurate) N.C.C.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: A. Seid; P.C. Patal (oblique).
 General Information: Field Surveys, 1969-1972; METHODOLOGY AND ANALYSIS OF LOW INCOME HOUSING SYSTEM, NAIROBI, N.I.T., 1972.



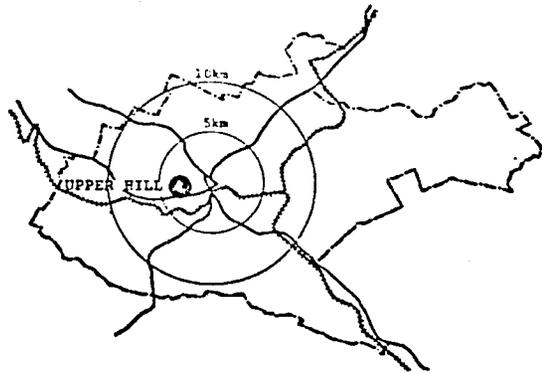


BAHATI: (opposite page) Labeled as "garden courts" on the plans, the open spaces are used for varied activities as can be seen in the photograph. Two sanitary blocks with toilets and showers can be seen in the center and to the right. The microclimate and soil conditions permit the growth of trees, which greatly improves the environment. (1972)

(right) The photograph is an oblique view of one of the "labor lines" very close to Bahati in Eastlands. Note the "garden city" type of layout and the "garden courts" around which the rows of single room dwelling units are located. (1970)

8 UPPER HILL

Rooms: private employer-provided



UPPER HILL is a residential area developed by Europeans during the colonial administration. It is located in Upper Nairobi about 3 km west of the city.

BIRD'S EYE: The area was part of the European 'residential zone' of the 'Garden City' plan in 1947. Building by-laws of the city stipulated that servants' quarters (or employer-provided housing) must be built on the same site as the employer's dwelling in these areas. The present population in employer-provided housing in Nairobi is about 25,000 to 30,000 (no exact figures are available).

USERS: The low income domestic servants have been in the city for a long time, but many still have their families in the rural areas and send a large percentage of their income to them. Those who have migrated into the city with their families live in the older public housing estates, like Kahata and Shauri Moyo.

DWELLINGS: Most of the employer-provided housing consists of self-contained separate sanitary dwelling units. Construction is similar to the employer's dwelling, usually masonry walls with either a concrete roof slab or a tiled roof on timber truss. The units are usually located at the rear of the lot away from the employer's house. A fence, which acts as a physical and social barrier, is sometimes used. In some instances, the dwelling has been converted into a complete unit and suited to middle income individuals.

COMMENTS: Development of employer-provided dwellings during the colonial period was the result of the availability of cheap labor. "Shamba-boys" (gardeners) maintained large suburban gardens, and "house-boys" helped with household activities. These domestic servants are still a necessary part of households in the middle and high income African, Asian, and European families.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 24
 tenure: PROVIDED
LOT/LAND
 utilization: PRIVATE
 area (m²): -
 tenure: LEGAL OWNERSHIP
DWELLING
 location: INNER RING
 type: DETACHED
 number of floors: 1
 utilization: SINGLE: INDIVIDUAL
 physical state: GOOD
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY-WOOD
 year of construction: 1955
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY, STONE
 roof: "MANGLORE" TILES,
 TIMBER PURLINS
DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: -
 rooms: 2
 other: COOKING STOVE

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: FOOD KIOSKS
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: NONE
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: KAWANGWARE (DAGORETTI)
 education level: PRIMARY SCHOOL
NUMBER OF USERS
 married: -
 single: 1 FEMALE
 children: IN RURAL AREA
 total: 1
MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1969
 urban - urban: -
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: LOW
 employment: RESIDENT HOUSEMAID (AYA)
 distance to work: SAME PREMISES
 mode of travel: -
COSTS
 dwelling unit: N.A.
 land - market value: N.A.
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: N.A.
 % income for rent/mortgage: N.A.

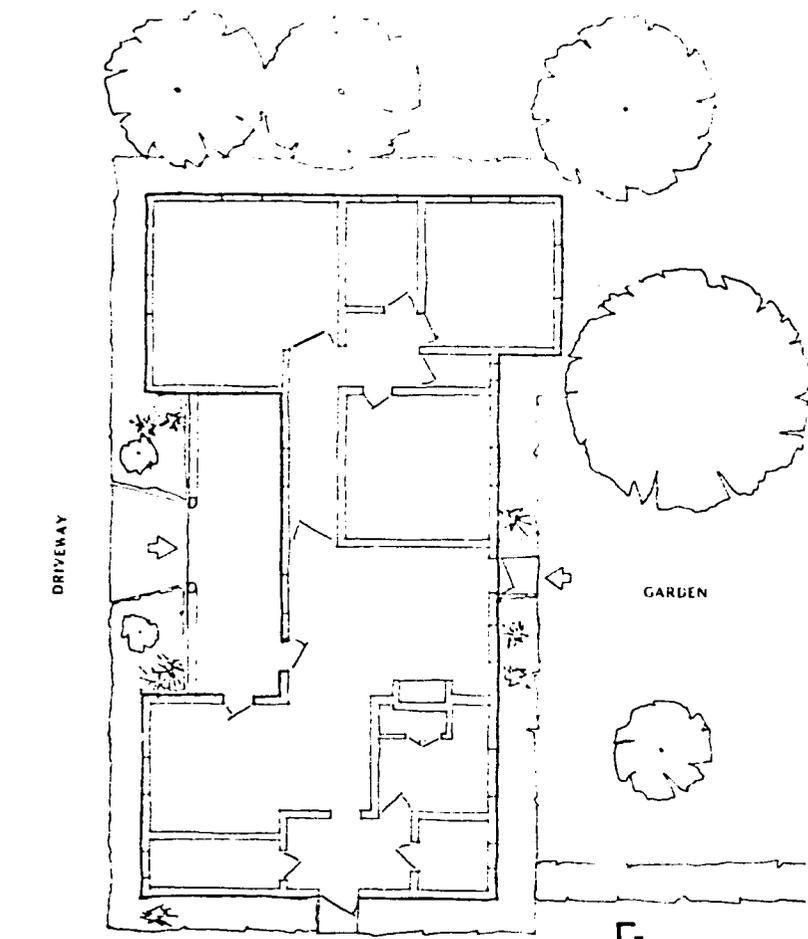
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

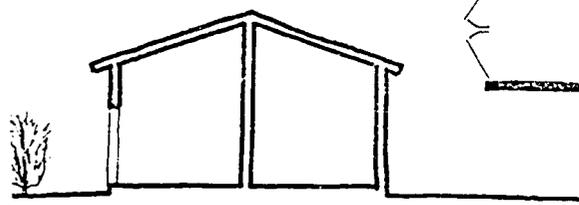
	Total Number	Area Hectares	Density M/Ha
LOTS	4	1.64	2.5
ROOM UNIT (employee)	4		
HOUSE UNIT (employer)	4	1.64	5
	8		
PEOPLE (employee 2 per unit)	16		
(employer 5 per unit)	20	1.64	17
	28		

SOURCES

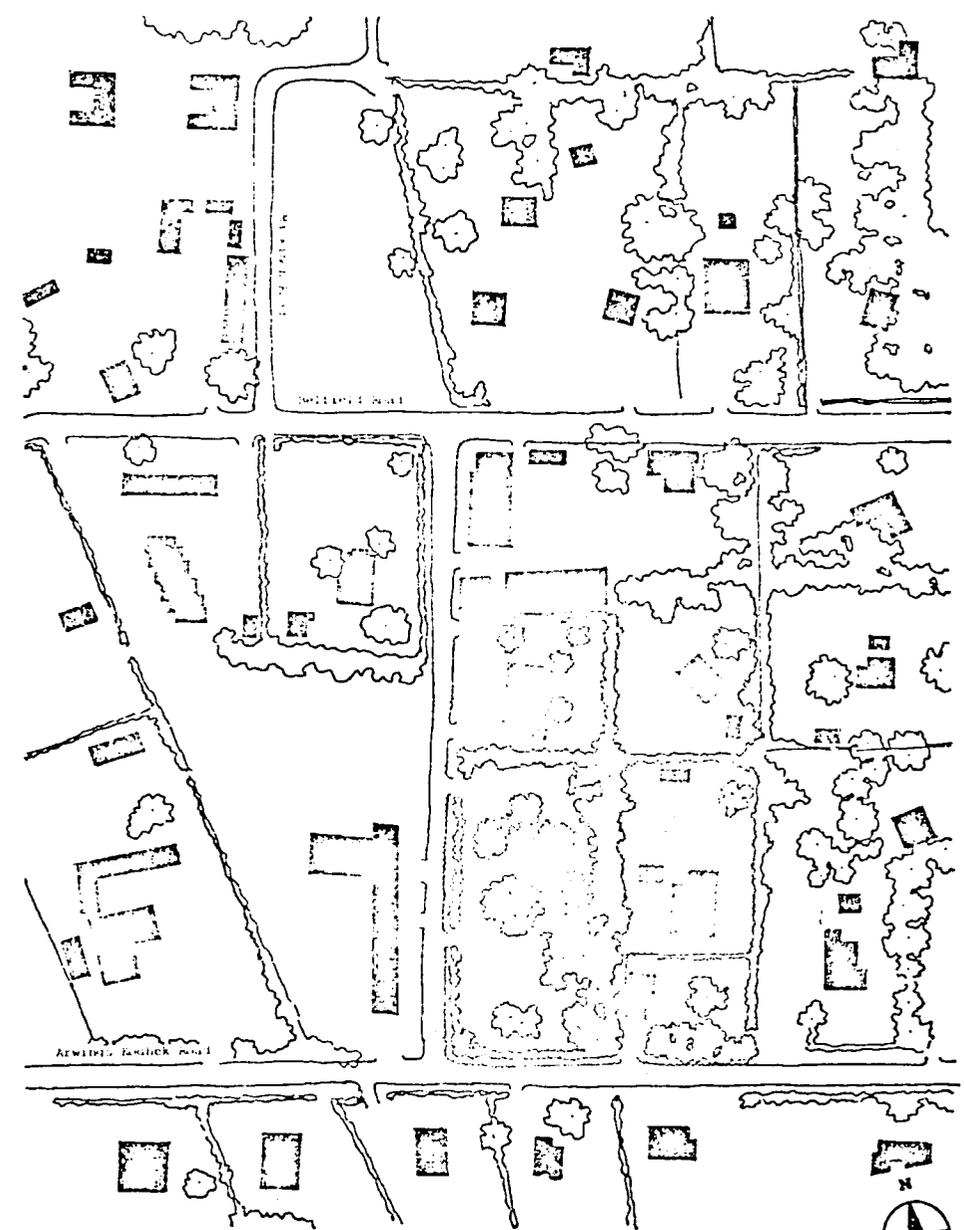
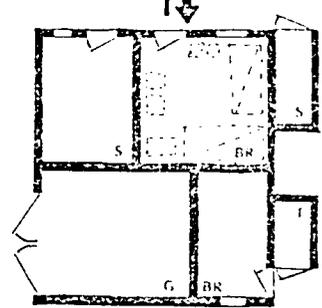
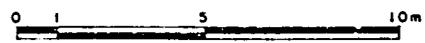
Dwelling Group: (accurate) Maps, S.O.K., 1971
 Dwelling Plans: (accurate) Field Survey, A.S., 1972.
 Physical Data: (accurate) IBTD.
 Socio-Economic Data: (accurate) IBTD.
 Photographs: A. Seid: S.O.F. (aerial).
 General Information: MATBAPE VALLEY REPORT, 1970; LAND USE AND LAND VALUES IN SUBURBAN NAIROBI, 1969; Field Surveys, 1969-1972.



DWELLING PLAN



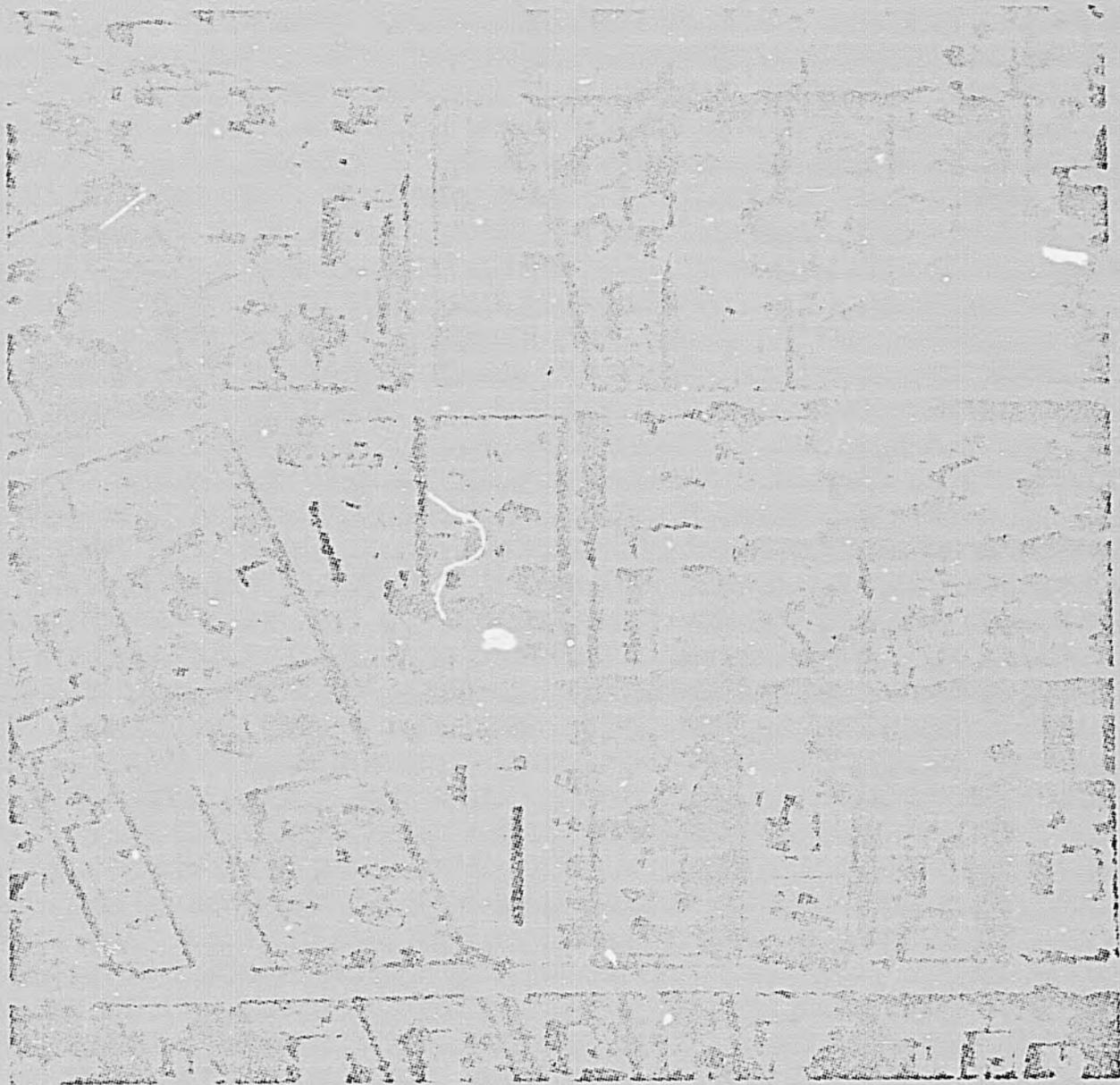
DWELLING SECTION



DWELLING GROUP





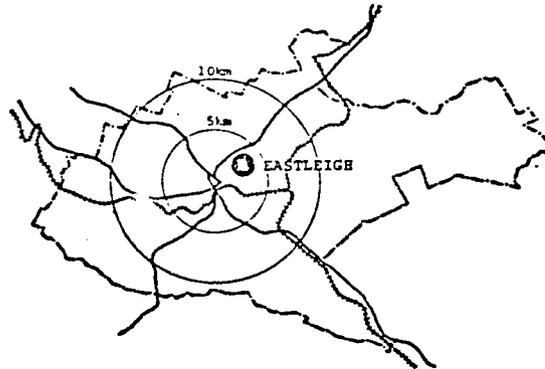


UPPER HILL: (opposite page) This photograph shows the servant's yard. In the foreground are the clothesline and small attached sheds with the W.C. and shower. On the right, the servant's children stand at the door of their room. (1972)

(right) From an aerial view of the locality one sees Kilimani Police Station at top left and, at bottom left, Hurlingham and Omar Khayyam Hotels along Arwings Kodhek Road. (1971)

9 EASTLEIGH

Rooms: private tenements



EASTLEIGH is a tenement residential area developed by Asians during the 1910's. It is located 3 km from the city center and is defined by the Mathare Valley in the north, the Kenya Air Force Airport on the east, and the Mumani and Diani housing estates on the south and west.

HISTORY: Eastleigh was developed as a 'residential zone' for moderately low income Asian families during the colonial period. With the departure of many low income Asians at Independence, many low and middle income Africans moved into these tenements, which had been converted into one- or two-room units with shared facilities. Presently a lot of the tenements are owned by African landlords in the high income group. The predominantly African population of Eastleigh is currently 60,000 people.

USERS: The moderately low and middle income users are mainly wage-employed in the city center working as drivers, clerks and messengers. Others are self-employed in small corner shops, restaurants, bars and bicycle and shoe repair shops.

DWELLINGS: The one- or two-story tenements are the old/ universal type, where rooms are located around a courtyard that is used by the occupants for varied activities. Toilets, showers and washing areas are located at the rear of the court and shared by the tenants. Most are overcrowded and badly maintained. Additional temporary and semi-permanent infill room units attached to or within the courtyards of existing tenements have been developed illegally by squatters or by landlords.

COMMENTS: The area has had little new development since Independence. Many lots are undeveloped because of the insecurity of private Asian developers and the limited development of dwelling units by middle income Africans.

PHYSICAL DATA (Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 10
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: PRIVATE
 area (m²): 670
 tenure: LEGAL RENTAL
DWELLING
 location: INNER RING
 type: ROW/GROUP
 number of floors: 1
 utilization: MULTIPLE: INDIV./FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1945
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY/STONE
 roof: C.G.I. SHEETING ON TIMBER TRUSSES
DWELLING FACILITIES
 wci: 3 SHARED
 shower: 2 SHARED
 kitchen: 4 (1 PER UNIT)
 rooms: 6 (1-2 PER UNIT)
 other: OUTDOOR WASHING, COURTYARD
COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: MARKET, SHOPS, TEA RIGSKS, SOCIAL HALL, MOSQUE, CHURCH
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: LIMITED
 paved roads, walkways: ADEQUATE
 telephone: LIMITED

SOCIO-ECONOMIC DATA (Related to user)

GENERAL: SOCIAL
 user's ethnic origin: SOMALI
 place of birth: NAIROBI
 education level: PRIMARY SCHOOL
NUMBER OF USERS
 (SINGLE UNIT)
 married: 1 MALE, 1 FEMALE
 single: 1 FEMALE
 children: 12
 total: 15
MIGRATION PATTERN
 number of moves: NONE
 rural - urban: -
 urban - urban: -
 urban - rural: -
 why came to Nairobi: -
GENERAL: ECONOMIC
 user's income group: LOW
 employment: CHAUFFEUR
 distance to work: 5 KM
 mode of travel: BUS
COSTS
 dwelling unit: N.A.
 land - market value: \$35,750/HA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$40.50/MONTH (2 ROOMS)
 income for rent/mortgage: 65%

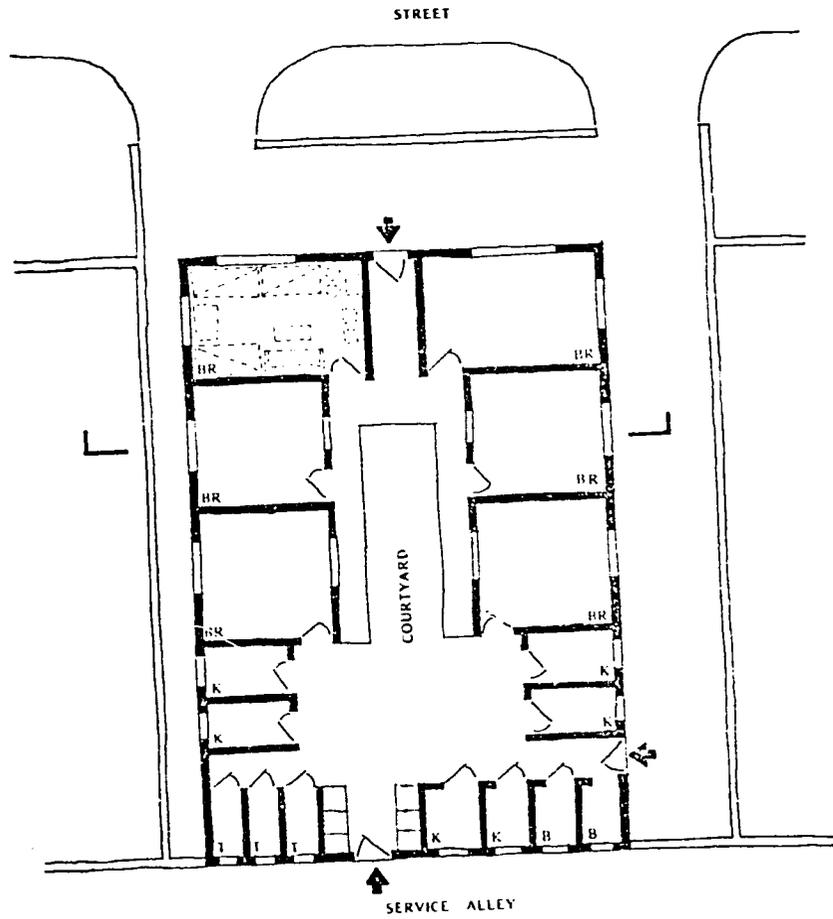
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

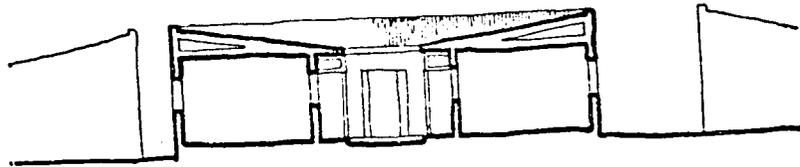
	Total Number	Area Hectares	Density N/Ha
LOTS	24	1.61	15
ROOM UNITS tenements	192	1.61	120
PEOPLE (4 per unit)	768	1.61	480

SOURCES

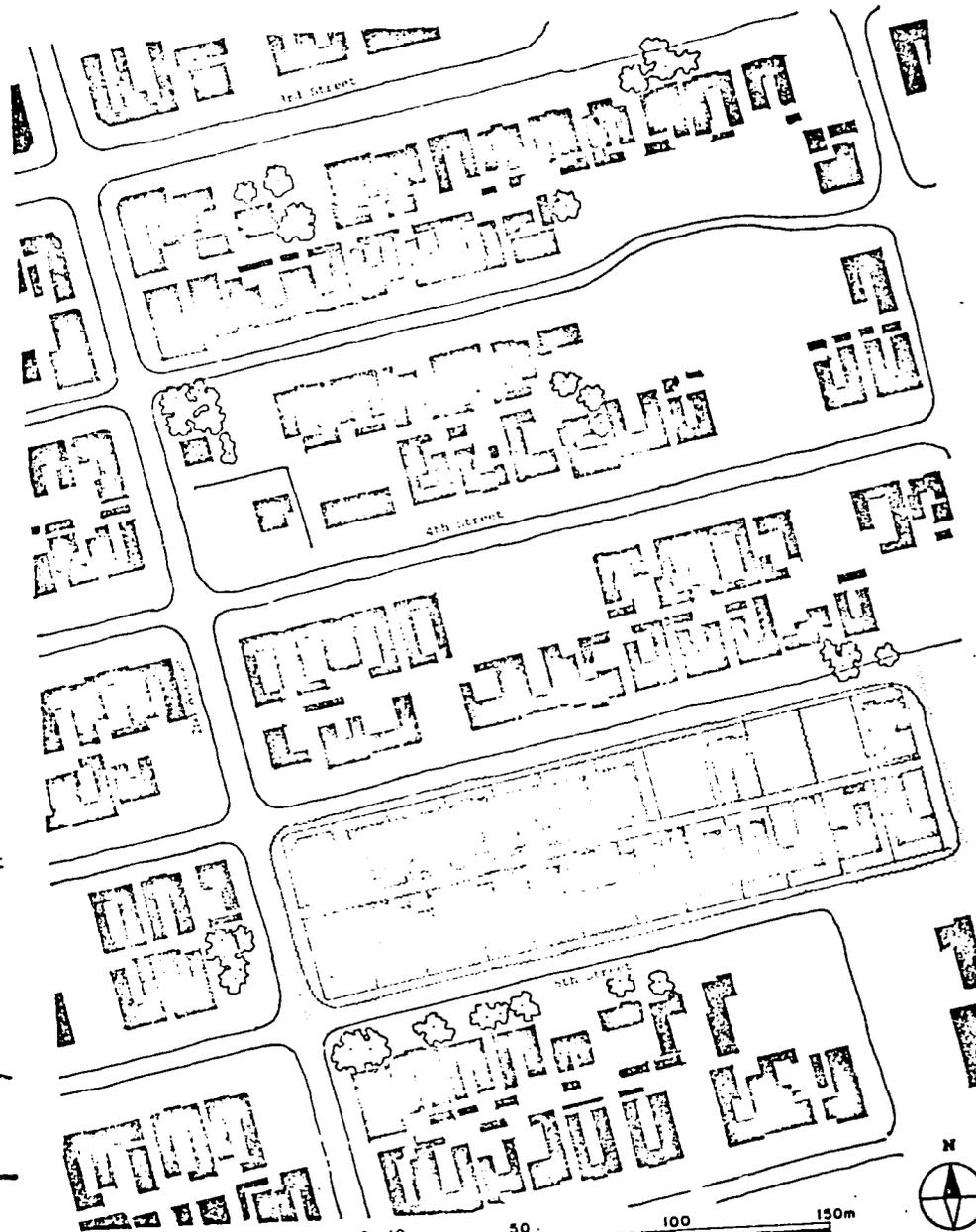
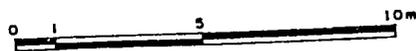
Dwelling Group: (accurate) Maps and Photographs, S.o.K., 1971.
 Dwelling Plans: (approximate) Field Survey, T.C., P.C., 1973.
 Physical Data: (approximate) IBI
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel; S.o.K. (aerial).
 General Information: Field Surveys, 1969-1972; METHODOLOGY AND ANALYSIS OF LOW INCOME HOUSING SYSTEM, NAIROBI, N.I.T., 1972.



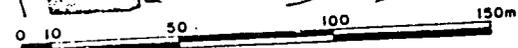
DWELLING PLAN



DWELLING SECTION



DWELLING GROUP





EASTLEIGH: (opposite page - top left) Except for some planting, the open space in front of the tenement is mainly used by children to play. Most of the tenements are badly maintained and need new paint and other improvements. Ears are added to the windows for security. (1972)

(opposite page - top right) A service alley separates the rows of tenements. Note the open drains on either side of the alley, the small windows for the kitchens and W.C.'s and the service entrance with barbed wire fence on top of it. These alleys are wasteful and act as 'dump yards' for garbage. (1972)

(opposite page - bottom left) The layout of the tenement is the old/universal type: rooms around a courtyard that is used by the occupants for different activities. Toilets, showers and sinks for washing are located at the rear of the court and used communally. (1972)

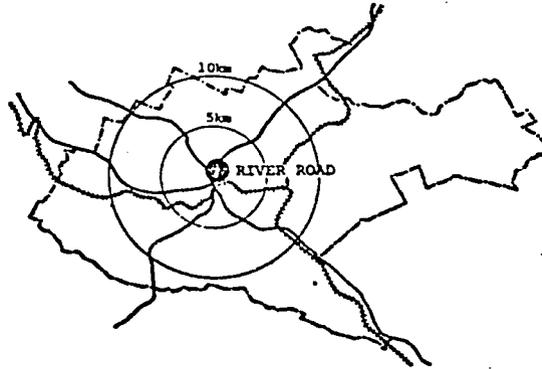
(opposite page - bottom right) The kitchens face into the courtyard. Notice the screened openings for ventilation of the kitchens. Doors are generally used not only for access but also to provide light and ventilation. Washing of utensils is carried on outside in the courtyard. (1972)

(right) The aerial view shows a rectangular grid of streets and avenues. The avenue in the center is the main commercial street. (1968)



10 RIVER ROAD

Rooms: private tenements



RIVER ROAD is a commercial tenement area developed by Asians during the 1900's, located within the city center.

HISTORY: The Asians who migrated from India as railway workers initially developed the area in the early 1900's. They moved into other Asian residential sectors, e.g., Parklands, as their incomes increased. Asian families with moderately low income continued to live in the area till independence, when most of them migrated to other countries. Africans in the low and middle income groups moved into these tenements (see also EASTLEIGH), which are still largely owned by absentee high income Asians. The present predominantly African population is about 40,000 people.

USERS: The users are in the low and middle income groups and are mainly wage-employed in the city center. Others are self-employed in the city shops, restaurants and bars. Some are engaged in small scale industries along the Nairobi River.

DWELLINGS: The dwellings are two or three story tenements of the old/universal type with shops on the ground floor facing the street. The entrance is between the shops which leads to an interior courtyard. Open galleries provide access to the rooms in the second and third floors. The communal services located at the end of the courtyard are often overcrowded and badly maintained. Some of these tenements are transient lodging for new immigrants in search of employment.

COMMENTS: The rents in these tenements are suited to the middle income groups, who pay about 20% of their income, whereas the moderately low and low income groups pay 25% and 30% respectively.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: ROOM
 area (m²): 10
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: PRIVATE
 area (m²): 820
 tenure: LEGAL RENTAL
DWELLING
 location: CITY CENTER
 type: ROW/GROUP
 number of floors: 2
 utilization: MULTIPLE: INDIV./FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1938
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY/STONE
 roof: C.G.I. SHEETING ON TIMBER TRUSSES
DWELLING FACILITIES
 wc: 4 SHARED
 shower: 4 SHARED
 kitchen: 12 (1 PER UNIT)
 rooms: 14 (1-2 PER UNIT)
 other: 4 SHOPS, WASHING AREA, COURTYARD
COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: LIMITED
 other facilities: MARKET, SHOPS, TEA KIOSKS, CINEMAS, MOSQUE, CHURCH
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: ASIAN
 place of birth: NAIROBI
 education level: NONE
NUMBER OF USERS (SINGLE UNIT)
 married: 1 FEMALE
 single: -
 children: 2
 total: 3
MIGRATION PATTERN
 number of moves: 1
 rural - urban: -
 urban - urban: 1967
 urban - rural: -
 why came to Nairobi: N.A.
GENERAL: ECONOMIC
 user's income group: LOW
 employment: FOOD VENDOR
 distance to work: 2 KM
 mode of travel: WALKING
COSTS
 dwelling unit: N.A.
 land - market value: \$357,500/EA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$21/MONTH
 % income for rent/mortgage: 30%

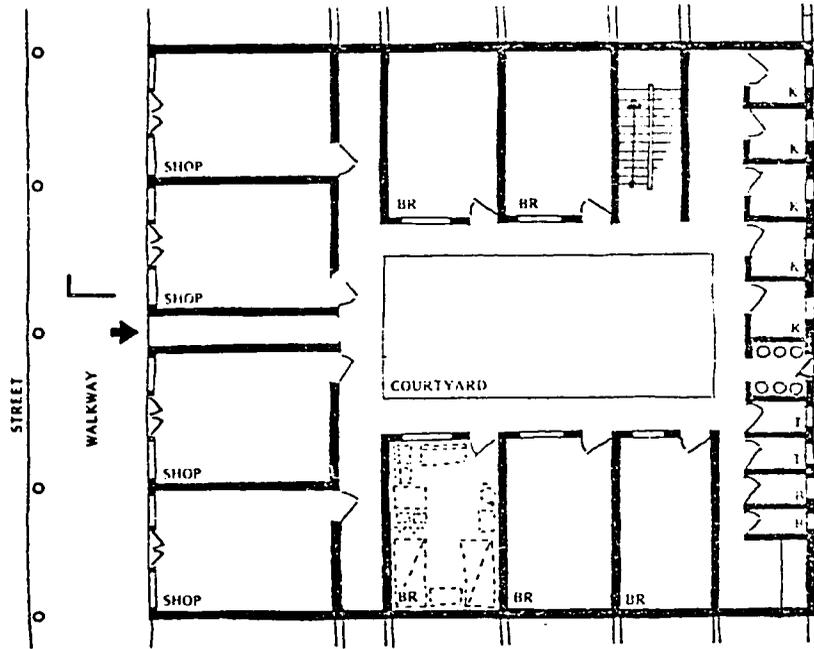
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

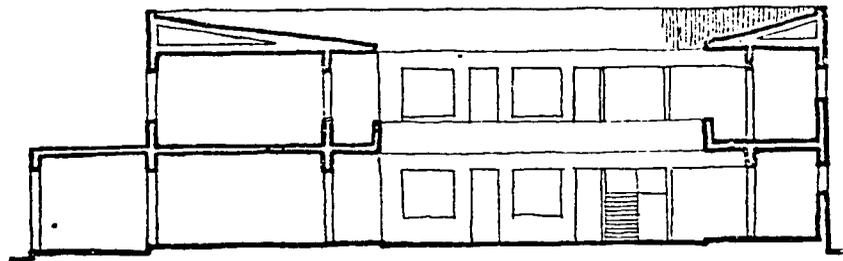
	Total Number	Area Hectares	Density N/Ha
LOTS	18	1.47	12
ROOM UNITS tenements	252	1.47	172
PEOPLE (4 per unit)	1008	1.47	768

SOURCES

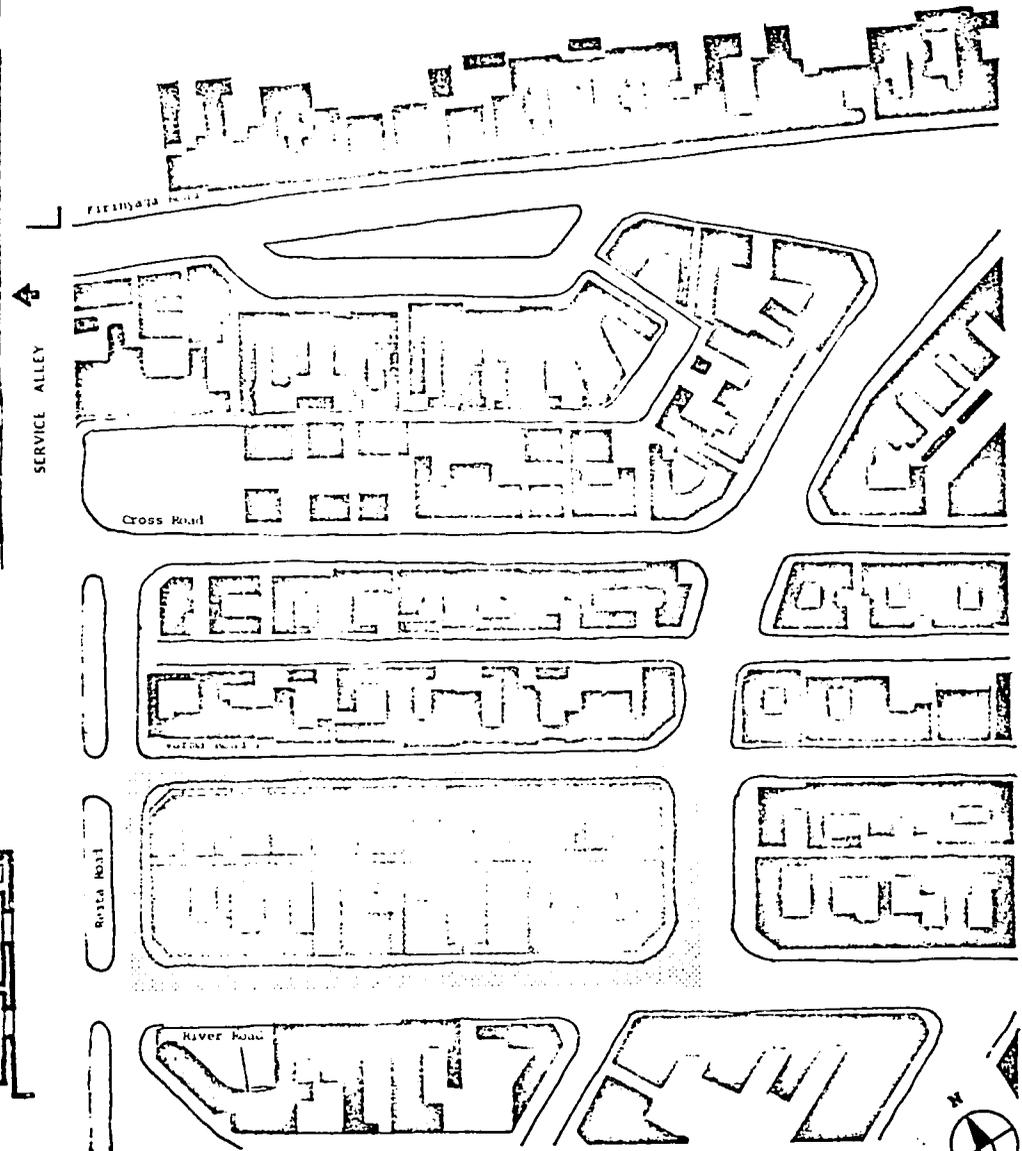
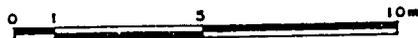
Dwelling Group: (accurate) Maps and Photographs, S.o.K., 1971.
 Dwelling Plan: (approximate) Field Survey, T.C., P.C., 1972.
 Physical Data: (approximate) IBID.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.
 Photographs: P.C. Patel; T.S. Chana; S.o.K. (aerial).
 General Information: Field Surveys, 1969-1972; METHODOLOGY AND ANALYSIS OF LOW INCOME HOUSING SYSTEM, NAIROBI, N.I.T., 1972.



DWELLING PLAN

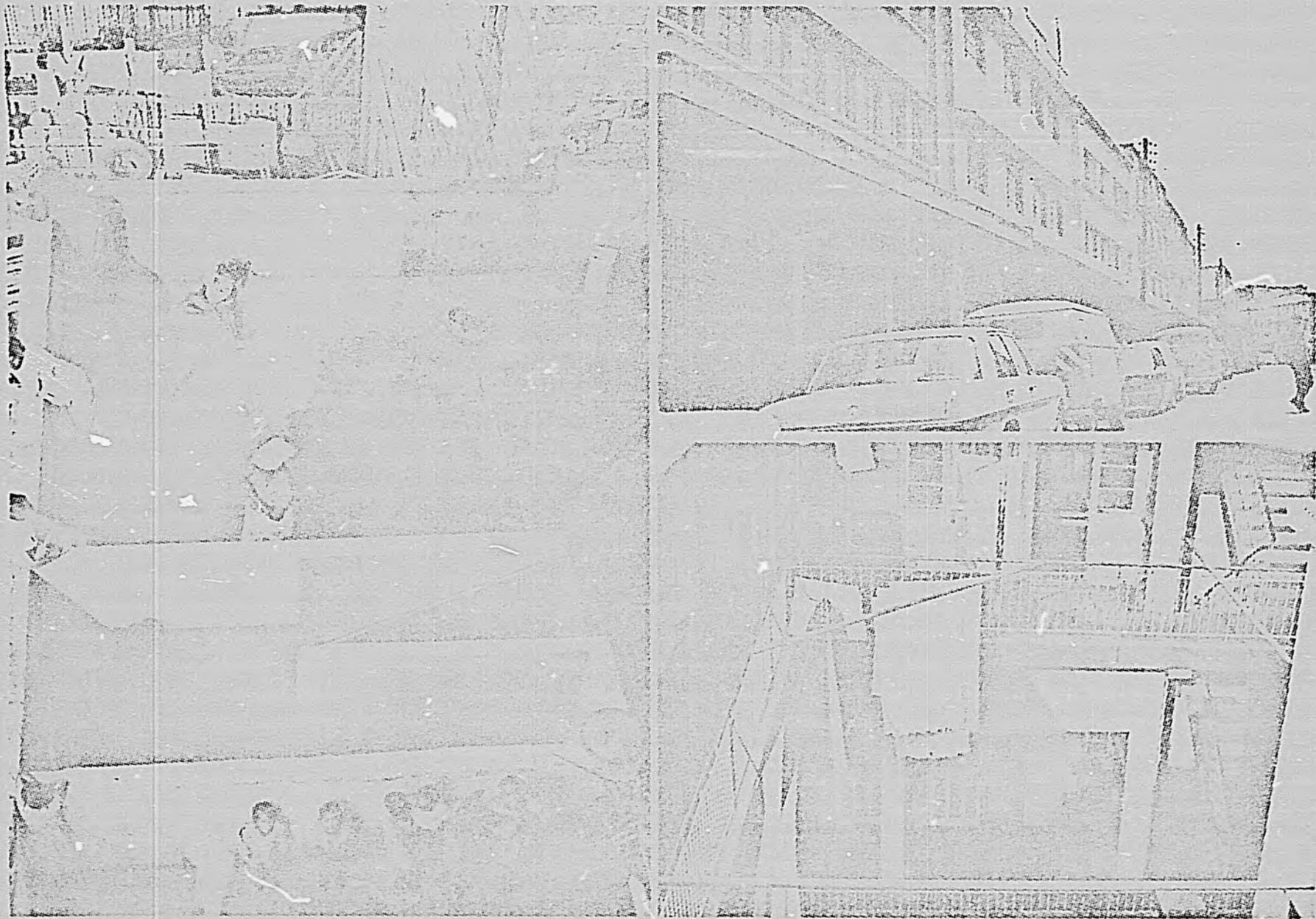


DWELLING SECTION



DWELLING GROUP







RIVER ROAD: (opposite page - left) An aerial view of the top of a tenement shows that the area serves as a playing ground for children and is also used for washing and drying laundry. Note the open drain near the staircase. (1972)

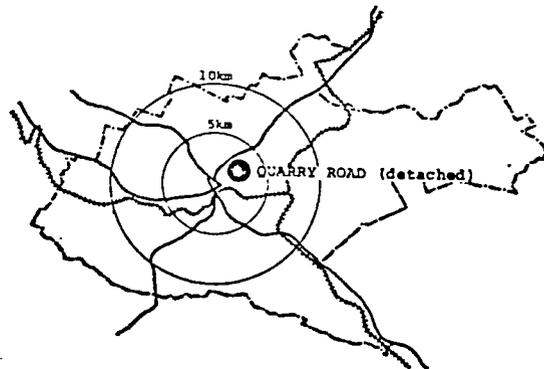
(opposite page - top right) The tenement entrance in between the shops under the covered walkway which leads to an interior courtyard. Such tenements were formerly rented by Asian immigrant workers from India during the colonial period. Present occupants are Africans and Asians of the low income sector. Streets are narrow and have parking on both sides. (1972)

(opposite page - bottom right) In the courtyard of a three-story tenement an open gallery provides access to the rooms in the second and third floors and rain protection to the rooms on the ground floor. The courtyard is used mainly for drying laundry. (1972)

(right) This aerial view shows a rectangular grid-iron layout. River Road is in the center and Kinyasa Road passes diagonally in the upper part. (1971)

11 QUARRY ROAD (detached)

Houses: public subsidized



QUARRY ROAD and QUARRY ROAD (DETACHED) are housing projects developed by the colonial administration in 1955 to provide housing for Asians in the civil service. They are located adjacent to an N.C.C. market about 2 km from the city center.

HISTORY: The area was developed as a 'residential zone' for Asians in the 'Garden City' plan. As a result of Kenyanization of the civil service, the dwellings are now occupied by Africans working for public agencies. The present population of the area is about 1,800 people.

USERS: The middle income users are primarily wage-employed. Formerly, both Asian families and groups of young Asian bachelors lived in the units.

DWELLINGS: The detached and semi-detached dwelling units are single-story houses constructed of masonry walls with tiled pitch roofs. Each unit has a toilet, shower, and kitchen. The open space around the dwellings is landscaped and well maintained.

COMMENTS: The Quarry Road dwellings may be compared to the Bahati dwellings in that both were built in the mid-1950's in the same general location. The single-room row houses of Bahati were intended for laborers; the detached and semi-detached houses of Quarry Road were intended for higher status civil servants. Both were built of solid masonry walls.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 48
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: PRIVATE
 area (m²): -
 tenure: LEGAL RENTAL
DWELLING
 location: INNEP RING
 type: DETACHED
 number of floors: 1
 utilization: SINGLE: FAMILY
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PUBLIC
 builder: LARGE CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1945
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY-STONE
 roof: "MANGLORE" TILES, TIMBER PURLINS
DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 2
 other: STORE, SMALL GARDEN

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: ADEQUATE
 other facilities: MARKET, SMALL SHOPS

UTILITIES AND SERVICES

water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephones: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: MURANGA
 education level: SECONDARY SCHOOL
NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: -
 children: 4
 total: 6
MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1964
 urban - urban: -
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: MIDDLE
 employment: COUNCILLOR
 distance to work: 3 KM
 mode of travel: CAR
COSTS
 dwelling unit: N.A.
 land - market value: \$35,750-107,250/EA
DWELLING UNIT PAYMENTS
 financing: PUBLIC SUBSIDIZED
 rent/mortgage: \$5.60/MONTH
 % income for rent/mortgage: 5%

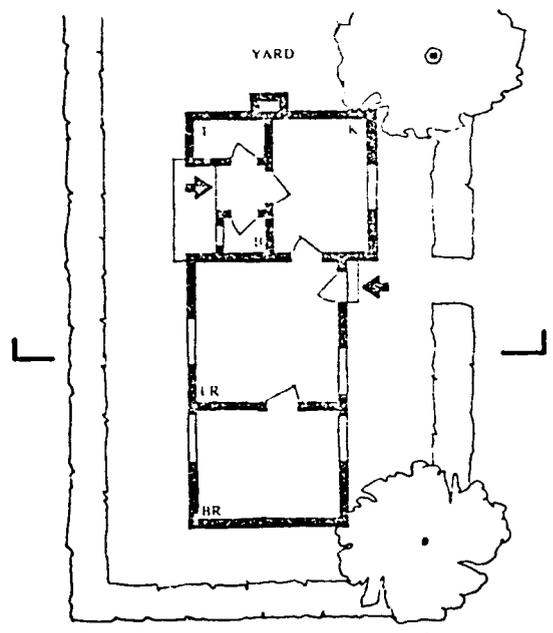
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

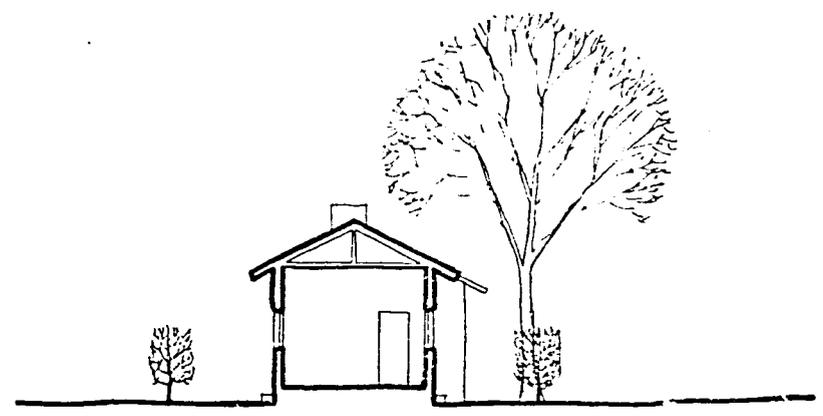
	Total Number	Area Hectares	Density N/Ha
LOTS	-	-	-
HOUSE UNITS	18	0.95	19
PEOPLE (6 per unit)	108	0.95	114

SOURCES

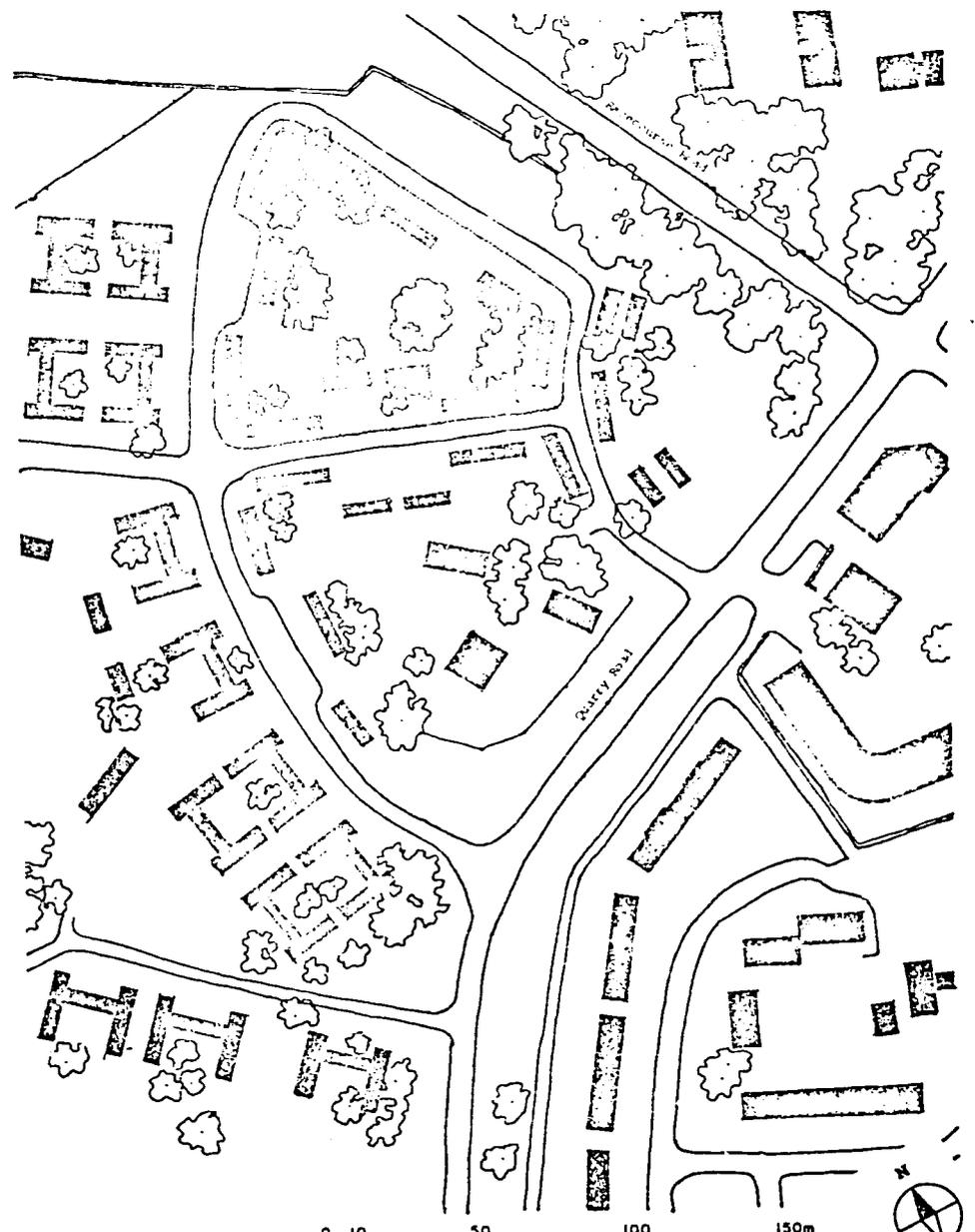
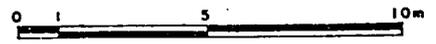
Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plans: (accurate) Drawings, N.C.C.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.
 Photographs: A. Said; S.O.K. (serial).
 General Information: Field Surveys, 1969-1972.



DWELLING PLAN



DWELLING SECTION



DWELLING GROUP







QUARRY ROAD (detached): (opposite page) The paved open area in front of the dwelling units is used as a parking lot and as a children's playground. The dwelling units are detached and semi-detached. As observed in the plans, they are complete dwelling units in the sense that they contain toilets, shower, kitchen, and specific purpose rooms. (1972)

(right) The aerial view including the junction of Quarry and Racecourse Roads shows the "Garden City" type of layout. Notice the newer Kariokor walk-ups by the N.C.C. in the upper right and the privately developed Ngara Road tenements in the lower right. (1971)

12 QUARRY ROAD

Houses: public subsidized

PHYSICAL DATA
(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 100
 tenure: LEGAL RENTAL

LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: LEGAL RENTAL

DWELLING
 location: INNER RING
 type: SEMI-DETACHED
 number of floors: 1
 utilization: SINGLE
 physical state: FAIR

DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PUBLIC
 builder: LARGE CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1955

MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY STONE
 roof: "MANGLORE" TILES ON
 TIMBER PURLINS AND
 RAFTERS

DWELLING FACILITIES
 wc: 2
 shower: 2
 kitchen: 1
 rooms: 5
 other: CLOSETS, COURTYARD

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: LIMITED
 recreation, open spaces: ADEQUATE
 other facilities: MARKET, SMALL SHOPS

UTILITIES AND SERVICES

water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE

QUARRY ROAD and QUARRY ROAD (DETACHED) are housing projects developed by the colonial administration in 1955 to provide housing for Asians in the civil service. They are located adjacent to an N.C.C. market about 2 km from the city center.

HISTORY: The area was developed as a 'residential zone' for Asians in the 'Garden City' plan. As a result of Kenyanization of the civil service, the dwellings are now occupied by Africans working for public agencies. The present population of the area is about 1,600 people.

USERS: The middle income users are primarily wage-employed. Formerly, both Asian families and groups of young Asian bachelors lived in the units.

DWELLINGS: The detached and semi-detached dwelling units are single story houses constructed of masonry walls with tiled pitch roofs. Each unit has a toilet, shower, and kitchen. The open space around the dwellings is landscaped and well maintained.

COMMENTS: The Quarry Road dwellings may be compared to the Bahari Dwellings in that both were built in the mid-1950's in the same general area. The Quarry Road dwellings are

SOCIO-ECONOMIC DATA
(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: LEO
 place of birth: KISUMU
 education level: UNIVERSITY

NUMBER OF USERS:
 married: 1 MALE, 1 FEMALE
 singles: -
 children: 7
 total: 9

MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1950
 urban - urban: 1969
 urban - rural: -
 why came to Nairobi: EDUCATION

GENERAL: ECONOMIC
 user's income group: MIDDLE
 employment: LAWYER
 distance to work: 4 KM
 mode of travel: CAR

COSTS
 dwelling unit: N.A.
 land - market value: \$35,750-107,250

DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$50/MONTH
 % income for rent/mortgage: 12%

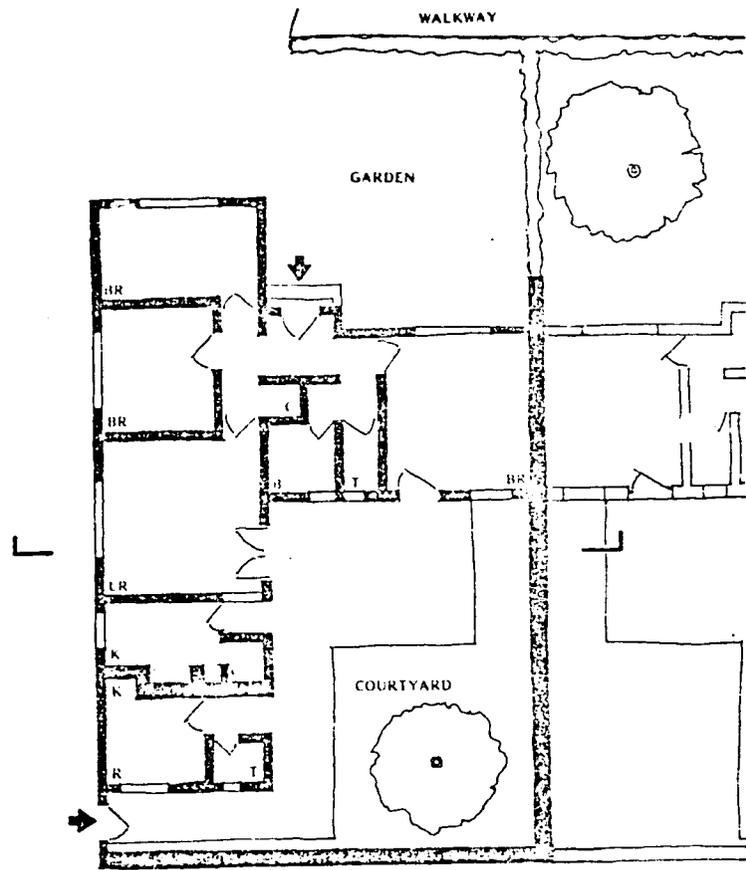
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

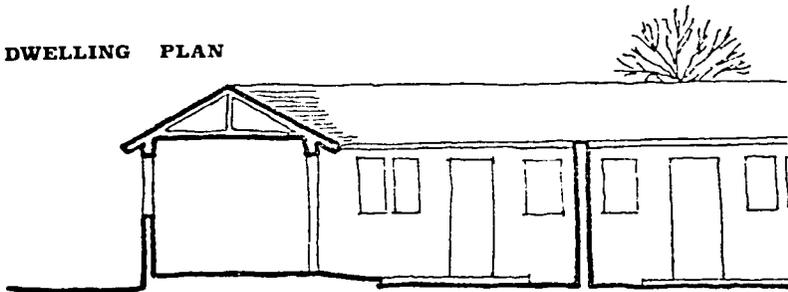
	Total Number	Area Hectares	Density N/Ha
LOTS	-	-	-
HOUSE UNITS	8	0.98	8
PEOPLE (9 per unit)	72	0.98	72

SOURCES

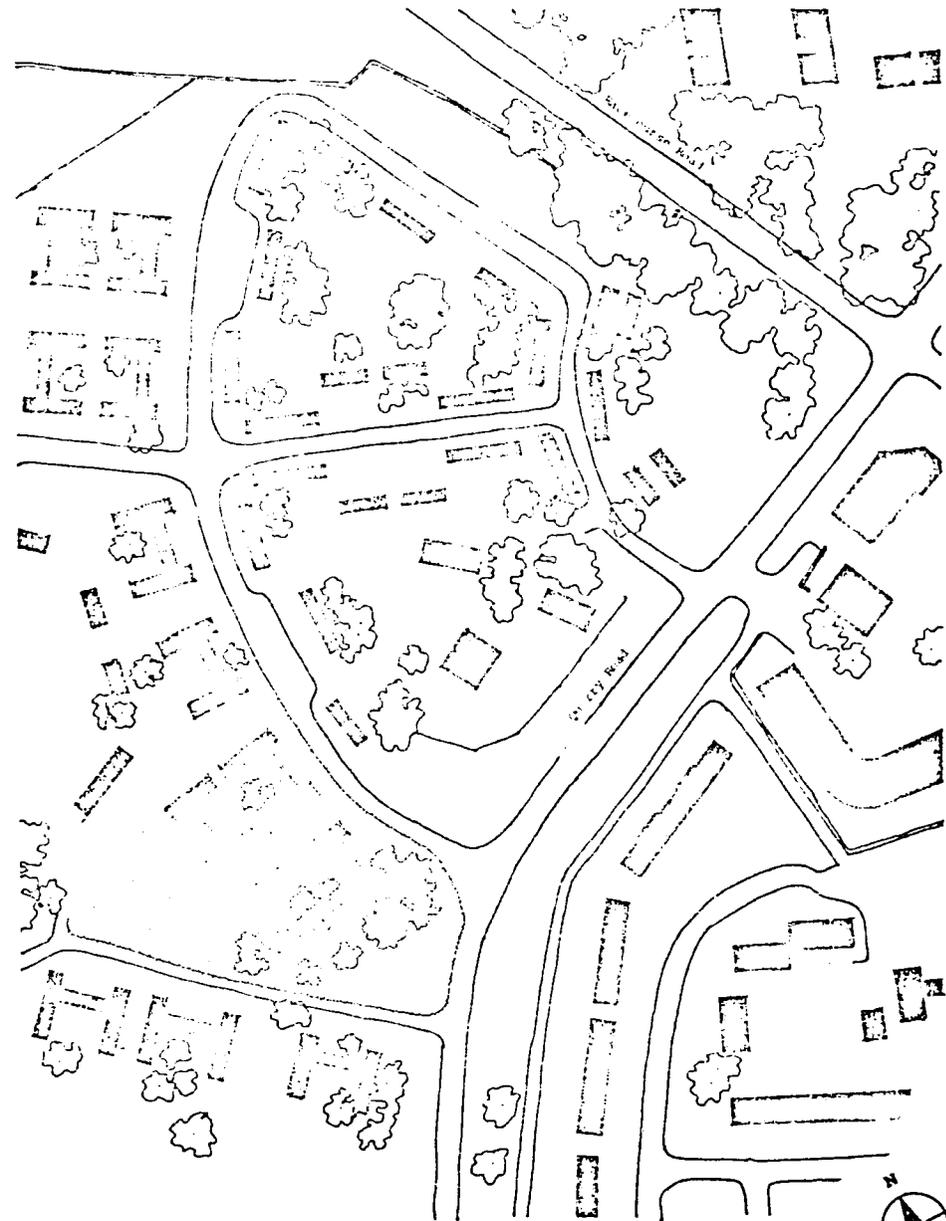
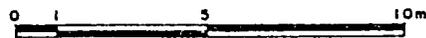
Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (accurate) Drawings, N.C.C.
 Physical Data: (accurate) 1950.
 Socio-Economic Data: (accurate) 1971 Survey, A.S., 1972.



DWELLING PLAN



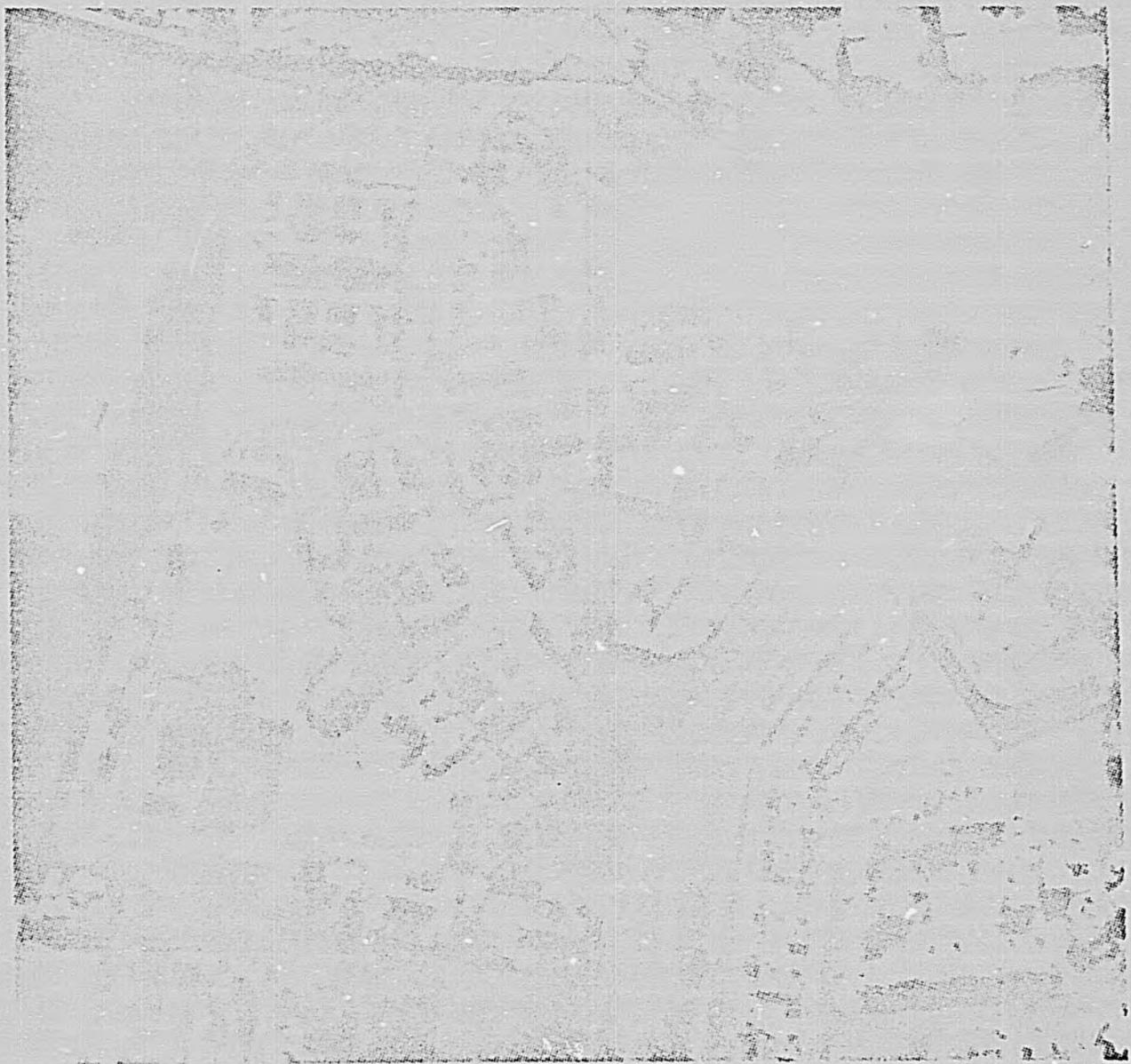
DWELLING SECTION



DWELLING GROUP







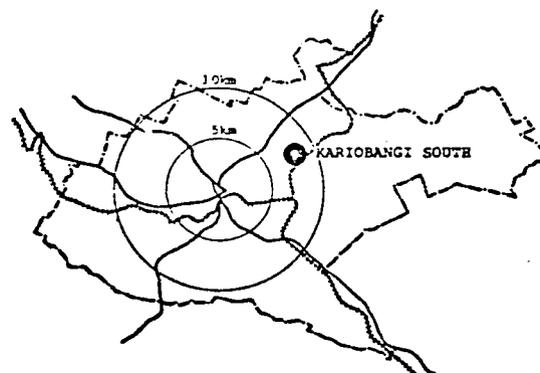
QUARRY ROAD: (opposite page - left) This photograph shows the front entrances and yards of semi-detached dwelling units. They were built in 1955 with solid stone walls. They are rented by African and Asian families of the middle income group. (1972)

(opposite page - right) The interior courtyard has multiple uses. The climate in Nairobi is mild all year; therefore, many daily activities take place outdoors. Note the inevitable drying laundry. (1972)

(right) The aerial view including the junction of Quarry and Racecourse Roads shows the "Garden City" type of layout. (1971)

13 KARIOBANGI SOUTH

Houses: public subsidized



KARIOBANGI SOUTH is one of the housing projects developed by the public sector in the Eastern Extension Area in 1969. It is located east of the Outer Ring Road, about 10 km from the city center, and in close proximity to the expanding industrial area.

HISTORY: Kariobangi South was built by the government to make available better housing than provided in colonial "labor lines" (see KARIATI). The public sector has continued to provide about 1,000 dwelling units per year in this area since independence, which accounts for 20% of the total public housing in the city.

USERS: The moderately low and middle income groups are mainly wage-employed in the nearby industrial area south of the city and Ruaraka. Others are employees in the City Council and other public agencies.

DWELLINGS: The parallel groups of single-story row dwellings are separated by a service alley and have a small garden ("shamba") in the front, an adaptation of British row housing. The garden is presently used as a parking area and the alley as a 'dump-yard.' Facilities and services necessary to the neighborhood, i.e., schools, health clinics, etc., are being developed in the area.

COMMENTS: The dwellings were originally intended for the very low and low income groups but are presently occupied mainly by the moderately low and middle income groups. Since the units are subsidized by the Nairobi City Council and are under rent control which increases the administration cost, the City Council is subsidizing the rich instead of the poor. (See "Some Thoughts on Housing Policy for Nairobi," by John Barris, U.o.N., 1969).

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 63
 tenure: LEGAL OWNERSHIP
LOT/LAND
 utilization: PRIVATE
 area (m²): 224
 tenure: LEGAL OWNERSHIP
DWELLING
 location: PERIPHERY
 type: ROW/GROUP
 number of floors: 1
 utilization: SINGLE: FAMILY
 physical state: GOOD
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PUBLIC
 builder: LARGE CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1969
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY CONCRETE BLOCKS
 roof: ASBESTOS SHEETING ON
 TIMBER PURLINS
DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 3
 other: STORE, COURTYARD

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: LIMITED
 refuse collection: ADEQUATE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: ADEQUATE
 other facilities: -
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: NONE
 public transportation: LIMITED
 paved roads, walkways: ADEQUATE
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: NYERI
 education level: SECONDARY SCHOOL
NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: -
 children: 2
 total: 4
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1960
 urban - urban: 1969
 urban - rural: -
 why came to Nairobi: EMPLOYMENT

GENERAL: ECONOMIC
 user's income group: MIDDLE
 employment: N.C.C. STAFF
 distance to work: 5 KM
 mode of travel: CAR
COSTS
 dwelling unit: \$3,640
 land - market value: LESS THAN \$7,150/HA
DWELLING UNIT PAYMENTS
 financing: PUBLIC SUBSIDIZED
 rent/mortgage: \$28/MONTH
 % income for rent/mortgage: 13%

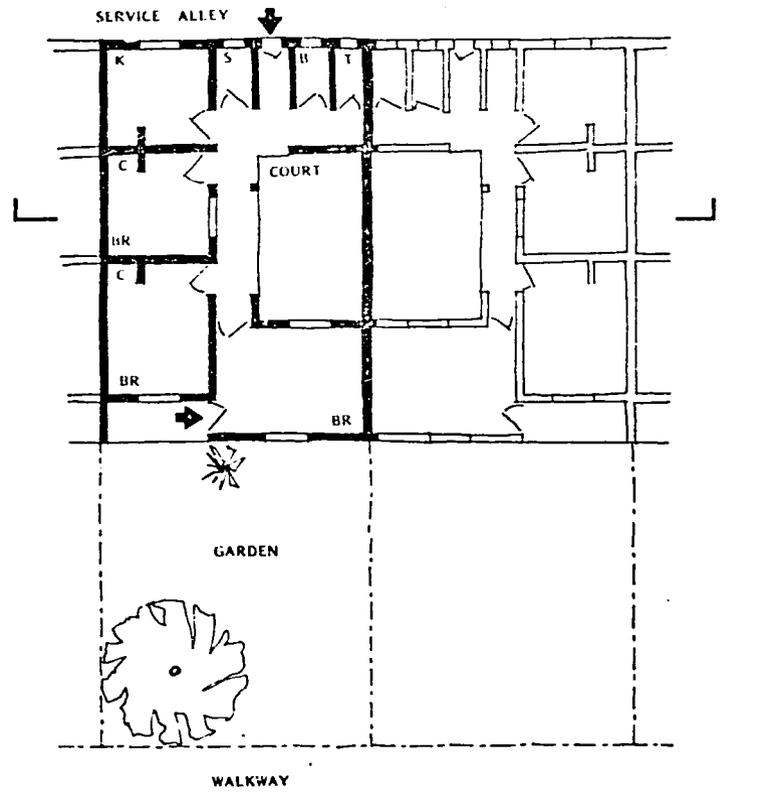
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

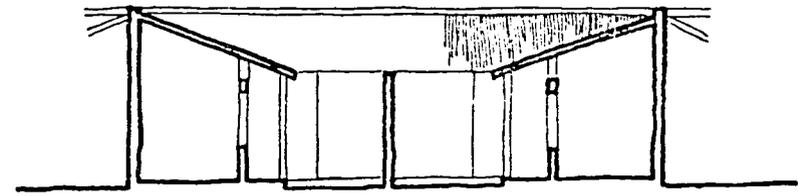
	Total Number	Area Hectares	Density W/ha
LOTS	52	1.21	43
HOUSE UNITS	52	1.21	43
PEOPLE (6 per unit)	312	1.21	258

SOURCES

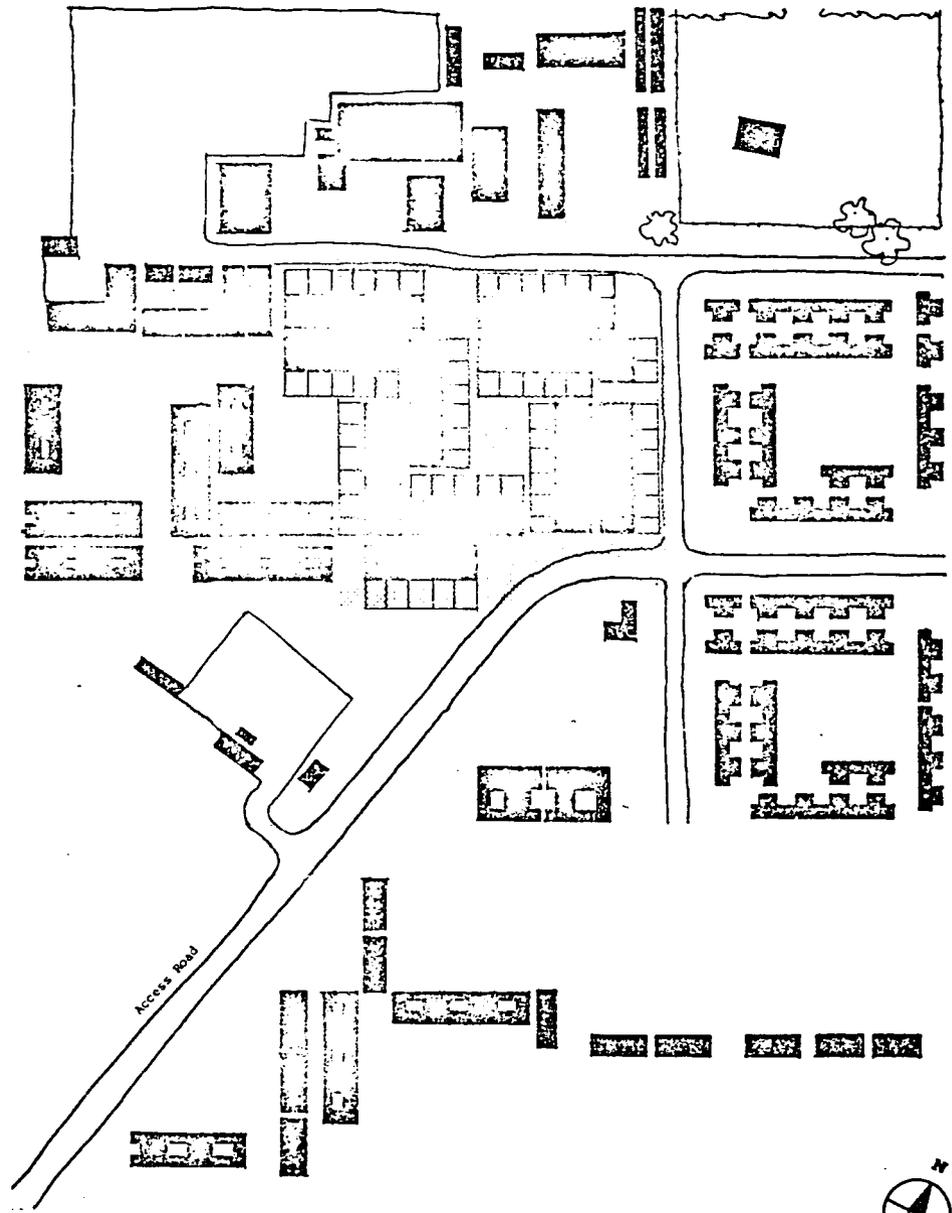
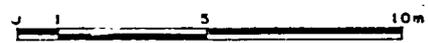
Dwelling Group: (accurate) Drawings, N.C.C.
 Dwelling Plan: (accurate) IBID.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: A. Seid: S.o.K. (aerial).
 General Information: Field Surveys, 1969-1972; METROLOGIST
 AND ANALYSIS OF LOW INCOME HOUSING SYSTEM.
 NAIROBI, N.I.T., 1972.



DWELLING PLAN



DWELLING SECTION



DWELLING GROUP



(64)

CHALLENGE TECHNOLOGY - MAINTAINING - KODAK





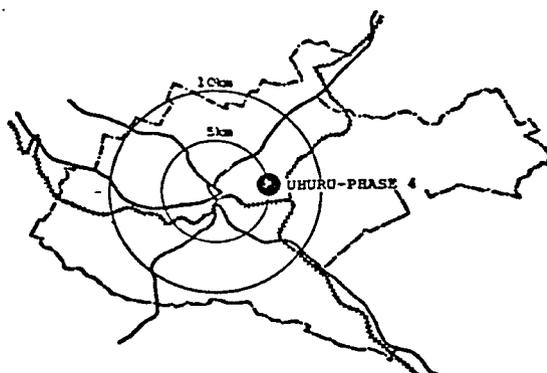
KARIOBANGI SOUTH: (opposite page - left) The photograph shows a Nairobi City Council Public Housing Project for rent or purchase (tenant purchase). The front space in front of the dwelling units was initially intended for "shambas," (small vegetable gardens). Because of high rents, only the moderate income sector was able to afford these units. Cars have priority over "shambas" in this income group, and the space is used for parking. (1972)

(opposite page - right) There is a service alley at the rear of the row of dwellings. Note the utilities, service paraphernalia: pipes, electric conduits, water meters, electric meters, sewage access and vents, roof drain pipes, open gutter, the N.C.C. trash bins. These English imported alleys are unnecessary and wasteful. (1972)

(right) The aerial view of the locality shows different stages of development. It is one of the post-independence public subsidized housing projects developed in the eastern part of the city. (1971)

14 UHURU PHASE 4

Houses: public subsidized



UHURU-PHASE 4 is one of the first two-story prefabricated housing projects in Uhuru Estate, developed by the public sector in 1970. It is located in Eastlands, about 5 km from the city center.

HISTORY: It was developed by the Nairobi City Council to meet housing needs of the low and middle income people of Nairobi after independence. Prefabrication was employed to take advantage of semi-skilled labor, speed of construction, and anticipated lower unit costs.

USERS: The middle income users are mainly wage-employed working in various private and public offices in the city. Others are self-employed and own small shops within and outside the area. The on-site prefabrication plant provides an additional source of employment for people living in neighboring estates (Eastlands).

DWELLINGS: The prefabricated two-story row houses are grouped around a parking lot. Each unit has five rooms including a kitchen. The prefabricated pre-cast concrete panels are manufactured at an on-site plant. The open space in front of each unit is used for drying, laundry and sometimes for gardening.

COMMENTS: The Nairobi City Council has provided two options for the users: (1) rental, (2) ownership at a cost of \$3,900 per unit, with the mortgage normally for a period of 20 years. The use of prefabrication did not prove to result in lower unit costs. The prefabricated panels were subsequently used in single-story units but higher costs again resulted.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 71
 tenure: LEGAL RENTAL/OWNERSHIP
LOT/LAND
 utilization: PUBLIC
 area (m²): -
 tenure: LEGAL RENTAL/OWNERSHIP
DWELLING
 location: INNER RING
 type: ROW/GROUP
 number of floors: 2
 utilization: SINGLE: FAMILY/INDIV.
 physical state: FAIR
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PUBLIC
 builder: LARGE CONTRACTOR
 construction type: CONCRETE (PRECAST)
 year of construction: 1970
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE SLAB
 walls: CONCRETE (PRECAST)
 roof: ASBESTOS SHEETING ON
 TIMBER PURLINS
DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 4
 other: -

COMMUNITY FACILITIES
 police: ADEQUATE
 fire protection: LIMITED
 refuse collection: ADEQUATE
 health: LIMITED
 schools, playgrounds: LIMITED
 recreation, open spaces: ADEQUATE
 other facilities: SHOPPING CENTER, CLINIC,
 COMMUNITY CENTER
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: NONE
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: LIMITED

SOCIO-ECONOMIC DATA

(Related to user)

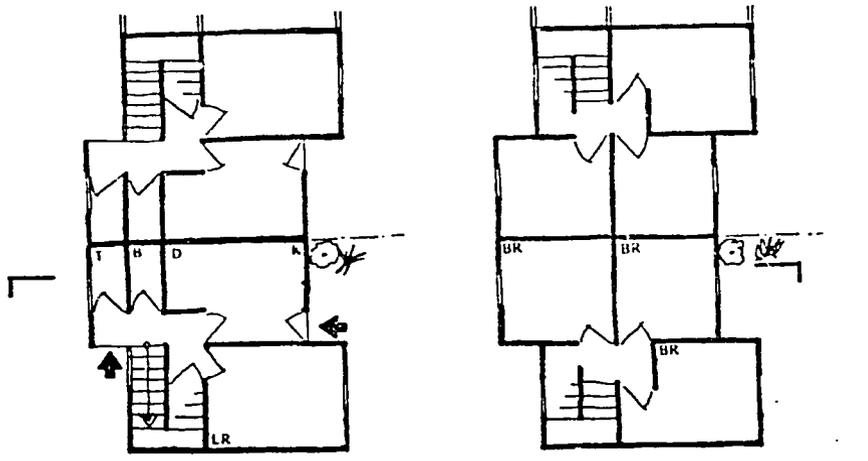
GENERAL: SOCIAL
 user's ethnic origin: KIKUMBA
 place of birth: KANGUNDO
 education level: SECONDARY SCHOOL
NUMBER OF USERS
 married: 1 MALE (FAMILY IN RURAL AREA)
 single: 1 MALE
 children: -
 total: 2
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1957
 urban - urban: 1970
 urban - rural: -
 why came to Nairobi: EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: MIDDLE
 employment: STORE-KEEPER
 distance to work: 2 KM
 mode of travel: BUS
COSTS
 dwelling unit: \$3,900
 land - market value: \$28,600/EA
DWELLING UNIT PAYMENTS
 financing: PUBLIC SUBSIDIZED
 rent/mortgage: \$42/MONTH
 % income for rent/mortgage: 21%

SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

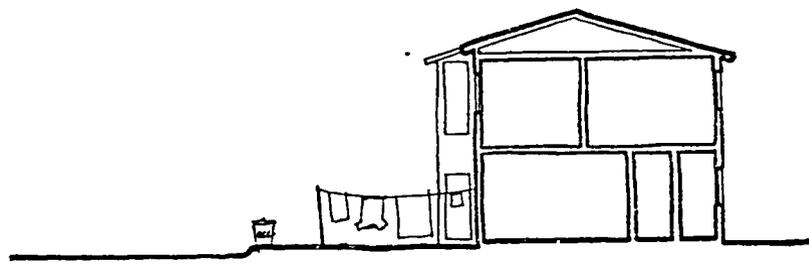
	Total Number	Area Hectares	Density M/Ha
LOTS	-	-	-
APARTMENT UNITS	22	0.42	52
PEOPLE (6 per unit)	138	0.42	312

SOURCES
 Dwelling Group: (approximate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (accurate) Drawings, M.C.C.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: A. Seid; S.O.K. (aerial).
 General Information: Field Surveys, 1969-1972.

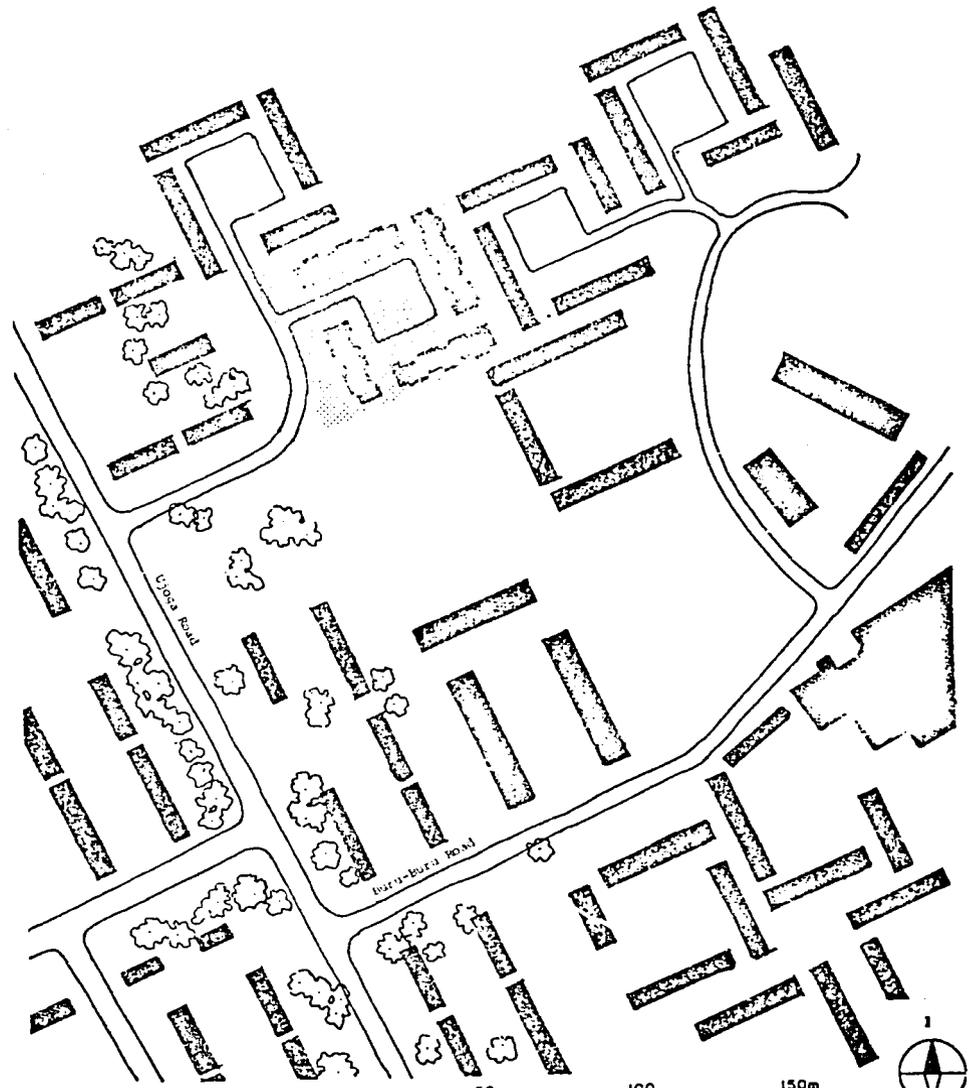
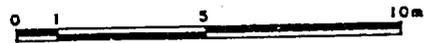


STREET

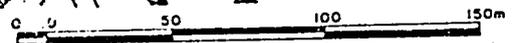
DWELLING PLAN



DWELLING SECTION



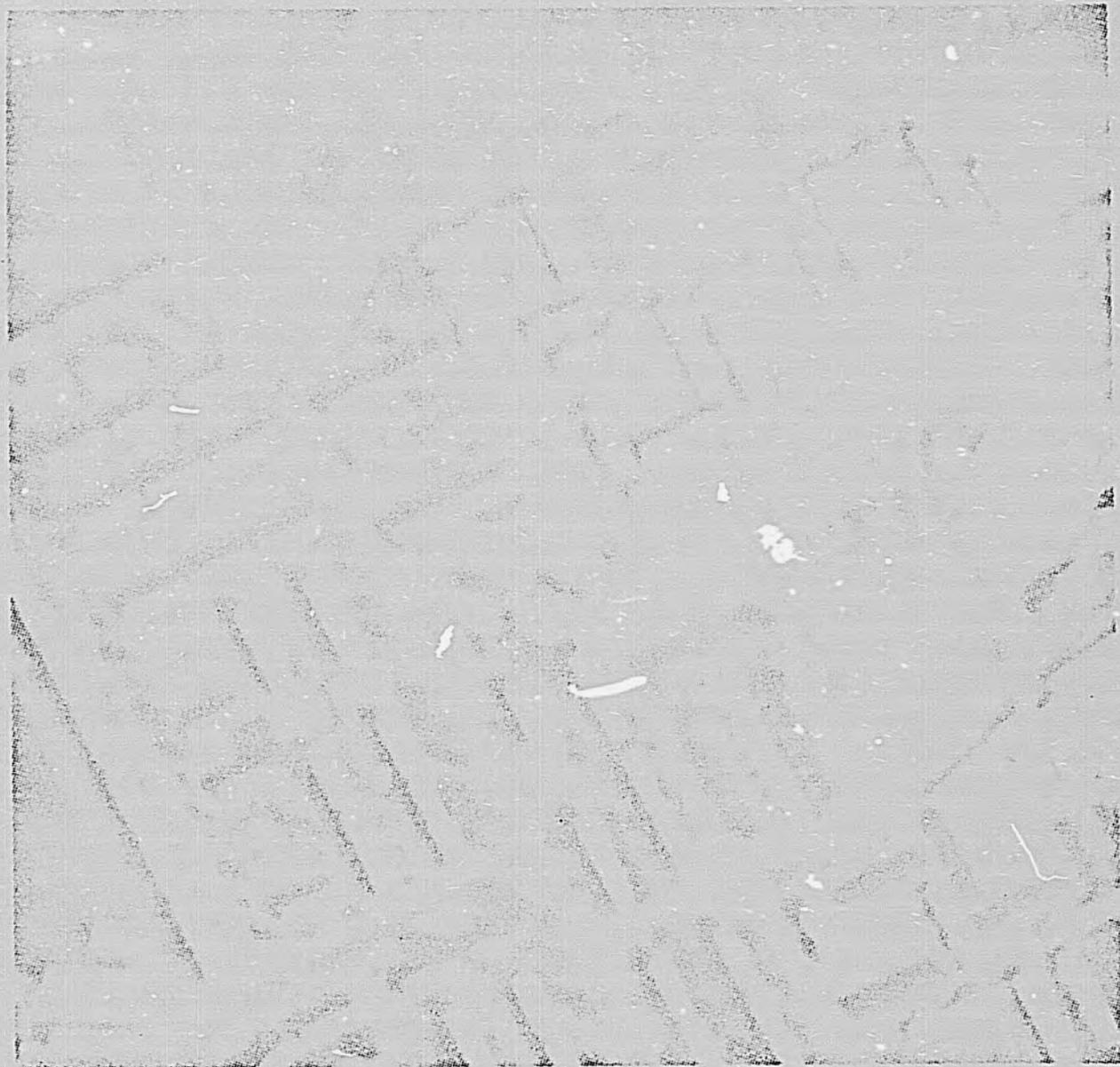
DWELLING GROUP



(68)

DWELLING TYPOLOGY: NAIROBI, KENYA





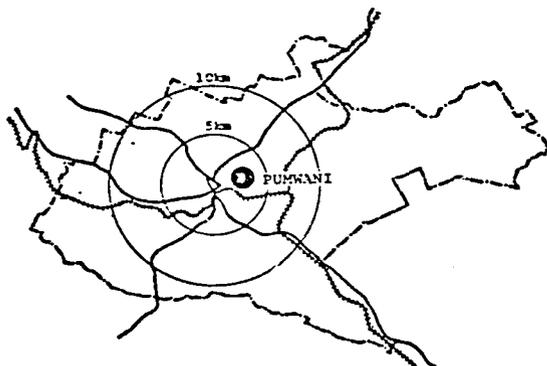
UHURU-PHASE 4: (opposite page - left) The row housing units are quite compact and have five rooms including a kitchen. Units of two stories are not common in the housing developed by the Nairobi City Council. Note the paved parking lot in the back which is also used as a play area by small children. (1972)

(opposite page - right) The photograph shows the front view of the precast concrete public row housing project for rental or purchase (tenant purchase). The front area of the dwellings is utilized for drying laundry, storing trash bins, and even for gardening. (1972)

(right) An aerial view displays the different stages of development in Phase 4. In the right-hand top corner is the Uhuru-Phase 1 and in the bottom corner is the Ofafa Jericho Public Housing Project. A U-shaped shopping center is located in the center of Phase 4. (1971)

15 PUMWANI

Apartments: public subsidized



PUMWANI REDEVELOPMENT is a tenant-purchase/rental housing project developed by the public sector in 1967. It is located about 3 km from the city center.

HISTORY: The first site-and-services project was developed in Pumwani in 1923. Serious overcrowding and the rapid peripheral development of squatters led to the formation of a committee to study redevelopment options. The "FARNWORTH REPORT," presented in 1965, recommended tenant purchase and one-room rental dwellings and simultaneously a site-and-services project for displaced tenants. In 1967, 340 tenant purchase and 220 rental units were built. An additional 216 two-room single-story units were also developed to house the displaced tenants. The present population is about 10,000 people.

USERS: The original redevelopment plan was to rehouse low income Pumwani residents; however, they were excluded due to high rents as a result of the high cost of construction. The present middle and even high income users are wage-employed as skilled laborers and professionals in the city center. Others are self-employed and own small businesses.

DWELLINGS: The dwellings in the redevelopment project are 3-4-story blocks with 2-3-room apartments for tenant purchase and for rent. Purchase costs for 3-room apartments are \$14,700 with a 20-year mortgage at \$110/month. Some residents receive public rent subsidies. The open space around the blocks is inadequately maintained. New squatter settlements are again developing around the vacant land on the periphery of the project.

COMMENTS: Pumwani has undergone changes over the last 50 years, which is similar to other areas where public-subsidized housing attempts to rehouse low income people. The intended low income groups are generally replaced by higher income groups because of inability to meet the cost or mismatched priorities.

PHYSICAL DATA
(Related to dwelling and Environment)

DWELLING UNIT
type: APARTMENTS
area (m²): 52
tenure: LEGAL RENTAL-OWNERSHIP

LOT/LAND
utilization: PUBLIC
area (m²): -
tenure: LEGAL RENTAL-OWNERSHIP

DWELLING
location: INNER RING
type: WALKUP
number of floors: 3
utilization: SINGLE: FAMILY
physical state: FAIR

DWELLING DEVELOPMENT
mode: INSTANT
developer: PUBLIC
builder: LARGE CONTRACTOR
construction type: CONCRETE
year of construction: 1967

MATERIALS
foundations: CONCRETE FOOTINGS
floor: CONCRETE SLAB
walls: CONCRETE COLUMNS, MASONRY INFILL
roof: CONCRETE SLAB

DWELLING FACILITIES
wc: 1
shower: 1
kitchen: 1
rooms: 2
other: -

COMMUNITY FACILITIES
police: ADEQUATE
fire protection: ADEQUATE
refuse collection: ADEQUATE
health: ADEQUATE
schools, playgrounds: ADEQUATE
recreation, open spaces: ADEQUATE
other facilities: COMMUNITY CENTER, CHURCH, MOSQUE, HEALTH CENTER, INDUSTRIAL TRAINING CENTER

UTILITIES AND SERVICES
water: ADEQUATE
sewerage: ADEQUATE
storm drainage: ADEQUATE
electricity: ADEQUATE
gas: LIMITED
public transportation: ADEQUATE
paved roads, walkways: ADEQUATE
telephones: LIMITED

SOCIO-ECONOMIC DATA
(Related to user)

GENERAL: SOCIAL
user's ethnic origin: KIKUYU
place of birth: KIAMBU
education level: UNIVERSITY

NUMBER OF USERS
married: 1 MALE, 1 FEMALE
single: -
children: 1
total: 3

MIGRATION PATTERN
number of moves: 2
rural - urban: 1963
urban - urban: 1968
urban - rural: -
why came to Nairobi: EDUCATION

GENERAL: ECONOMIC
user's income group: MIDDLE
employment: N.C.C. STAFF
distance to work: 5 KM
mode of travel: CAR

COSTS
dwelling unit: \$4,900
land - market value: \$35,750/EA

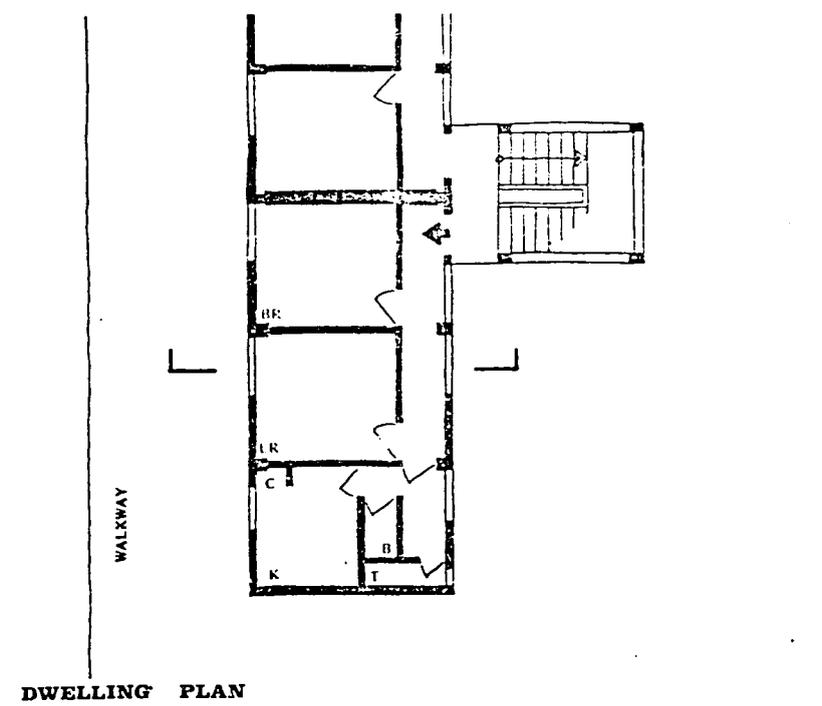
DWELLING UNIT PAYMENTS
financing: PUBLIC SUBSIDIZED
rent/mortgage: \$56/MONTH
% income for rent/mortgage: 10%

SELECTED BLOCK DATA

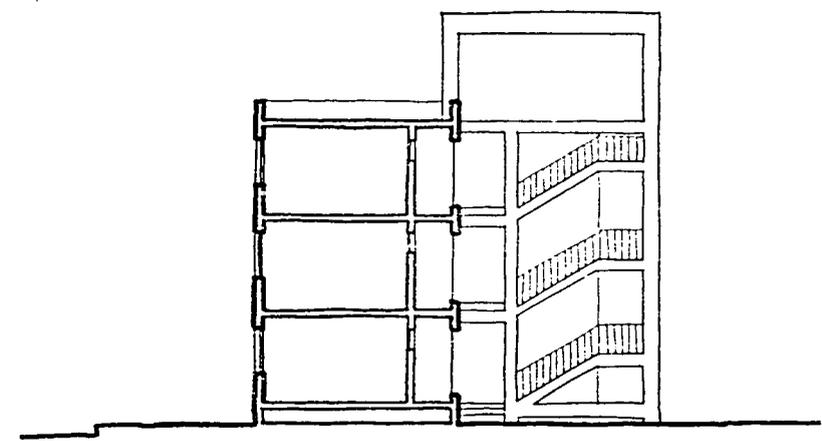
(Selected block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density N/HA
LOTS	-	-	-
APARTMENT UNITS	408	4.27	96
PEOPLE (4 per unit)	1632	4.27	384

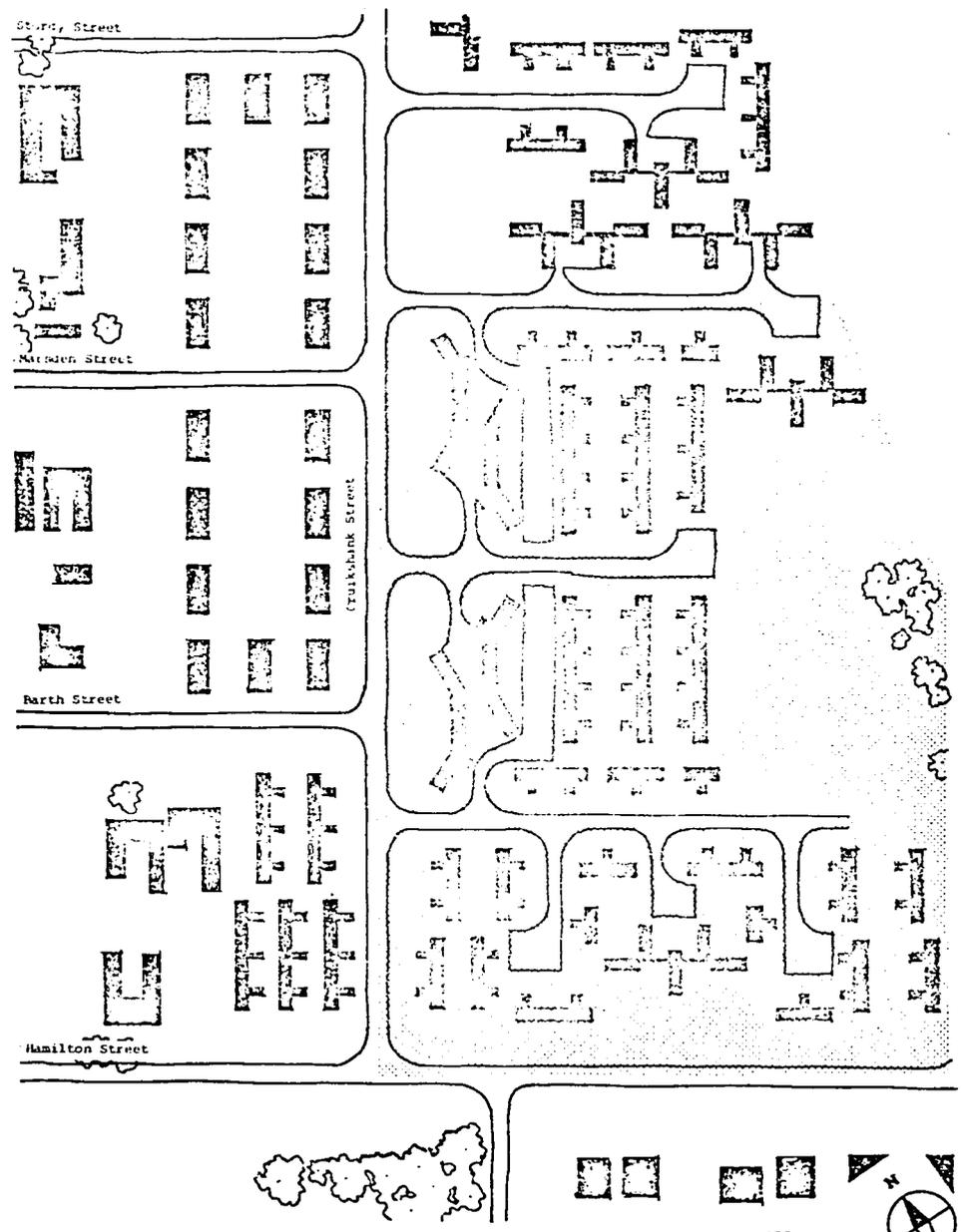
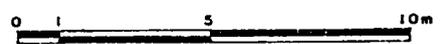
SOURCES
Dwelling Group: (accurate) Drawings, N.C.C.
Dwelling Plans: (accurate) I.R.D.
Physical Data: (accurate) I.R.D.
Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
Photographs: A. Seid; S.O.K. (serial).
General Information: NATHARE VALLEY REPORT, 1971; Field Surveys, 1969-1972.



DWELLING PLAN



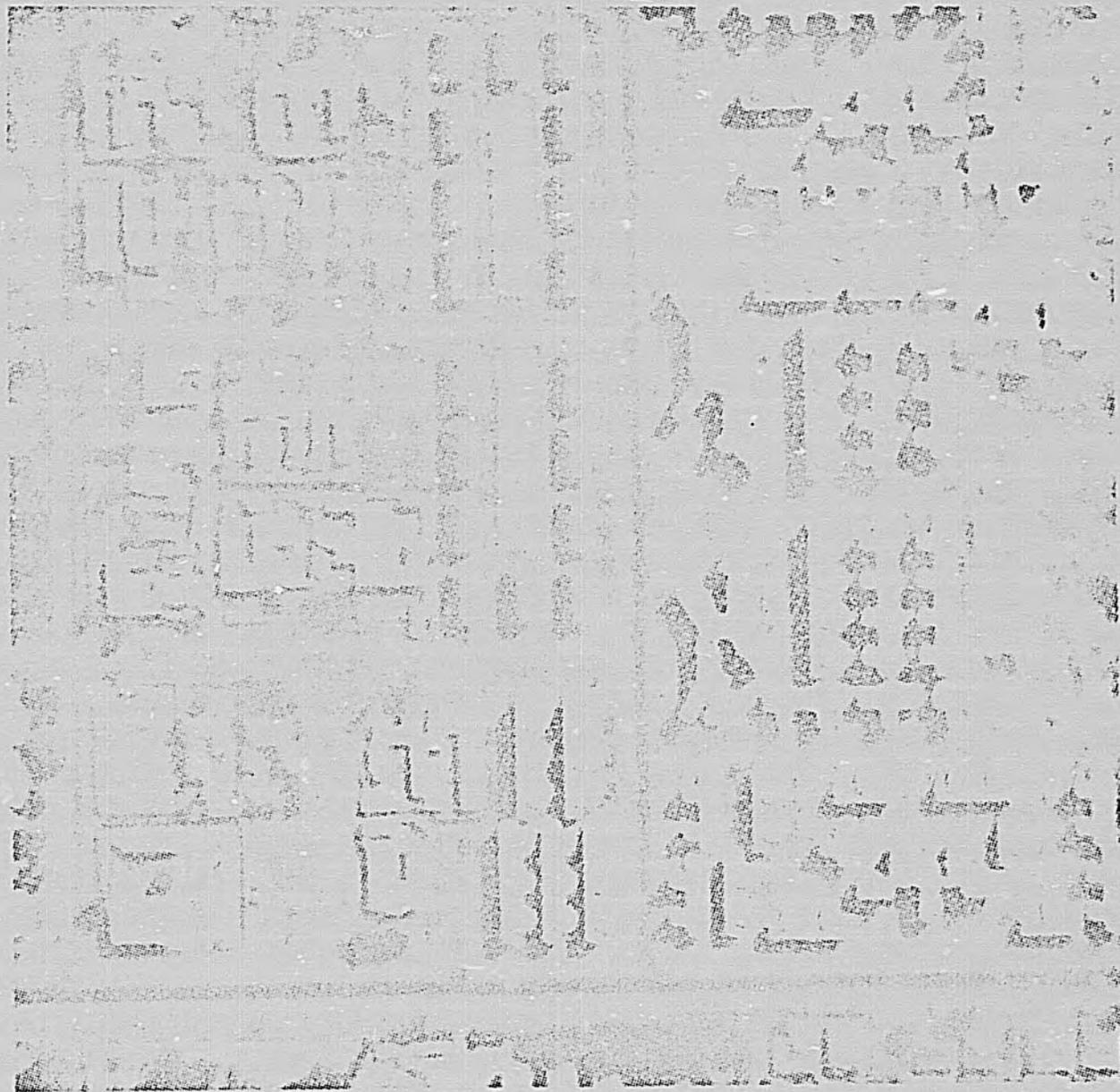
DWELLING SECTION



DWELLING GROUP







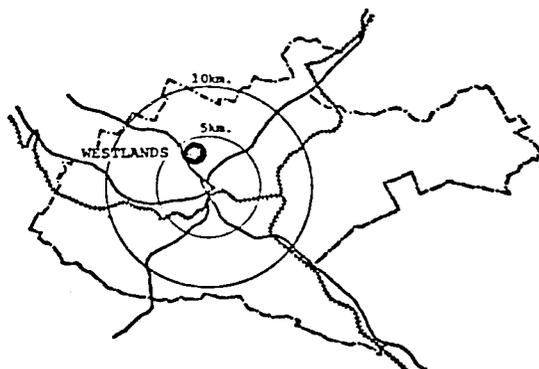
PUMANI: (opposite page - top) This Nairobi City Council Redevelopment Project was built to replace the adjacent squatter settlement shown in the photograph below. The dwellings are occupied today by families of middle to high incomes. Note the clotheslines in all available spaces. (1972)

(opposite page - bottom) This squatter settlement in Pumani was to have been replaced by the Nairobi City Council Redevelopment Project pictured above, but the original residents of the area were not able to occupy the new dwellings because rents became too high for their income. (1972)

(right) An aerial view shows Eastleigh's private tenements to the left of the Redevelopment Project. The squatter settlements can be seen in the lower part of the photograph. (1971)

16 WESTLANDS

Apartments: private rental



WESTLANDS is a residential area developed over the last 50 years by Europeans and Asians in the private sector. It is located in the northwestern part of the city about 4 km from the center.

HISTORY: The area was developed originally as a European suburban area next to the former coffee plantations in Spring Valley and Kitisuru Estates. Most of the post-independence development has been by the Asians in the private sector. The present population of Westlands, which is mainly Asian and African, is 3000-4000.

USERS: The middle and high income users are upwardly mobile, socially and economically. The area serves generally as a reception/transition area for these people. Many purchase a house in one of the other suburban residential areas as they become more financially secure. The users are mostly young professionals, businessmen and high-ranking civil service administrators.

DWELLINGS: Most of the recently developed dwelling units are walk-up apartments of 2- to 4-story blocks, while the older dwellings are single-story detached houses. Both have employer-provided dwellings for the domestic servants. The open space is generally well maintained and in many cases has been converted into parking lots due to increasing car ownership. The area is adequately served by other public utilities and services.

COMMENTS: This area is similar to Parklands, Nairobi Hill and Purwani. All act as reception/transition areas for upwardly mobile Africans and Asians.

PHYSICAL DATA
(Related to dwelling and Environment)

DWELLING UNIT

type: APARTMENT
 area (m²): 74
 tenure: LEGAL RENTAL
 LOT/LAND
 utilization: SEMI-PUBLIC
 area (m²): 2400
 tenure: LEGAL RENTAL
 DWELLING
 location: INNER RING
 type: WALK-UP
 number of floors: 3
 utilization: SINGLE; FAMILY
 physical state: GOOD

DWELLING DEVELOPMENT

mode: INSTANT
 developer: PRIVATE
 builder: LARGE CONTRACTOR
 construction type: CONCRETE
 year of construction: 1964

MATERIALS

foundations: CONCRETE FOOTINGS
 floor: CONCRETE SLAB
 walls: CONCRETE COLUMNS, MASONRY INFILL
 roof: CONCRETE SLAB

DWELLING FACILITIES

wc: 1
 shower: 1
 kitchen: 1
 rooms: 3
 other: CLOSETS, SEPARATE SERVANTS' QUARTERS

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: ADEQUATE
 recreation, open spaces: ADEQUATE
 other facilities: SHOPPING CENTER, HOSPITAL, COMMUNITY CENTER

UTILITIES AND SERVICES

water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: ADEQUATE

SOCIO-ECONOMIC DATA
(Related to user)

GENERAL: SOCIAL

user's ethnic origin: ASIAN
 place of birth: NAIROBI
 education level: SECONDARY SCHOOL

NUMBER OF USERS

married: 1 MALE, 1 FEMALE
 single: 1 MALE (SERVANT)
 children: 2
 total: 5

MIGRATION PATTERN

number of moves: 1
 rural - urban: -
 urban - urban: 1969
 urban - rural: -
 why came to Nairobi: N.A.

GENERAL: ECONOMIC

user's income group: HIGH
 employment: BUSINESS
 distance to work: 4 KM
 mode of travel: CAR

COSTS

dwelling unit: N.A.
 land - market value: \$107,250/HA

DWELLING UNIT PAYMENTS

financing: N.A.
 rent/mortgage: \$105/MONTH
 % income for rent/mortgage: 25%

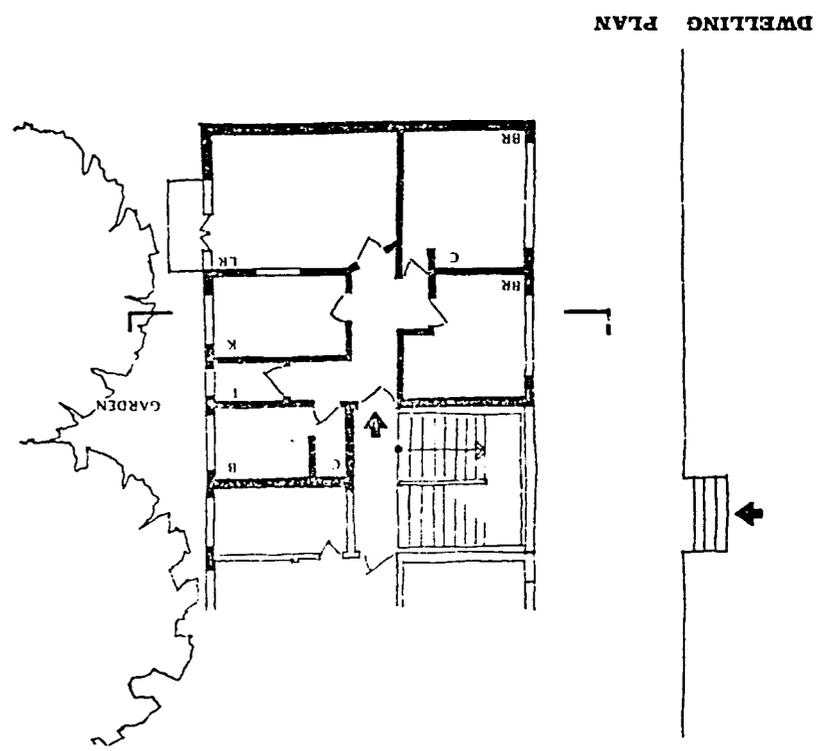
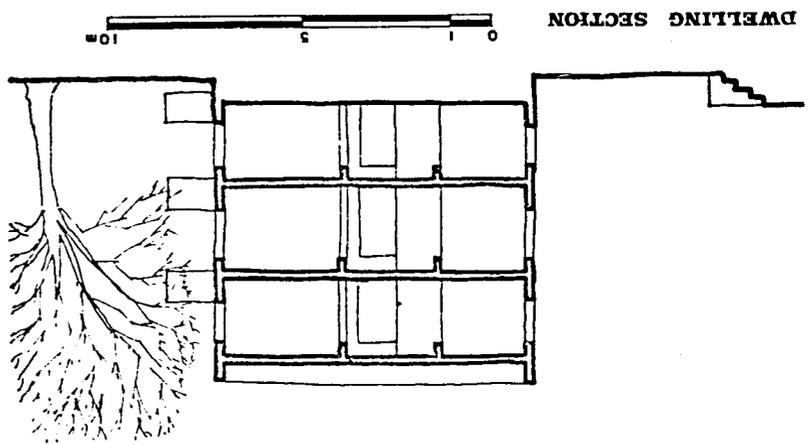
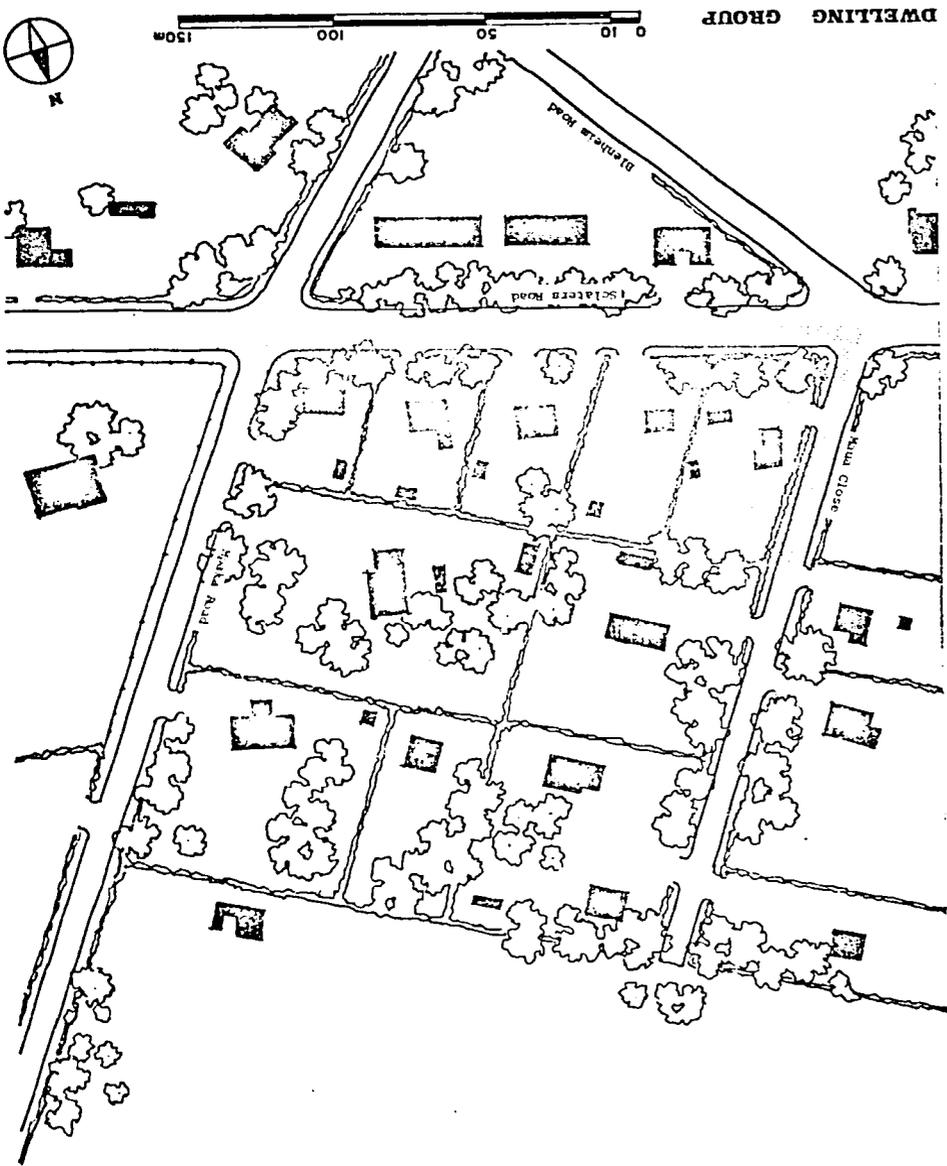
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density N/HA
LOTS	5	1.20	4
APARTMENT UNITS	30	1.20	25
PEOPLE (6 per unit)	180	1.20	150

SOURCES

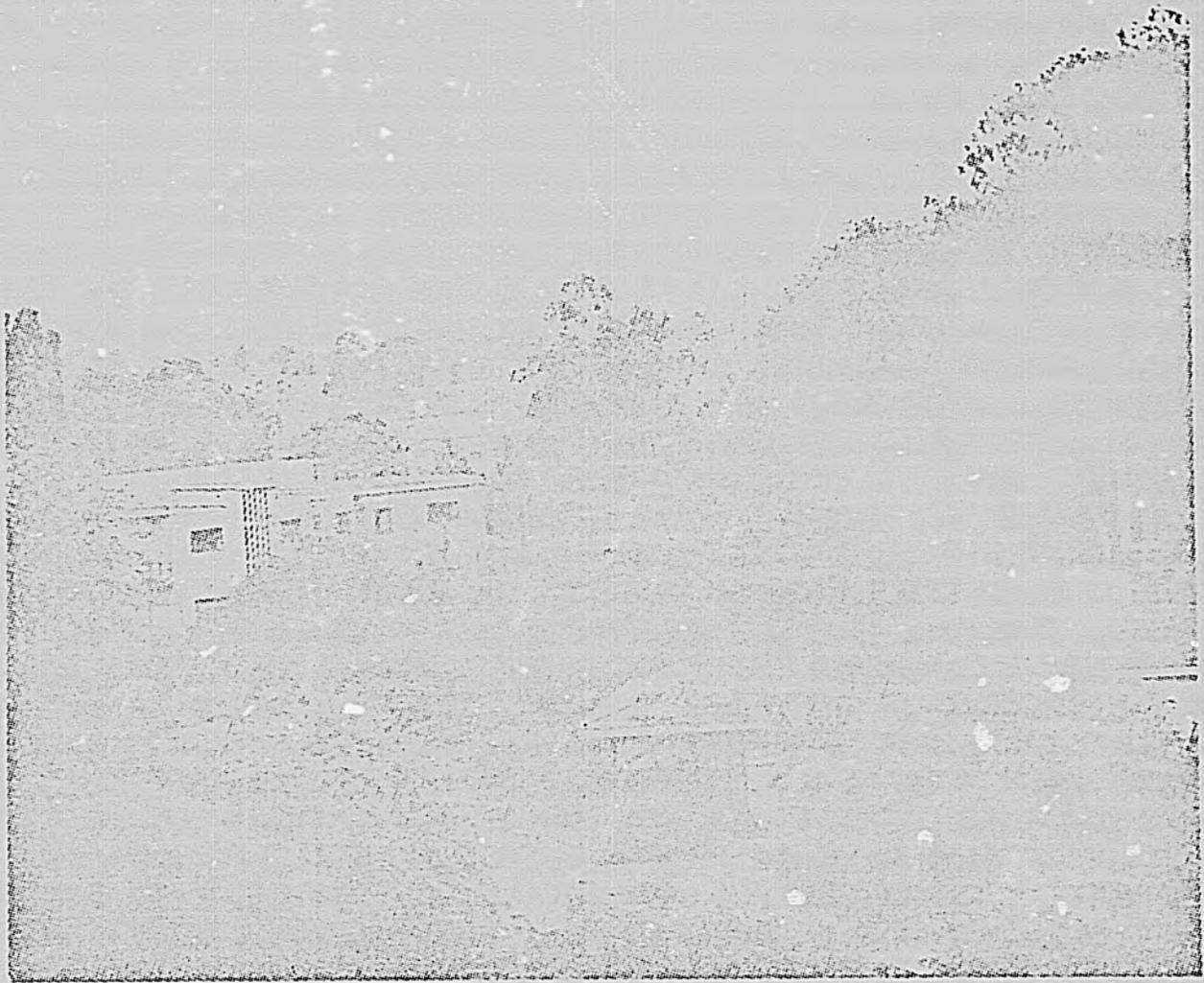
Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (approximate) Field Survey, A.C., P.C.P., 1973.
 Physical Data: (approximate) IBID.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1973.
 Photographs: A. Seid; P.C. Patel (panoramic).
 General Information: LAND USE AND LAND VALUES IN SUBURBAN NAIROBI, 1969; Field Surveys, 1969-1973.





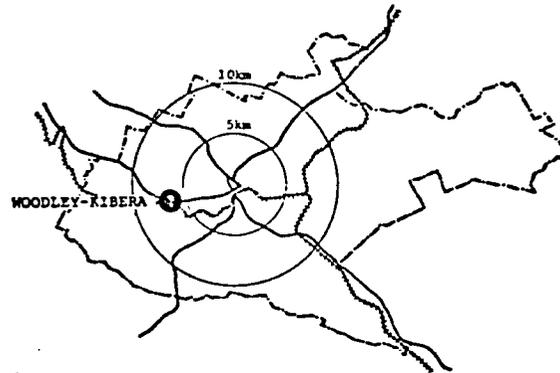
WESTLANDS: (opposite page) These walk-up apartments are privately developed and occupied by the middle and high income sector, predominately Asians and a few Africans and Europeans. Servants' quarters are located in a separate building to the rear of the plot. (1972)

(right) The air view is taken of apartments in the Nairobi Hill area. These apartments are very similar to the ones in Westlands including their physical and social characteristics.



17 WOODLEY-KIBERA

Houses: public subsidized



WOODLEY-KIBERA is a housing project developed in 1969 by the public sector which provided row housing for middle and high income Africans. It is located in Woodley Estate 6 km from the city center, and it is defined by the Upper Hill Estate to the north and Kibera Estate to the south (see **WOODLEY I**).

HISTORY: Upper Hill and Woodley Estates were part of the "residential zones" for the Europeans during the colonial administration, while Kibera was originally a military "reserve" for Sudanese soldiers of the Kenya African Rifles. In 1963, when the old city boundary was widened to include Kibera, a development plan comprising 5 residential areas was prepared for the area. Construction commenced in Woodley-Kibera in 1969. The present population of Woodley is about 4,000.

USERS: The rapidly emerging middle and high income African users are mainly civil service administrators, business proprietors and/or professionals. Low income African domestic servants have separate dwellings built on each site.

DWELLINGS: The project has 156 two-story row houses and 72 four-story apartment blocks. The house type dwelling units are constructed of masonry walls with concrete slab floors. Each has facilities for off-street parking, a backyard/garden and self-contained servants' quarters. The open spaces are well maintained by the Nairobi City Council and the users. The dwellings are available either for rental or tenant purchase. Purchase costs are \$9,300 for an apartment and \$10,700 for a house, with mortgage payments of \$56/month for 15 years.

COMMENTS: Woodley-Kibera and other isolated fringe areas have undergone rapid growth by upwardly mobile Africans in the high income group in the post-independence period. Most of the dwelling development, both public and private, is very recent and "modern."

PHYSICAL DATA
(Related to dwelling and Environment)

DWELLING UNIT
type: HOUSE
area (m²): 166
tenure: LEGAL RENTAL OR OWNERSHIP

LOT/LAND
utilization: PRIVATE
area (m²): 300
tenure: LEGAL RENTAL OR OWNERSHIP

DWELLING
location: PERIPHERY
type: ROW/GROUP
number of floors: 2
utilization: SINGLE: FAMILY
physical state: GOOD

DWELLING DEVELOPMENT
mode: INSTANT
developer: PUBLIC
builder: LARGE CONTRACTOR
construction type: MASONRY/CONCRETE
year of construction: 1969

MATERIALS
foundations: CONCRETE STRIP
floor: CONCRETE SLAB
walls: MASONRY, CONCRETE BLOCKS
roof: CONCRETE SLAB

DWELLING FACILITIES
wc: 3 (1 FOR SERVANTS' QUARTERS)
shower: 2
kitchen: 1
rooms: 5 (1 FOR SERVANTS' QUARTERS)
other: CAR PORT, COURTYARD, CLOSET

COMMUNITY FACILITIES
police: ADEQUATE
fire protection: ADEQUATE
refuse collection: ADEQUATE
health: ADEQUATE
schools, playgrounds: ADEQUATE
recreation, open spaces: ADEQUATE
other facilities: SOCIAL CENTER, SPORTS GROUNDS, SHOPPING CENTER, CLINIC

UTILITIES AND SERVICES
water: ADEQUATE
sewerage: ADEQUATE
storm drainage: ADEQUATE
electricity: ADEQUATE
gas: LIMITED
public transportation: ADEQUATE
paved roads, walkways: ADEQUATE
telephone: LIMITED

SOCIO-ECONOMIC DATA
(Related to user)

GENERAL: SOCIAL
user's ethnic origin: ABALUYA
place of birth: RIFT VALLEY
education level: SECONDARY SCHOOL

NUMBER OF USERS
married: 1 MALE, 1 FEMALE
single: 1 MALE (SERVANT)
children: 4
total: 7

MIGRATION PATTERN
number of moves: 4
rural - urban: 1952
urban - urban: 1959-1965-1969
urban - rural: -
why came to Nairobi: EMPLOYMENT

GENERAL: ECONOMIC
user's income group: HIGH
employment: PRINTING BUSINESS
distance to work: 8 KM
mode of travel: CAR

COSTS
dwelling unit: \$10,700
land - market value: \$21,450-28,600/HA

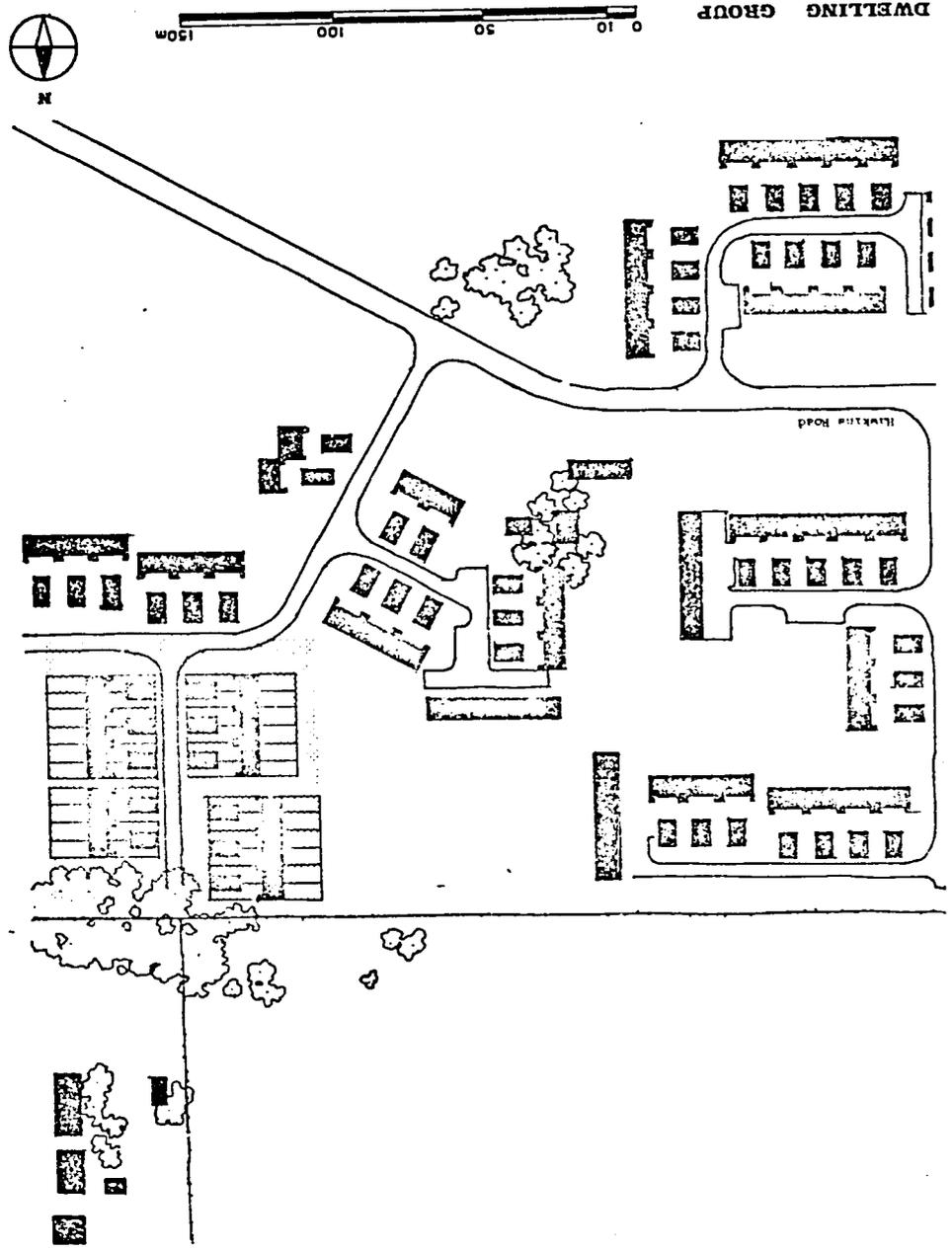
DWELLING UNIT PAYMENTS
financing: PUBLIC SUBSIDIZED
rent/mortgage: \$56/MONTH
% income for rent/mortgage: 10%

SELECTED BLOCK DATA

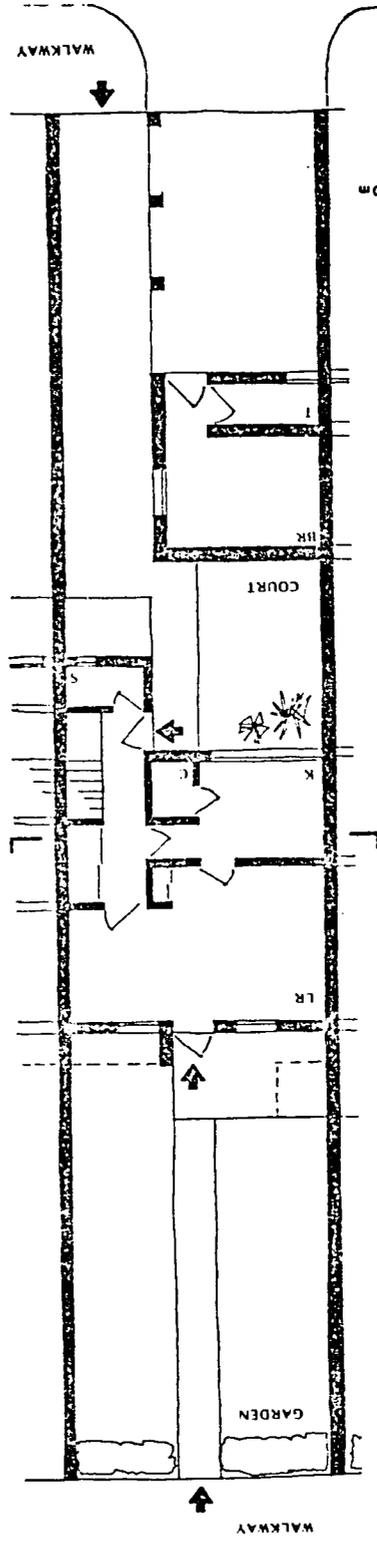
(Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density N/Ha
LOTS	28	0.75	37
HOUSE UNITS	28	0.75	37
PEOPLE (8 per unit)	224	0.75	296

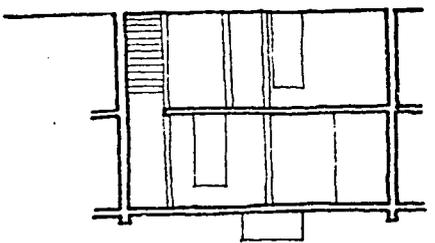
SOURCES
Dwelling Group: (accurate) Drawings, N.C.C.
Dwelling Plans: (accurate) IBID.
Physical Data: (accurate) IBID.
Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
Photographs: A. Seid; S.O.K. (aerial).
General Information: LAND USE AND LAND VALUES IN SUBURBAN NAIROBI, 1969; NATHARE VALLEY REPORT, 1970; Field Surveys, 1969-1972.



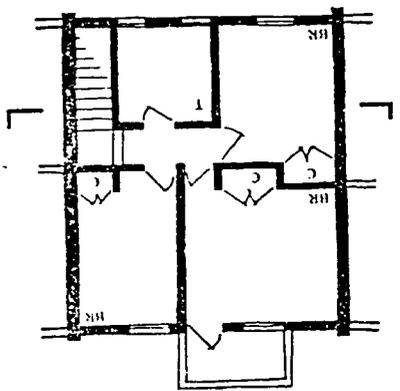
WOODLEY-KIBERA (79)



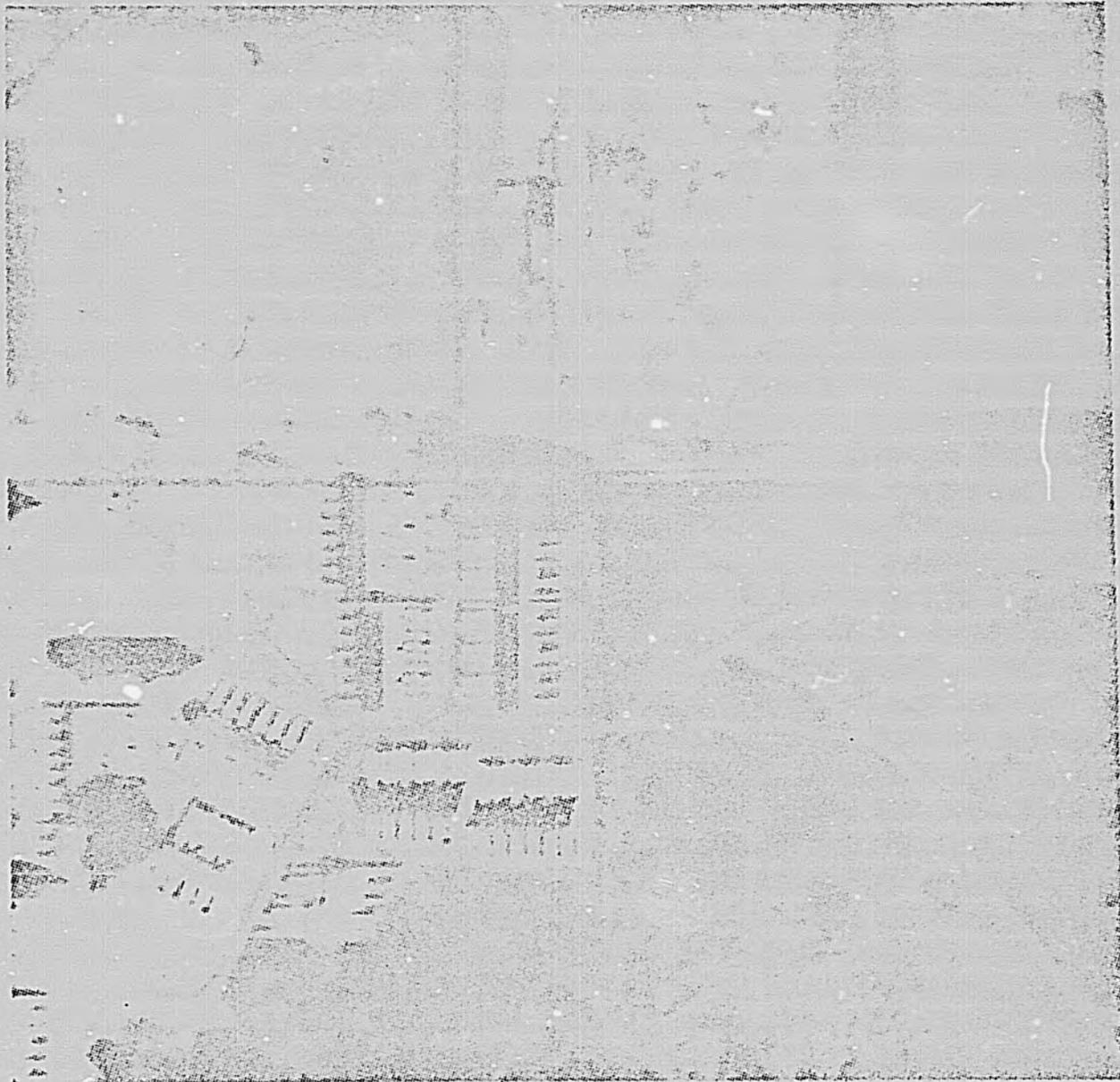
DWELLING SECTION



DWELLING PLAN







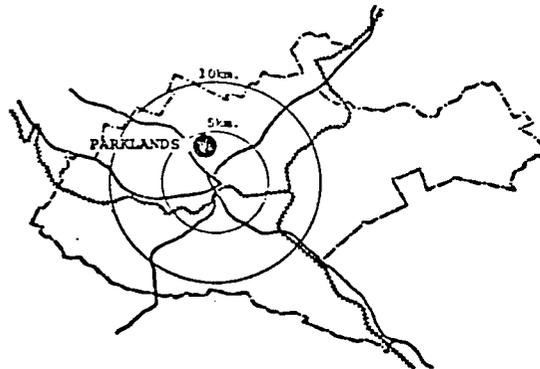
WOODLEY-KIBERA: (opposite page - left) This view of a dwelling unit shows the small garden enclosed by masonry party walls and a wood fence. The windows and the balcony in the second floor belong to the bedrooms. (1972)

(opposite page - right) The public, two-story row housing project is for rent or tenant purchase by the African middle and high income groups. Lots are long and narrow and have accesses in the front and the rear. The barren view of the rear shows the carport and the service entrance. (1972)

(right) An aerial view of part of the Woodley-Kibera locality shows the development in the left bottom corner. Located along the Ngong Road (on the top) are the Impala and Harlequin Sports Clubs. (1971)

18 PARKLANDS

Houses: private rental



PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 144
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: SEMI-PUBLIC
 area (m²): 2500
 tenure: LEGAL RENTAL
DWELLING
 location: INNER RING
 type: ROW/GROUP
 number of floors: 2
 utilization: SINGLE: FAMILY
 physical state: GOOD
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: LARGE CONTRACTOR
 construction type: MASONRY/CONCRETE
 year of construction: 1963
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE SLAB
 walls: MASONRY CONCRETE BLOCKS
 roof: CONCRETE SLAB
DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 5
 other: C/O. UTN. SEPARATE SERVANTS' QUARTERS

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playground: ADEQUATE
 recreation, open space: ADEQUATE
 other facilities: HOSPITAL, SHOPPING CENTER, COMMUNITY CENTER
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: ADEQUATE

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: ASIAN
 place of birth: ELDORET
 education level: UNIVERSITY
NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: 1 MALE (SERVANT)
 children: 2
 total: 5
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1962
 urban - urban: 1970
 urban - rural: -
 why came to Nairobi: EDUCATION, EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: HIGH
 employment: ARCHITECT
 distance to work: 4 KM
 mode of travel: CAR
COSTS
 dwelling unit: N.A.
 land - market value: \$107,250/HA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$140/MONTH
 % income for rent/mortgage: 22%

SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density 1/HA
LOTS	1	0.25	4
HOUSE UNITS	6	0.25	24
PEOPLE (5 per unit)	30	0.25	120

SOURCES

Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1971.
 Dwelling Plan: (approximate) Field Survey, A.C., 1972.
 Physical Data: (approximate) IBID.
 Socio-Economic Data: (approximate) IBID.
 Photographs: T.S. Chama; A. Seid; S.O.K. (aerial).
 General Information: LAND USE AND LAND VALUES IN SUBURBAN NAIROBI, 1969; Field Surveys, 1969-1972.

PARKLANDS is one of the former Asian "residential zones," and row housing projects have been developed recently by Asians in the private sector. It is 4 km north of the city center.

HISTORY: The recent development of Parklands row houses has been in response to rising demand by Asians and Africans in the upwardly mobile middle and high income groups (see also WESTLANDS). Parklands has developed as a predominantly Asian residential area over the last 60 years and has a relatively small population of Africans. The present population of the area is about 16,000.

USERS: Most of the users in the row houses are in the middle and high incomes. They are mostly young professionals and/or businessmen and high-ranking civil service administrators.

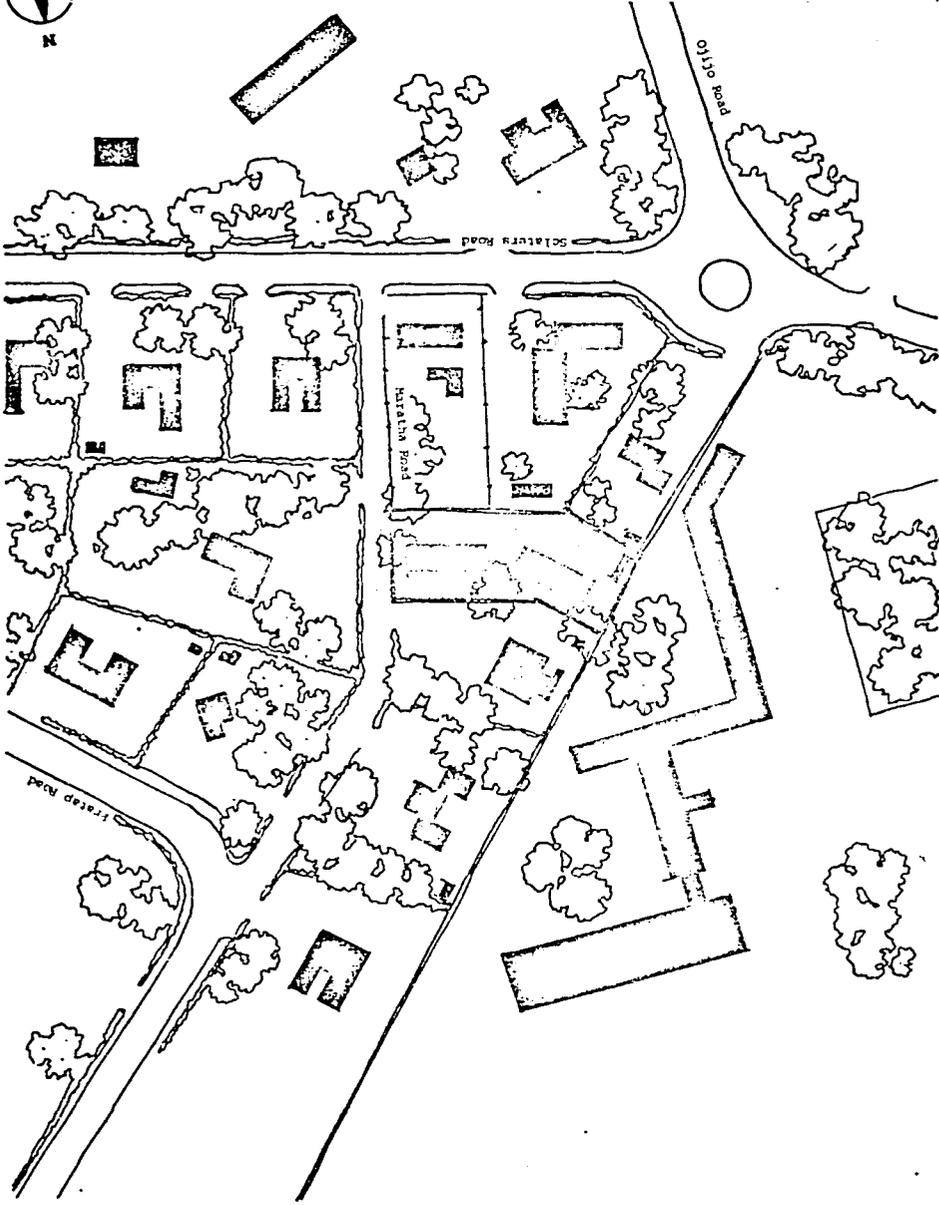
DWELLINGS: The dwellings are two-story row houses constructed out of masonry/concrete blocks with concrete slab roofs and floors. The architectural style reflects the dwelling types in India for middle to high income groups. Often there is overcrowding due to the extended family structure of the Asian community. Self-contained, employer-provided dwellings are also provided. The open space is landscaped with lawns, flowerbeds and trees and is well maintained. The area is adequately served by public utilities and services.

COMMENTS: The users renting these units generally move into newly developed suburban areas when they become more financially secure (see WESTLANDS).



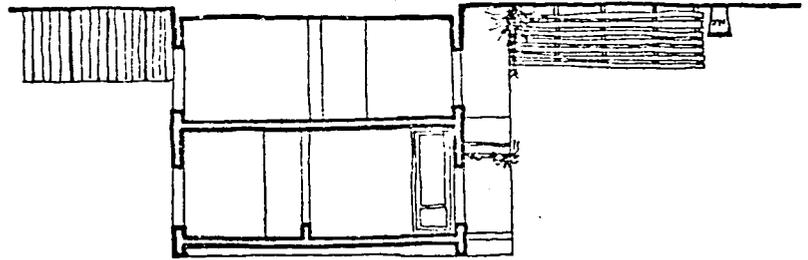
0 10 50 100 150m

DWELLING GROUP

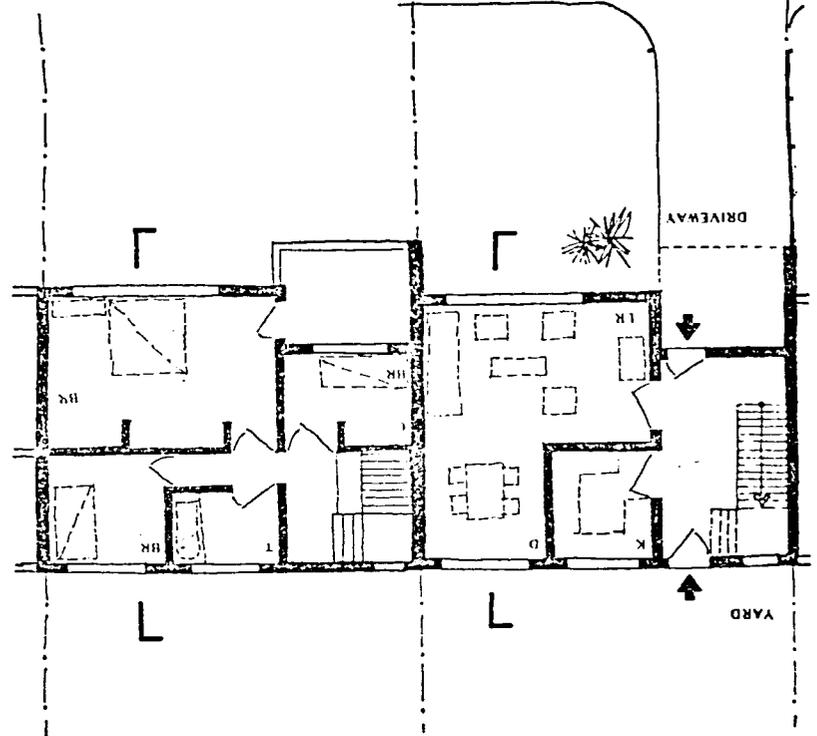


0 1 3 10m

DWELLING SECTION



DWELLING PLAN



(84)

DWELLING TYPOLOGY: NAIROBI, KENYA



PARKLANDS: (opposite page - top left) This view of the Masara Road and the 1st Avenue Parkland junction shows the older detached houses (on the right) and the newer row housing (on the left and in the photograph below). The bridge passes over a canalized stream for storm drainage. (1971)

(opposite page - bottom left) This private row housing project adjoining the Oshwal Boys Secondary School is typical of the recently developed row apartments, similar to the 19th Century English row houses. (1971)

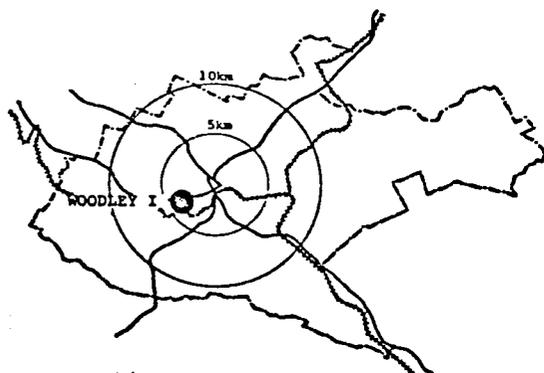
(opposite page - right) Two-story row apartments are pictured. These units are predominantly occupied by Asians from the middle and high income sectors. Main features of these neighborhoods are lawns, flowerbeds, and trees. (1972)

(right) The aerial view of a locality, similar to the one shown in the Dwelling Group Plan, shows the Masara Road passing diagonally through the top left corner. A shopping center serving the area can be seen in the bottom left corner. (1971)



19 WOODLEY I

Houses: public subsidized



WOODLEY I is a housing project developed in 1949 by the colonial administration for the European civil service administrators. It is located in the south end of Upper Nairobi about 5 km from the city center.

HISTORY: Woodley Estate was developed as part of the 'Garden City' plan along with other former suburban estates in Upper Nairobi during the 1940's and 1950's. The estate is under the Nairobi City Council's administration and has been rented to Africans in the middle income group. It has a population of 4,000.

USERS: The middle and high income users are wage-employed or self-employed as civil service administrators, businessmen and/or professionals. The area has employer-provided dwellings for domestic servants (see WOODLEY-KIBERA and UPPER HILL).

DWELLINGS: Most of the dwellings are single-story detached units constructed of masonry/stone walls with a tiled roof on a timber truss. Self-contained servants' dwellings are to the rear of the lots. The open space is well maintained both by the Nairobi City Council and the users. The area is adequately served by other public utilities and services.

TOWNSHIPS: The estates like Woodley were developed at the height of the 'Garden City' movement. They reflect the Anglo-Saxon values and preferences for a detached country house with a large garden, spacious parks and public open spaces, with

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 100
 tenure: LEGAL RENTAL
LOT/LAND
 utilization: PRIVATE
 area (m²): 2,120
 tenure: LEGAL RENTAL
DWELLING
 location: PERIPHERY
 type: DETACHED
 number of floors: 1
 utilization: SINGLE: FAMILY
 physical state: GOOD
DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PUBLIC
 builder: LARGE CONTRACTOR
 construction type: MASONRY/WOOD
 year of construction: 1949
MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY STONE
 roof: "MANGLORE" TILES ON
 TIMBER TRUSSES
DWELLING FACILITIES
 wc: 2
 shower: 2
 kitchen: 1
 rooms: 4
 other: CLOSETS

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: ADEQUATE
 recreation, open spaces: ADEQUATE
 other facilities: SPORTS CLUB, SOCIAL CENTER, SHOPPING CENTER, NURSERY SCHOOL, CLINIC
UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: KIKUYU
 place of birth: KIKUYU TOWNSHIP
 education level: BUSINESS SCHOOL
NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: 1 MALE (SERVANT)
 children: 4
 total: 7
MIGRATION PATTERN
 number of moves: 2
 rural - urban: 1960
 urban - urban: 1964
 urban - rural: -
 why came to Nairobi: EDUCATION, EMPLOYMENT
GENERAL: ECONOMIC
 user's income group: MIDDLE
 employment: ACCOUNTANT
 distance to work: 10 KM
 mode of travel: CAR
COSTS
 dwelling unit: N.A.
 land - market value: \$21,450-28,600/HA
DWELLING UNIT PAYMENTS
 financing: N.A.
 rent/mortgage: \$66/MONTH
 % income for rent/mortgage: 22%

SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

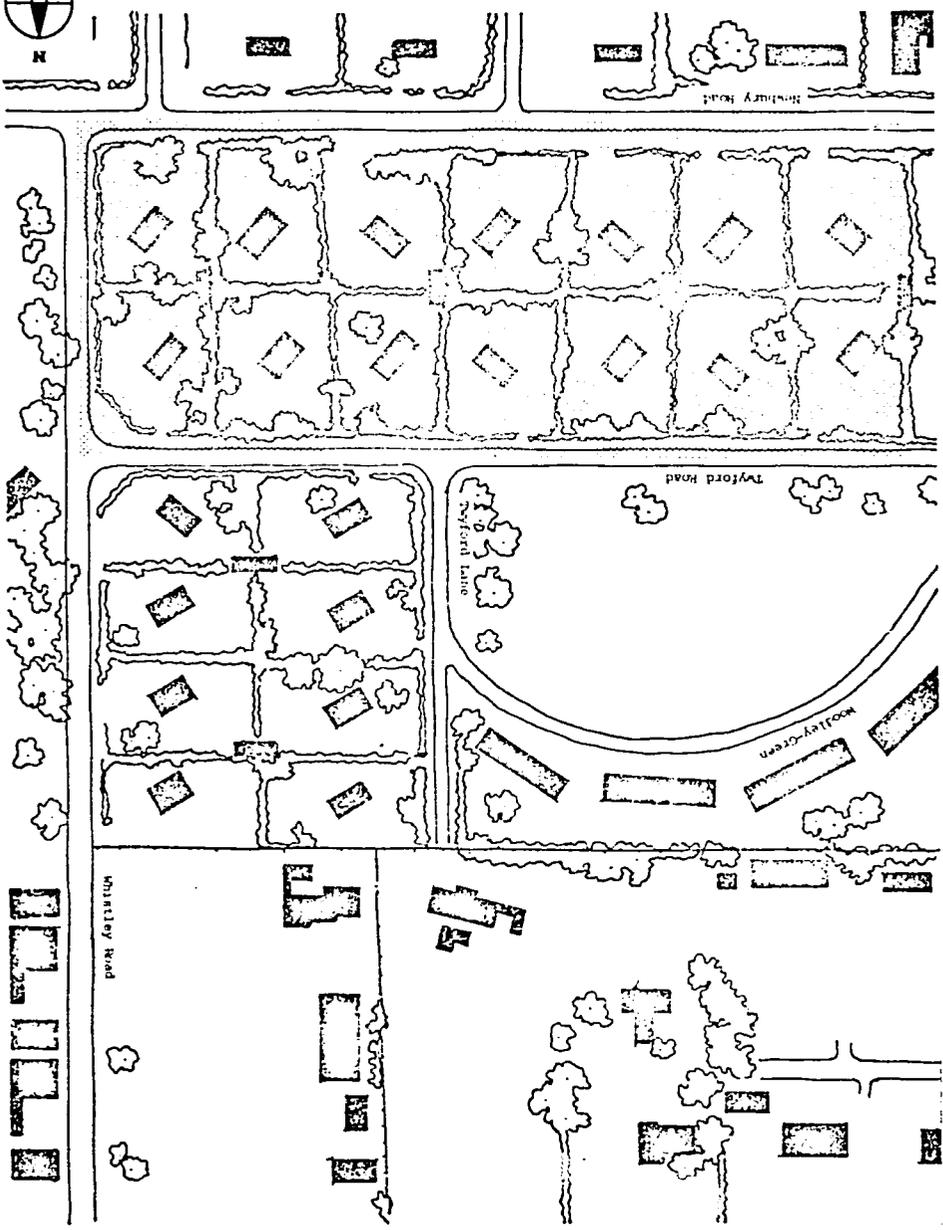
	Total Number	Area Hectares	Density N/Ha
LOTS	14	2.97	5
HOUSE UNITS	14	2.97	5
PEOPLE (7 per unit)	98	2.97	35

SOURCES

Dwelling Group: (accurate) Maps and Photographs, S.O.K., 1
 Dwelling Plan: (accurate) Drawings, N.C.C.
 Physical Data: (accurate) IBID.
 Socio-Economic Data: (approximate) Field Survey, A.S., 1972.

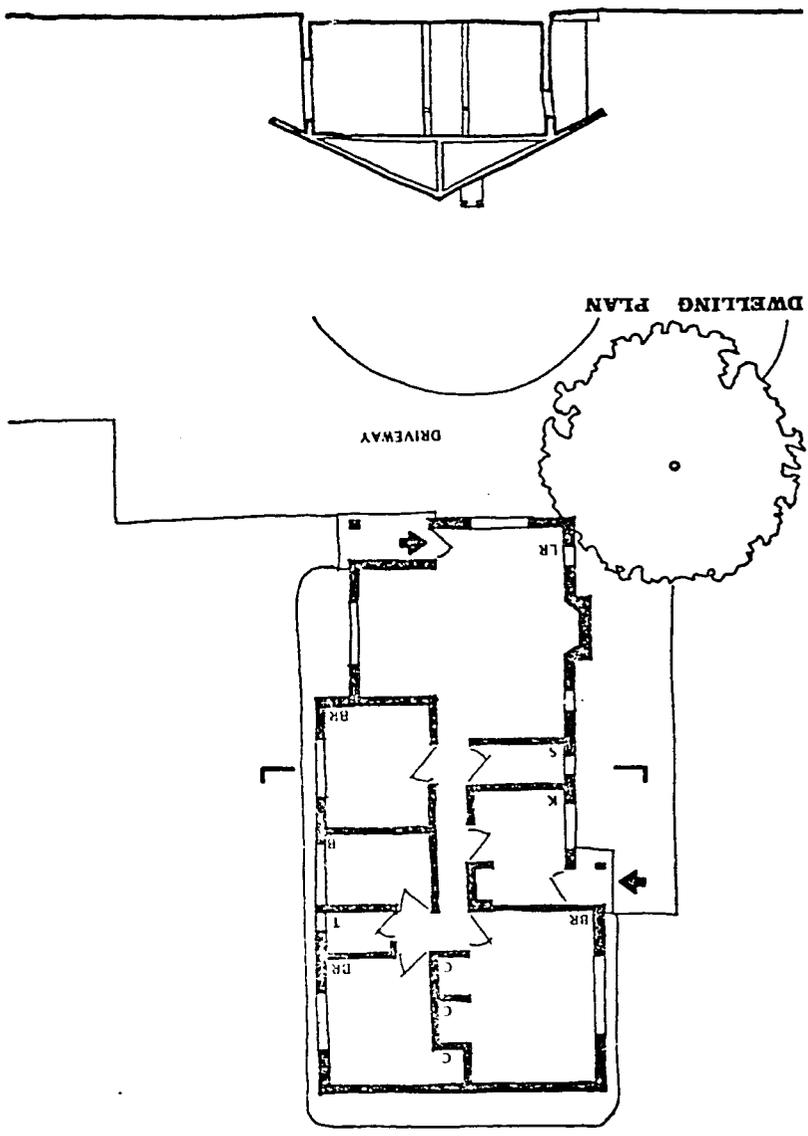


DWELLING GROUP
0 10 50 100 150m



1077
DWELLING 1

DWELLING SECTION
0 1 3 10m





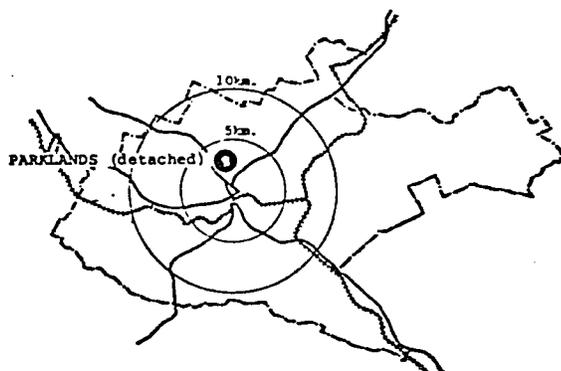
MOODLEY I: (opposite page) In the public, detached housing project for the middle income African sector, most occupants are either self-employed or middle echelon civil servants. The servants' quarters are located to the rear of the plot. The large garden is enclosed by a fence of high bushes, providing privacy. (1972)

(right) In this aerial view, the layout reflects the 'Garden City' plan. The area has two-story apartments in the center and single-story detached houses with servants' quarters. (1972)



20 PARKLANDS (detached)

Houses: private ownership



PARKLANDS is one of the former Asian "residential zones" developed with detached houses by the private sector as early as the 1910's. It is located 4 km north of the city center.

HISTORY: Parklands has developed as a predominantly Asian residential area over the last 60 years and has a relatively small population of Africans; at present the total population is about 16,000.

USERS: Most of the users in the detached houses are the high income businessmen and/or professionals. Unlike upwardly mobile young professionals in row houses in the PARKLANDS AREA, they have more permanent households with extended families. Many low income Africans are employed as domestic servants and casual labor at various public institutions in the area (see PARKLANDS).

DWELLINGS: The detached houses are mainly single-story units constructed of masonry walls with concrete slab roofs and floors. Courtyard tenements are also found (see DISTRICT). The open space is generally landscaped with lawns, flowerbeds and trees and is well maintained. The area is adequately served by public utilities and services.

COMMENTS: The physical and socio-economic characteristics of Parklands and other similar residential areas in Nairobi are mainly a result of past colonial policies, homogeneity in socio-cultural values of the users, and land market values.

PHYSICAL DATA

(Related to dwelling and Environment)

DWELLING UNIT
 type: HOUSE
 area (m²): 120
 tenure: LEGAL OWNERSHIP

LOT/LAND
 utilization: PRIVATE
 area (m²): 4300
 tenure: LEGAL OWNERSHIP

DWELLING
 location: INNER RING
 type: DETACHED
 number of floors: 1
 utilization: SINGLE: FAMILY
 physical state: GOOD

DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/CONCRETE
 year of construction: 1969

MATERIALS
 foundations: CONCRETE STRIP
 floor: CONCRETE
 walls: MASONRY, CONCRETE BLOCKS
 roof: CONCRETE SLAB

DWELLING FACILITIES
 wc: 2
 shower: 1
 kitchen: 1
 rooms: 5
 other: STORE ROOM, SEPARATE SERVANTS' QUARTERS, GARAGE

COMMUNITY FACILITIES

police: ADEQUATE
 fire protection: ADEQUATE
 refuse collection: ADEQUATE
 health: ADEQUATE
 schools, playgrounds: ADEQUATE
 recreation, open spaces: ADEQUATE
 other facilities: HOSPITAL, SHOPPING CENTER, COMMUNITY CENTER

UTILITIES AND SERVICES
 water: ADEQUATE
 sewerage: ADEQUATE
 storm drainage: ADEQUATE
 electricity: ADEQUATE
 gas: LIMITED
 public transportation: ADEQUATE
 paved roads, walkways: ADEQUATE
 telephone: ADEQUATE

SOCIO-ECONOMIC DATA

(Related to user)

GENERAL: SOCIAL
 user's ethnic origin: ASIAN
 place of birth: INDIA
 education level: PRIMARY SCHOOL

NUMBER OF USERS
 married: 1 MALE, 1 FEMALE
 single: 1 MALE (SERVANT)
 children: 3
 total: 6

MIGRATION PATTERN
 number of moves: 4
 rural - urban: 1938
 urban - urban: 1940-1961-1972
 urban - rural: -
 why came to Nairobi: EMPLOYMENT

GENERAL: ECONOMIC
 user's income group: HIGH
 employment: ELECTRICAL CONTRACTOR
 distance to work: 4 KM
 mode of travel: CAR

COSTS
 dwelling unit: \$9,100
 land - market value: \$107,250/BA

DWELLING UNIT PAYMENTS
 financing: SELF-FINANCED
 rent/mortgage: N.A.
 † income for rent/mortgage: N.A.

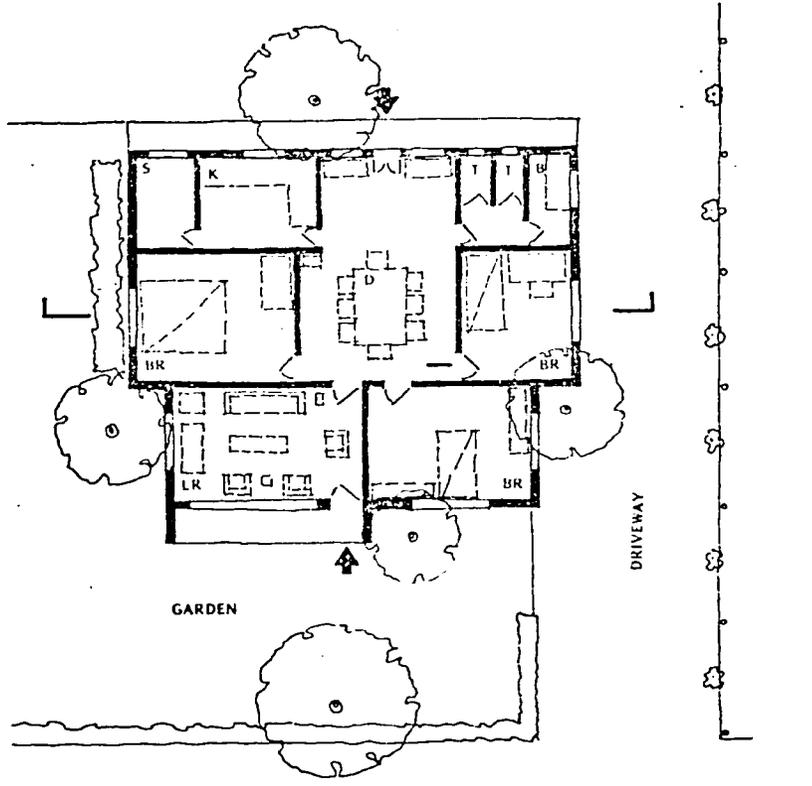
SELECTED BLOCK DATA

(Selected Block is shaded area on Dwelling Group Plan)

	Total Number	Area Hectares	Density M/Ha
LOTS	1	0.43	2
HOUSE UNITS	2	0.43	5
PEOPLE (5 per unit)	10	0.43	25

SOURCES

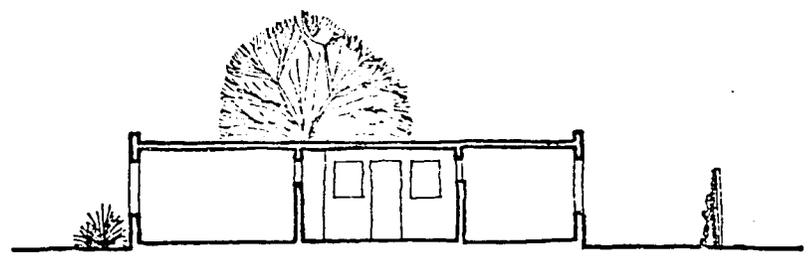
Dwelling Group: (accurate) Maps and Photographs, S.o.K., 1971.
 Dwelling Plan: (accurate) Field Survey, A.C., 1972.
 Physical Data: (accurate) ISID.
 Socio-Economic Data: (accurate) Field Survey, A.S., 1972.
 Photographs: A. Seid; S.o.K. (aerial).
 General Information: LAND USE AND LAND VALUES IN SUBURBAN NAIROBI, 1969; Field Surveys, 1969-1972.



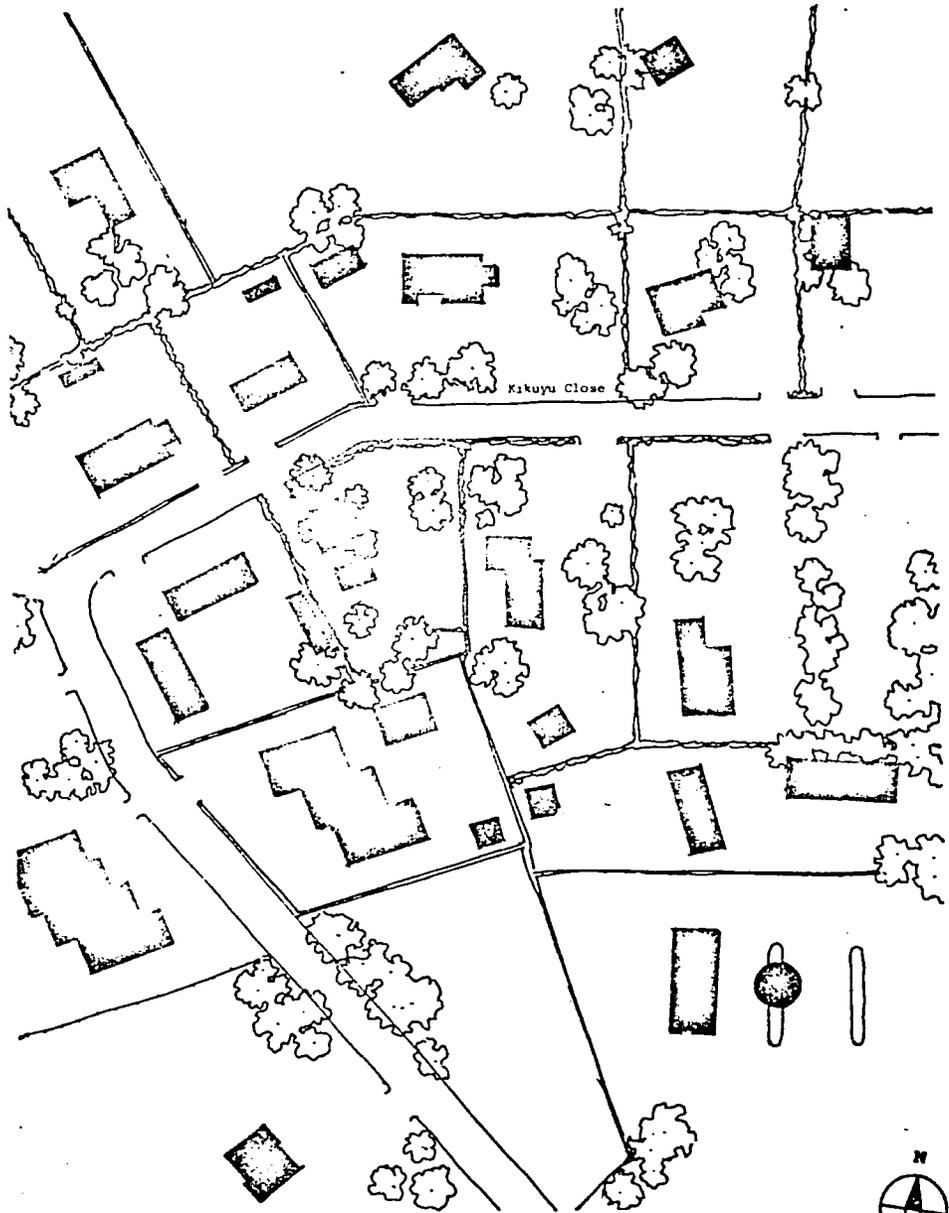
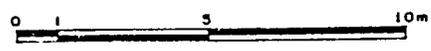
GARDEN

DRIVEWAY

DWELLING PLAN

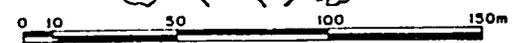


DWELLING SECTION



Kikuyu Close

DWELLING GROUP





PARKLANDS (detached): (opposite page) This photograph shows a view of the front garden of a privately developed detached house. Note the distinctive features: the irrigated lawn, the selected variety of plants. Chairs on the lawn are made by African craftsmen. The house is occupied by an Asian family of the high income sector. (1972)

(right) The aerial view of a locality, similar to the one shown in the dwelling group, shows the 1st and 2nd Parklands Avenues passing diagonally in the top and center of the photograph. Note the separate servants' quarters at the rear of the lots. (1971)



GLOSSARY

DWELLING: The general, global designation of a building/shelter in which people live. A dwelling contains one or more 'dwelling units.'

DWELLING CONSTRUCTION TYPES: Primary dwelling construction types and materials are grouped in the following categories:

Shack	Roof: thatch, mats, flattened tin cans, plastic or canvas sheets, cardboard and/or scrap wood
	Walls: thatch, flattened tin cans, plastic or canvas sheets, cardboard, scrap wood and/or mud wattle
	Floor: compacted earth
Mud and Wattle	Roof: thatch, flattened tin cans, or corrugated iron sheets
	Walls: mud and wattle
	Floor: compacted earth
Wood	Roof: thatch, flattened tin cans, or corrugated iron sheets
	Walls: rough hewn wood planks on wood frame
	Floor: compacted earth
Masonry/Wood	Roof: wood joists or posts with corrugated iron or asbestos sheets, or terracotta tiles
	Walls: murrum, stone, brick, block or tile masonry without columns
	Floor: poured concrete slab on/off grade
Masonry/Concrete	Roof: poured reinforced concrete with tar and gravel
	Walls: murrum, stone, brick, block or tile masonry without columns, or with columns for multi-story dwelling units
	Floor: poured concrete slab on/off grade
Concrete	Roof: poured or precast reinforced concrete with tar and gravel
	Walls: poured concrete columns with masonry infill or precast concrete wall panels
	Floor: poured or precast concrete slab

DWELLING HOLDER: Four groups are considered:

- Self-Help:** where the user/occupant is directly engaged in building his own dwelling unit.
- Artisan:** where the user/occupant of a dwelling unit hires the services of a skilled craftsman to assist or to build the user/occupant's dwelling unit; payment can either be strictly monetary or an exchange of services.
- Small Contractor:** where the user/occupant is not involved in the building process; the level of involvement is reflected in the scale of operations, financially and materially; the scale being limited to the construction of single dwelling units or single complexes.
- Large Contractor:** where the user/occupant is not involved in the building process; the level of involvement and the scale of operations, financially and materially, reflect a more comprehensive and larger scale of operations encompassing the building of a larger quantity of similar units, or of a singularly large complex of units, i.e., apartments.

DWELLING DENSITY: The number of dwellings, dwelling units, people or families per unit hectare.

DWELLING DEVELOPER: Three sectors are considered in the supply of dwellings:

- Popular sector:** The marginal sector with limited or no access to the formal financial, administrative, legal, technical, institutions involved in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the Popular sector generally for 'self use' and sometimes for profit.
- Public sector:** The government or non-profit organizations involved in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the Public sector for service (non-profit or subsidized housing).
- Private sector:** The individuals, groups or societies who have access to the formal financial, administrative, legal, technical institutions in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the Private sector generally for profit.

DWELLING FLOORS: The following number are considered:

- One:** single story; generally associated with detached, semi-detached and row/group dwelling types.
- Two:** double story; generally associated with detached, semi-detached and row/group dwelling types.
- Three or More:** generally associated with walk-up and high-rise dwelling types.

DWELLING GROUP: The context of the dwelling in its immediate surroundings.

DWELLING LOCATION: Three sectors of the urban area are considered:

- City center:** the area located within a walking distance (2.5 km radius) of the commercial center of a city; relatively high residential densities.
- Inner ring:** the area located between the urban periphery and the city center (2.5 to 5 km radius); relatively lower residential densities.
- Periphery:** the area located between the rural areas and urban inner ring (5 or more km radius); relatively low residential densities.

DWELLING PHYSICAL STATE: A qualitative evaluation of the physical condition of the dwelling types: room, apartment, house; (the shanty unit is not evaluated).

- Bad:** generally poor state of structural stability, weather protection and maintenance.
- Fair:** generally acceptable state of structural stability, weather protection and maintenance with some deviation.
- Good:** generally acceptable state of structural stability, weather protection and maintenance without deviation.

DWELLING UNIT: A self-contained unit in a dwelling for an individual, a family, or a group.

DWELLING UNIT AREA: The dwelling unit area (m^2) is the built-up, covered area of a dwelling unit.

DWELLING UNIT COST: The initial amount of money paid for the dwelling unit or the present monetary equivalent for replacing the dwelling unit.

DWELLING UNIT TYPE: Four types of dwelling units are considered:

- Room:** A SINGLE SPACE usually bounded by partitions and specifically used for living; for example, a living room, a dining room, a bedroom, but not a bath/toilet, kitchen, laundry, or storage room. SEVERAL ROOM UNITS are contained in a building/shelter and share the use of the parcel of land on which they are built (open spaces) as well as common facilities (circulation, toilets, kitchens).
- Apartment:** A MULTIPLE SPACE (room/set of rooms with bath, kitchen, etc.). SEVERAL APARTMENT UNITS are contained in a building and share the use of the parcel of land on which they are built (open spaces) as well as some common facilities (circulation).
- House:** A MULTIPLE SPACE (room/set of rooms with or without bath, kitchen, etc.). ONE HOUSE UNIT is contained in a building/shelter and has the private use of the parcel of land on which it is built (open spaces) as well as the facilities available.
- Shanty:** A SINGLE OR MULTIPLE SPACE (small, crudely built). ONE SHANTY UNIT is contained in a shelter and shares with other shanties the use of the parcel of land on which they are built (open spaces).

DWELLING TYPE: The physical arrangement of the dwelling units:

- Detached:** individual dwelling unit, separated from others.
- Semi-Detached:** two dwelling units sharing a common wall (duplex).
- Row/Grouped:** dwelling units grouped together linearly or in clusters.
- Walk-Up:** dwelling units grouped in two to five stories with stairs for vertical circulation.
- High-Rise:** dwelling units grouped in five or more stories with stairs and lifts for vertical circulation.

DWELLING UTILIZATION: The utilization indicates the type of use with respect to the number of inhabitants/families.

- Single:** an individual or a family inhabiting a dwelling unit.
- Multiple:** a group of individuals or families inhabiting a dwelling unit; e.g., a tenant.

FINANCING: The process of raising or providing funds.

- Self Financed:** provided by own funds
- Private/Public Financed:** provided by loan
- Public Subsidized:** provided by grant or aid

INCREMENTAL DEVELOPMENT: The construction of the dwelling and the development of the local infrastructure to modern standards by stages, often starting with provisional structures and under-developed land. This essentially traditional procedure is generally practiced by squatters with de facto security and tenure to the building site; therefore, incrementally, development is the development of land and structure by stages without building to modern standards but with or without tenure and security to the building site.

INSTANT DEVELOPMENT: The formal development procedure in which all structures and services are completed before occupation.

LAND - MARKET VALUE: Refers to: 1) the present monetary equivalent to replace the land; 2) the present tax based value of the land; or 3) the present commercial market value of the land.

LAND UTILIZATION: A qualification of how the land around the dwelling is used:
Public: where the land is used by all people.
Semi-public: where the land is partially controlled through physical design and is used by a limited group of people.
Private: where the land is controlled through physical design and is used only by the users of the dwelling.

PERCENT RENT/MORTGAGE: The fraction of income allocated for dwelling rental or dwelling mortgage payments; expressed as a percentage of total family income.

SUBSISTENCE INCOME: Average amount of money required for the purchase of food and fuel for an average family of 5 people to survive (\$325/year in Nairobi).

TENURE: Two situations of tenure of the dwelling units and/or the lot/land are considered:
Legal: having formal status derived from law.
Extralegal: not regulated or sanctioned by law.

Four types of tenure are considered:
Rental: where the users pay a fee (daily, weekly, monthly) for the use of the dwelling unit and/or the lot/land.
Lease: where the users pay a fee for long term use (generally for a year) for a dwelling unit and/or the lot/land from the owner (an individual, a public agency, or a private organization). No cases of lease are shown in Typology.
Ownership: where the users hold in freehold the dwelling unit and/or the lot/land which the unit occupies.
Employer Provided: where the users are provided a dwelling unit by an employer in exchange for services; i.e., domestic live-in servant. (Only one case is shown in the Typology.)

USER INCOME GROUPS: Based upon the subsistence (minimum wage) income per year, five income groups are distinguished. (The subsistence income per year in Nairobi is approximately \$325.)

Very Low (below subsistence level) less than \$325/year:
 The income group with no household income available for housing, services, or transportation.

Low (1 x subsistence level) \$325/year:
 The income group that can afford limited subsidized housing.

Moderate Low (4 x subsistence level) \$1,300/year:
 The income group that has access to public/private commercial housing (rental).

Middle (15 x subsistence level) \$4,875/year:
 The income group that has access to private commercial housing (ownership).

High (above 15 x subsistence level) above \$4,875:
 The income group that represents the most economically mobile sector of the population

USURPACT: The right to profit from a parcel of land or control of a parcel of land without becoming the owner or formal leasee; legal possession by decree without charge.

ABBREVIATIONS

PLAN SYMBOLS

K Cooking/kitchen area
 D Eating/dining area
 BR Bedroom
 T Toilet
 B Bath/shower
 C Closet/storage
 G Garage
 S Storage room
 R Room (multi-use)

REFERENCE ABBREVIATIONS

N.A. Not Available
 N.C.C. Nairobi City Council
 N.C.C.K. National Christian Council of Kenya
 U.o.N. University of Nairobi
 S.o.K. Survey of Kenya
 H.R.D.U. Housing Research and Development Unit, U.o.N.

QUALITY OF SERVICES, FACILITIES AND UTILITIES

None: when the existence of services, facilities and utilities are unavailable to the dwelling group area.
Limited: when the existence of services, facilities and utilities are available to the dwelling group area in a limited manner due to proximity.
Adequate: when the existence of services, facilities and utilities are available in/to the dwelling group area.

QUALITY OF INFORMATION

The quality of information given in the drawings, charts, and descriptions have been qualified in the following manner:
Approximate: when deducted from different and/or not completely reliable sources.
Accurate: when taken from reliable or actual sources.

EQUIVALENTS

METRIC SYSTEM EQUIVALENTS

Linear Measures

1 centimeter = 0.3917 inches
 = 39.37 inches or
 = 3.28 feet
 1 meter = 1.09361 feet or
 = 0.62137 miles
 1 kilometer = 1,000 meters
 1 inch = 2.54 centimeters
 1 foot = 0.3048 meters
 1 mile = 1.60935 kilometers

Square Measures

1 square meter = 1,550 square inches
 or
 = 10.7639 square feet
 = 2.4711 acres
 = 0.0029 square meters
 = 0.4087 hectare

DOLLAR EQUIVALENTS

All income, costs and rent/mortgage data have been expressed in terms of the U.S. equivalent: 1 U.S. dollar = 7 Kenya shillings.

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