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YAOUNDE HOUSEHOLD AND HOUSING CHARACTERISTICS

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YAOUNDE HOUSEHOLD AND HOUSING CHARACTERISTICS

February 1978

VOLUME I : Synthesis of Data
 Housing Policy Implications

VOLUME II : Results of the Survey

VOLUME III : House Case Studies

I N T R O D U C T I O N

The following report was prepared by the Sites and Services and Upgrading Unit (STAR) at the Urban and Rural Lands Development Authority in collaboration with the Direction of Town Planning and Housing at the Ministry of Equipment and Housing. The original report, in French, consisted of three separate volumes. In the English version, the three have been combined into a single report.

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METHODOLOGY OF THE SURVEY

A. INTRODUCTION

In order to formulate valid low-income housing proposals intended for low-income households, it was necessary to collect, in a relatively short time, data on the existing housing stock, and the socio-economic and physical living conditions of the populations concerned. To accomplish this task, a housing typology was established, based on different urban fabrics (see Figure A) each with identifiable physical characteristics, and socio-economic surveys were carried out for each of the types.

B. METHODOLOGY CONCEPT

The basic hypothesis underlying the methodology used is that homogeneous housing types with similar physical characteristics (spatial organization, density, plot and house size, infrastructure level, construction material, etc.) are inhabited by relatively homogeneous populations with equally similar socio-economic characteristics.

If we consider this hypothesis admissible, it appears possible to identify with reasonable accuracy the socio-economic characteristics of the households concerned, with a limited number of samples in each housing type.

The results of this survey are described in detail in this report. We have included definitions of each housing type and the characteristics of each type in the urban context.

C. DEFINITION OF HOUSING TYPES IN YAOUNDE

Using the most recent aerial photographs (1974), seven types of urban fabric, or distinctly different housing types, were identified according to the above mentioned criteria. A description of the physical characteristics of each type as well as their graphic representations can be found in Table I and in Figure A.

After this had been completed a map was prepared of the urban area in which each urban fabric was designated by type. (See Figure B.)

URBAN FABRIC TYPES
(HOUSING TYPES)

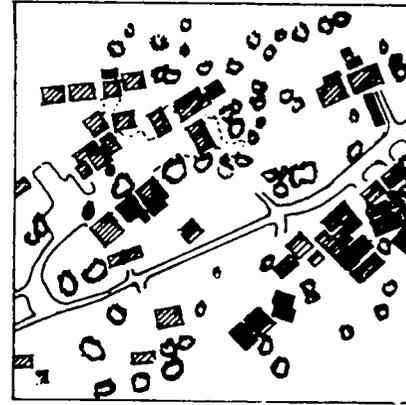
FIG A



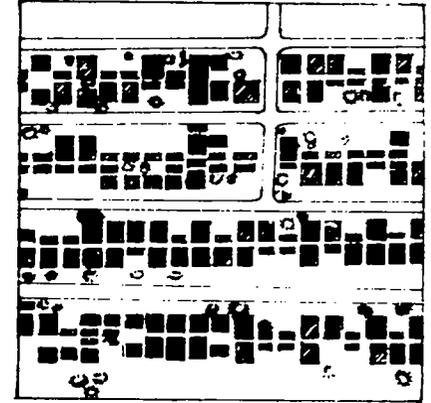
Type A



Type B



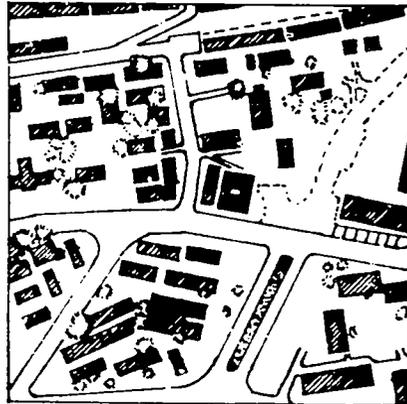
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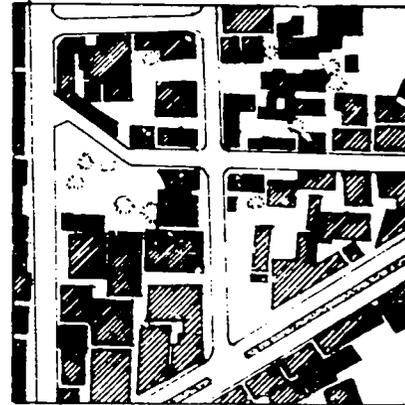
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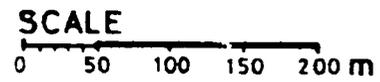
Type E



Type F



Type G



- 77X -

TABLE I
DESCRIPTION OF HOUSING TYPES

Type of Urban Fabric	Identifying Physical Characteristics
A	<p>Dense fabric: about 295 inhabitants/hectare or 32 houses/ha. each on the average of about 80m² -- unplanned site development. Spontaneous road network. Lack of vehicular access roads and separation of public and private spaces. Rudimentary infrastructure or urban services.</p> <p>Neighborhoods: Briqueterie, Mokolo, Mvog Ada, Melen, Nlongkak</p>
B	<p>Dense fabric: about 270 inhabitants/hectare or 36 houses/ha., each of about 100m². Housing blocks integrated into primary and secondary urban street network. Lack of vehicular access roads and separation of public and private spaces within each block. Increased level of infrastructure.</p>
C	<p>Semi-rural fabric in process of densification: about 120 inhabitants/hectare or about 14 houses/ha., each of about 80m². Spontaneous access roads. Clear separation of private spaces. Almost total lack of infrastructure.</p> <p>Neighborhoods: Biyem Assi, Obili, Nsam-Efoulan</p>

Type of
Urban Fabric

Identifying Physical Characteristics

D

Medium density fabric: about 110 inhabitants/hectare or 13 houses/ha., each of about 115m². Plots of 350m² on subdivided lots, garden or open space around dwelling. Moderate level of infrastructure.

Neighborhoods: Essos, Nkol Ndongo, Nkom Kana

E

Low density fabric: about 40 inhabitants/hectare or 5 houses/ha., usually larger than 100m². Villa type houses or apartments on subdivided lots of approximately 1200m², normally fenced in with garden or open space about the house. Garage on the plot and adequate vehicle access.

Neighborhoods: Bastos, Quartier Lac, and Omnisport areas

F

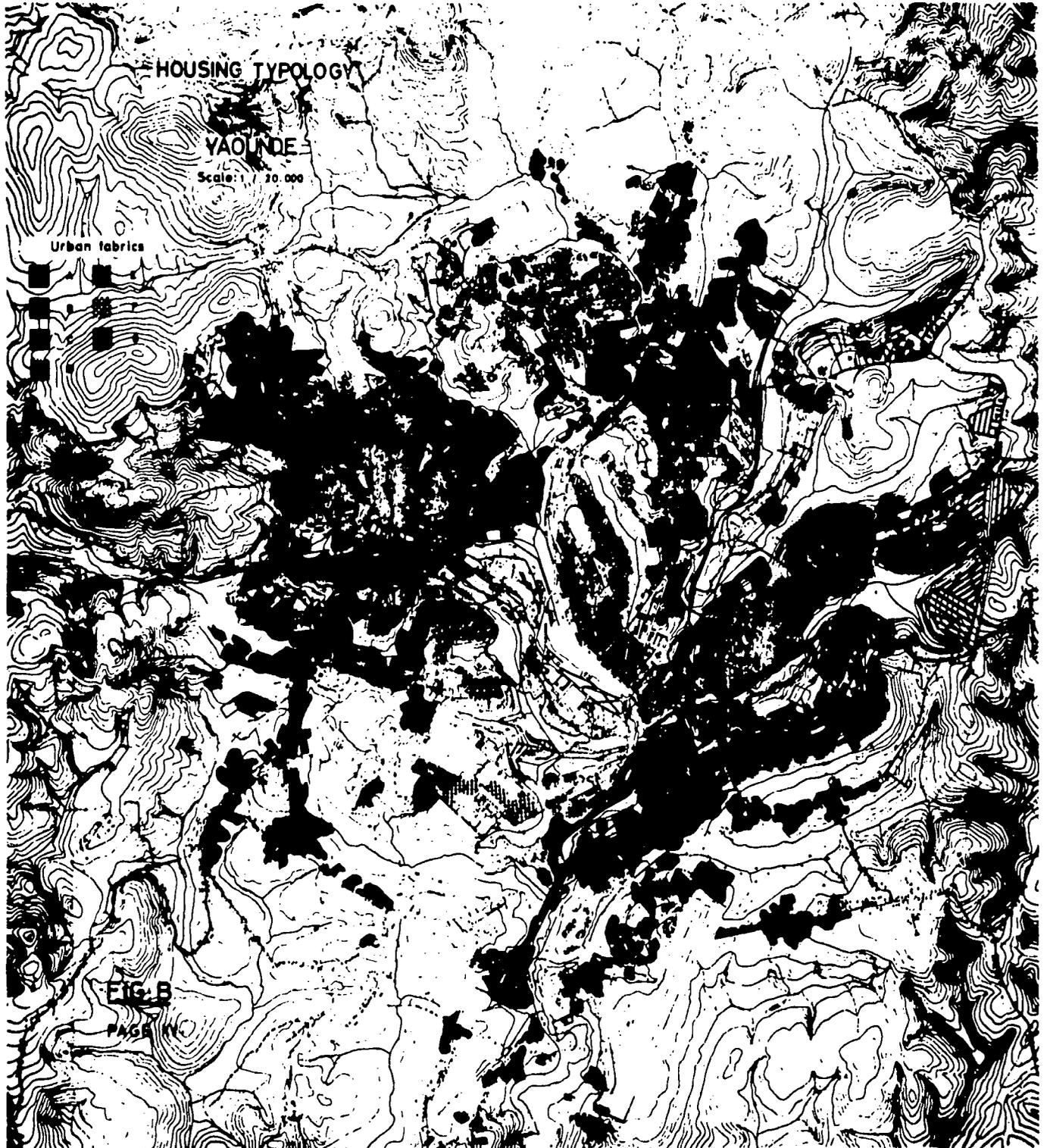
Government sponsored housing: this type does not have homogeneous physical characteristics but includes all housing developments built and administered by the government. Density of around 215 inhabitants/hectare with 25 houses/ha. of villa type, row houses and/or apartments. Subdivided land with considerable open space around buildings and a high level of infrastructure.

Neighborhoods: Cite Verte, Messa

G

Center city fabric: about 84 inhabitants/hectare, with 12 dwellings/ha. Consists of buildings with shops, offices and stores on the ground floor and apartments on the upper floors. Low residential land use, high level of infrastructure and large road surfaces.

Neighborhoods: center city



D. CHOICE OF SURVEYED HOUSEHOLDS

Using the housing typology, an approximate estimate of the distribution of the urban population by housing type was made. At the same time, the number of households in each housing type to be surveyed was decided upon according to the distribution by type of the urban population. Although this distribution may have changed slightly since 1974 (date of the aerial photos), it was considered sufficiently up-to-date for our needs.

Once the distribution of dwelling units to be surveyed by housing type was established, the general urban areas in which the surveys would be carried out were selected. The differentiation in these areas not only included housing type but also the distance from the urban center. (A slightly larger sample was chosen in the southwest part of the city in proximity to the project site.) The general areas to be studied were further broken down into sub-areas in order to introduce as many site characteristics as possible: along main, secondary, and tertiary roads, on steep, moderate and flat sites, on badly drained terrain, etc.

In order to choose the dwelling units to be surveyed in each sub-zone, we first explored the chosen sub-area to identify a dwelling unit of typical size, building material, and degree of maintenance. Once identified, the surveyors requested the households to participate in the survey; very few abstained. In cases where the head of household was absent and the questionnaire was left incomplete, an appointment was made and the household was revisited if necessary after working hours. A good number of single person households were left unsurveyed despite repeated attempts to find them at home.

E. DESCRIPTION OF THE SURVEY

The survey was carried out during a period of three weeks in February 1978. The questionnaire was divided into two parts: the questionnaire itself, and physical observations and measurements. Two teams (each with a vehicle), and composed of 4 members each, including one USAID expert, worked independently in different sectors of the city. Within each team, tasks were divided in the following manner: 1 survey-taker and 1 secretary, charged with questioning households and recording their responses; and 2 surveyors, charged with making specified observations and taking dwelling unit measurements.

F. NATURE AND RANGE OF THE SURVEY

During the survey, 97 households, living on 51 plots, were questioned. (See the following table.) The distribution of surveyed households by housing type was as follows:

TABLE II
DISTRIBUTION OF HOUSEHOLDS SURVEYED BY HOUSING TYPE

Type of Housing	Number of Households	Type of Housing	Number of Households
A	53	E	2
B	10	F	7
C	10	G	1
D	14		

The percentage of households surveyed by housing type corresponds approximately to the percentage of urban population (1974) by housing type as indicated in the following table.

TABLE III
URBAN POPULATION (1974) AND SURVEY (1978)
DISTRIBUTION BY HOUSING TYPE

Type of Housing	% of Households in Survey by Type (1978)	% of Urban Population by Type (in 1974)
A	58	61
B	5	6
C	12	15
D	16	10
E	3	3
F	5	2
G	1	3

The closest possible parallel between households surveyed by housing type in 1978 and the urban population distribution in 1974 was established. However, in order to obtain more data concerning government housing projects (Essos -- type D and SIC -- type F), a

slightly larger number of households from these two types was studied. It is, therefore, likely that the survey results are somewhat influenced by this. Since type D and F households are for the most part middle-income households, one can conclude, among other things, that the average monthly income found for the total sample is slightly higher than it should be. Before the survey, however, it was thought that incomes in type D would generally reflect those in types A and B since supposedly the beneficiaries consist of those displaced due to slum clearance programs.

It should also be noted that the number of households surveyed in types E, F, and G is very limited. These types were studied mainly for purposes of comparison with the other types. On the other hand, the more numerous households studied in low-income neighborhoods (types A, B and C) seem to give a fairly good idea of the current physical conditions and socio-economic characteristics of the households destined to benefit from the proposed sites and services project.

On the whole, the survey reveals a clear differentiation between urban socio-economic groups. This differentiation is worthy of future investigation. It appears, for example, that housing types A, B and C are composed of a similar, low-income population; those of types D and F of a middle-income population, while type E is composed of a high-income population. Type G population would fit into one or both of the latter two groups, probably more likely the middle-income group.

To test this hypothesis, other factors were considered, such as consumption of water and electricity, built-up surface, and residential space per person and per housing type. More analysis and data, however, is required before a clear differentiation may be obtained. (See Volume I, Chapter II.)

VOLUME I

SYNTHESIS OF DATA: HOUSING POLICY IMPLICATIONS

P A R T I

PRINCIPAL RESULTS AND ANALYSES OF THE SURVEY

CHAPTER I:

OBSERVATIONS AND ANALYSIS OF THE HOUSING TYPOLOGY FOR YAOUNDE

A. INTRODUCTION

To be able to identify relevant housing programs for low income households in Yaounde, it was necessary to obtain within a relatively short time and with limited means, sufficiently accurate data on the existing housing stock, current physical living conditions and socio-economic characteristics of the population. To accomplish this task, a housing typology was formulated based on the different types of urban fabric found in Yaounde, each type having distinct and identifiable characteristics (for the most part visible on aerial photographs). Socio-economic field surveys were then undertaken within each of these types.

The basic hypothesis of the housing typology methodology is that homogeneous housing types which have similar physical characteristics (spatial organization, density, plot and dwelling sizes, infrastructure level, construction material, etc.) house populations which are relatively homogeneous with equally similar socio-economic characteristics.

Considering this hypothesis to be valid, a limited number of field surveys were undertaken to identify approximately the socio-economic characteristics of households in each housing type or urban fabric. The results of these surveys are presented in detail in Volume II of this report. This volume focuses on the summary and analysis of data and the implications of the existing situation on future urban growth and development possibilities for low-income housing.

B. DEFINITION OF HOUSING TYPES IN YAOUNDE

Using the most recent aerial photographs (1974), seven urban fabric types, or distinctly different housing types, were identified according to the criteria mentioned above. A description of the physical characteristics and layout of the urban fabrics corresponding to each housing type is presented in Table I and Figure A which are found in the introduction, "Methodology of the Survey".

C. LAND USE CHARACTERISTICS OF THE DIFFERENT HOUSING TYPES

The locations and surface areas of the seven different housing types are illustrated in Figure B, a map of the city of Yaounde at a scale of 1:20,000. It is clear from this map that the housing type which occupies the greatest proportion of residential area is type A, followed by types C, E, and D.

Because of the high density and large area of type A housing, it can be assumed that there exists a great demand for housing in these areas. Large agglomerations of type A housing can be found in the northwestern and southeastern parts of the city, which are characterized by a high concentration of informal sector employment (micro-commerce, small scale industries and handicrafts, services, etc.) as well as some industrial employment. Type A housing agglomerations can also be found near the center city which is also an important employment zone.

Since the majority of the type A housing population was found to have low or moderate incomes and, therefore, few resources for transportation, proximity to zones of employment is a high priority for families of this type. As housing for low income families competes with other higher status land uses and housing types, households in this category are often obliged to settle on land at the time considered unattractive for other types of development (on swamps, on steep slopes, or on the perimeter of urban development). As they become attractive for other uses, they also become very vulnerable to demolition.

By their nature, type B housing areas are urban fabrics with multiple uses: commerce, services, handicrafts in the informal sector, etc. For the most part, these areas are found centrally located within type A agglomerations and serve the function of highly populated sub-centers. A considerable proportion of Yaounde's population is supplied by the small scale commerce and services located in these areas.

Type C housing is generally found on the urban edge, along foot paths and semi-rural roads. Inhabitants are usually either native to the area and essentially engaged in small scale farming or newcomers who have moved to the urban edge in search of reasonably priced land on which to build a house. Considering the rapid growth of the city and the lack of means to cope with spontaneous growth, type C areas will, no doubt, be transformed into type A or B as they become densified.

Type D housing can be broken down into two sub-groups: the first includes 'planned subdivisions' carried out by the municipality or by private developers but having essentially similar physical characteristics, the second including isolated lots along major urban roads and/or where land use values are not competitive with those

TABLE 1
RESIDENTIAL AREA, DENSITIES, POPULATION AND HOUSING STOCK BY TYPE
(1974)

TYPES	Houses/ha	Inhab/ha	% of residential area of city	Inhab/house	Res. density/ha
A	32	590.2	41.7	9.2	294.4
B	36	37.1	2.6	7.4	266
C	14	299.4	21.2	8.6	120
D	13.1	178.9	12.7	8.4	110
E	4.5	194.3	13.8	7	32
F	25	90.9	6.4	8.6	215
G	12	22	1.6	7	84
		1 413.0	100.0 %		
	Pop. by type	% of urban pop.	Housing stock	% of housing stock	
A	173 760	65.1	18 885	62.6	
B	9 880	3.7	1 335	4.4	
C	36 050	13.5	4 190	13.9	
D	19 680	7.4	2 345	7.8	
E	6 120	2.3	875	2.9	
F	19 540	7.3	2 275	7.5	
G	1 850	0.7	265	0.9	
266 880		100.0 %	30 170	100.0 %	

of type E. Examples of urban fabric of the first sub-group can be found in municipal rehousing projects to the north and east of the city center (Mballa and Essos).

Type E neighborhoods predominate in the north (Bastos) and east (Hypodrome, Omnisport) parts of the city as well as around the lake. This type of housing is usually found in those parts of the city with an attractive physical environment and in proximity to basic infrastructure networks (water, electricity, and roads).

All housing developments built and administered by the government, such as Cite Verte and Grand Messa, are included in type F. These areas are also located close to basic infrastructure and transportation networks and are fairly equally distributed within the city.

Type G, by definition, is found in the city center and consequently benefits from a complete infrastructure network.

D. RESIDENTIAL POPULATIONS, AREAS, AND DENSITIES BY HOUSING TYPE

Residential populations, surface areas, and densities by housing type are indicated in Figure B and Table 1. The predominance of type A (42% of total residential area and 65% of the urban population) is striking compared to other housing types. There is no other housing type or urban fabric of comparable size.

Although type C housing is second with 21% of the total residential area and 14% of the urban population, it is a considerably less dense urban fabric (126 inhabitants/ha.) than type A (295 inhabitants/ha.). Type D ranks third with 13% of the residential area and 7.4% of the urban population. Type F, which consists of government housing projects (especially SIC projects), occupies 6% of the total area and houses 7.3% of the population. Type E, being the least dense of all the types (36 inhabitants/ha.), covers 14% of the most attractive residential area but only houses 3% of the total urban population.

The degree of difference in density by type is particularly apparent when considered in terms of square meters of residential area per inhabitant. According to Table 2, type E zones offer 9 times more residential area per inhabitant than those of type A. The table also shows that in terms of residential area per inhabitant, type F (i.e. government housing projects) offers only slightly more area than types A and B.

TABLE 2
SQUARE METERS OF RESIDENTIAL AREA (RA) PER INHABITANT BY HOUSING TYPE

TYPES	M ² OF RA/INHABITANT
A	34
B	38
C	83
D	91
E	312
F	47
G	119

If type F norms of 46.5m²/person were applied to type A and B areas, the total residential area for Yaounde (for the year 1974) would increase from 1413 ha. to 1650 ha. If type E norms (312m²/inhabitant) were applied to the entire city, the total residential area would have been five times greater than it actually was in 1974, or 8,326 ha. Especially in the latter case, the resulting infrastructure needs and accompanying costs would be enormous. Thus, practically speaking, such standards are impossible.

When types A, B and C are studied collectively, having many similar characteristics, they represent 82% of the urban population and occupy 65% of the residential area. Although data on urban development trends by housing type is not yet available, it is probable that the growth rates of type A and C are higher than the others. Type A absorbs most of newly arrived rural migrants while type C attracts households which are sufficiently well-off economically to acquire plots on the traditional market. As most urban growth is due to migration, the continuation of these trends would increase the proportion of urban population housed in these types. Since the level of services and infrastructure in these areas is already inadequate, their rapid and unavoidable expansion presents a serious challenge to public authorities to meet growing housing needs yet be capable of improving existing housing in Yaounde.

E. LEVELS OF SERVICES BY HOUSING TYPE

Table 3 shows the respective level of services by housing type as deduced from the survey. These services include: water supply, electricity, roads, drainage and garbage collection. They are discussed individually and in detail in Volume II.

TABLE 3
URBAN SERVICE LEVELS BY HOUSING TYPE

HOUSING TYPES	DRINKING WATER		ELECTRICITY		GARBAGE PICKUP		ACCESS ROAD	SANITATION		DRAINAGE	
	W/house connec- tion	W/access to house connec- tion	W/house connec- tion	W/access to house connec- tion	W/access to muni- pal garbage bins	Munci- pal pickup	Road with direct access	Septic tank	Seepage pit latrine	Concrete gutter	Earthen gutter
	%	%	%	%	%	%	%	%	%	%	%
A	13	22	25	35	58	66	27	6	94	0	89
B	0	30	30	30	50	100	100	-	100	10	90
C	10	30	0	0	0	20	100	-	100	0	80
D	71	85	64	93	28	64	75	21	79	29	64
E	100	100	100	100	0	100	100	100	0	100	-
F	100	100	100	100	100	100	100	100	0	100	-
G	100	100	100	100	100	100	100	100	0	100	-

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It can be seen from the table that urban service levels in types A and C are generally very low. In addition, because type A developed in a very spontaneous manner and without sufficient vehicular access roads and often on very uneven terrain, the eventual provision of services will be very difficult and costly. It is also certain that the lack of land titles will seriously hamper the upgrading of the zones concerned.

In the majority of cases, semi-rural housing of type C is located beyond the limits of present urban infrastructure networks. Like type A, it is also a fabric which follows a spontaneous development pattern and in which most homeowners lack land titles. In fact, judging by previous urban development patterns, it is most likely that these zones will attain a maximum density and become urban fabric type A before being served by urban infrastructure.

The type D sub-type consisting of zones subdivided by either the city government or by private individuals also has a relatively low level of urban services. The orderly layout of these areas, however, facilitates future upgrading and in some areas water supply and electricity have already been installed when there was sufficient demand. Since the majority of these developments are fairly recent, it is likely that a higher level of services will be provided in time.

The highest levels of urban services are found in housing types E, F and G. In all these types, the presence of adequate infrastructure is integrally linked to the housing and life styles of the inhabitants. Since these inhabitants generally have higher incomes than those in other housing types, there is necessarily a correlation between household income and access to urban services.

CHAPTER II:
THE IDENTIFICATION OF SOCIO-ECONOMIC GROUPS

A. DEFINITION

As the urban population is not homogeneous but rather composed of sub-populations with their own particular aspirations, needs, and income levels, it is useful to determine as accurately as possible the socio-economic profile of each of these groups. The identification of the socio-economic groups and the definition of the quality of life which they enjoy are of interest to public authorities and planners for the following reasons:

- to elaborate urban projects (for example, sites and services and upgrading projects) which respond to the characteristics and demands of each group;
- to evaluate the impact of proposed projects vis à vis indices of the current quality of life; and
- to orient the government's urban development policy towards reducing existing deficiencies and imbalances.

The field survey and the housing typology have helped identify different urban fabrics and the characteristics of their corresponding populations. However, as the study indicated, certain of these fabrics house populations which have similar socio-economic characteristics, making it possible to combine some of the housing types. To achieve this, the populations were first studied by housing type in function of the parameters shown in Table 4. Other parameters could have been added such as land tenure or the level of social services, but those shown in the table are adequate for the aims of the study.

According to the parameters in Table 4, there are more appreciable differences between some housing types than others. The indices of income level, expenditures and consumption for type E, for example, are significantly greater than those encountered in other housing types. On the other hand, the same parameters show that the differences between types A, B and C are not very pronounced and that these types are at a lower level than the other types. Types D, F and G are situated between the two extremes -- their populations having average income, expenditures and consumption levels.

Households of housing types A, B, and C (low income and consumption levels), those of types D, F and G (middle income and consumption levels) and those of type E (high income and consumption levels)

TABLE 4
CONSUMPTION LEVELS OF HOUSEHOLDS BY
HOUSING TYPE

HOUSING TYPES	HOUSEHOLD		HOUSING			CONSUMPTION			
	Income of household head	Monthly expendi- tures/ household	Average housing investment per household	Average monthly rent	Average rent per m ²	Liveable space per family	Drinking water L/P/D	Electri- city KWH/P/HS	Residential area/ person (in m ²)
A	28,000	55,150	629,000	7,800	207	49	19.5	8.6	38
B	40,000	65,300	665,000	3,000	155	41.6	26.8	20.4	25
C	40,000	57,500	495,000	6,000	174	42.6	21.5	0	78
D	77,500	94,300	2,171,000	17,375	203	84.4	51.6	6.9	75
E	292,000	274,000	9,100,000	100,000	483	265.2	46.8	267	278
F	60,000	104,600	1,871,000	23,700	482	51.6	79.8	13.9	149
G	80,000	80,000	2,400,000	60,000	711	84.4	75.2	-	143

TABLE 5

DEFINITION OF SOCIO-ECONOMIC GROUPS (YAOUNDE 1978)
ACCORDING TO CONSUMPTION

	Median income of household head	Monthly household expend- iture	Average housing invest- ment (x 1000)	Average monthly rent	Average rent ² per m ²	Average liveable space per house- hold	Average number of liters per day potable water/ person	KWH/ person/ month electri- city	Residential area per inhabitant (m ²)
GROUP I: Types A, B and C	34,290	52,250	615	6,830	145	47	23.3	1.2	45.9
GROUP II: Types D, F and G	72,000	110,258	2,100	22,680	310	74	65.1	8.6	80.9
GROUP III: Type E	298,000 CFA	274,000 CFA	9,100 CFA	100,000 CFA	483 CFA	207	46.8	29.6	277.7

HOUSEHOLD SIZE:

Group I = (A, B, C) 5.4
Group II = (D, F, G) 6.5
Group III = (E) 7 (est.)

appear to belong to three distinct socio-economic groups. Thus, households of types A, B, and C will be considered as belonging to Group I, types D, F, and G to Group II, and those of type E to Group III.

The differences between the groups becomes very apparent when the averages of the indices for each group (all households within the group regardless of type) are compared. (See Table 5). Table 5 permits a clear definition of the three socio-economic groups in Yaounde based on survey and typology data (1974 and 1978). The definitions could certainly be reinforced and refined by considering other parameters which have not been presented. In fact, it is hoped that government planners will elaborate on what has been produced.

B. POPULATION AND LEVELS OF SERVICES BY SOCIO-ECONOMIC GROUP

Tables 6 and 7 give the populations (in 1974) and neighborhood infrastructure levels associated with each respective socio-economic group. These tables point out the existing gap between the sizes of each group and the corresponding levels of urban services made available to them. For example, a great deficit in urban services exists for Group I which represents 82% of the urban population and 85% of the households. On the other hand, Group III, which makes up only 3% of the population, enjoys a very high level of services, representing no doubt a sizeable amount of public investment.

TABLE 6
SIZE OF SOCIO-ECONOMIC GROUPS (1974)

	Popu- lation	% of urban popu- lation	No. of house- holds	% of total house- holds	Average house- hold size
Group I	219,690	82	40,683	85	5.4
Group II	41,070	15	6,318	13	6.5
Group III	6,120	3	874	2	7.0 (est.)
TOTAL	266,880	100	47,875	100	

C. POPULATION GROWTH, HOUSING STOCK AND RESIDENTIAL AREAS BY SOCIO-ECONOMIC GROUP

According to estimates by the Town Planning Unit at MINEH,

TABLE 7

URBAN SERVICE LEVELS BY SOCIO-ECONOMIC GROUP
(YAOUNDE 1978)

	Water supply w/private connection	Water supply w/access to private connection	Electricity w/private connection	Electricity w/access to private connection	Garbage pick-up from public bins	Garbage pick-up by town hall	Road network w/vehicular traffic
	%	%	%	%	%	%	%
GROUP I 82% urban pop.	10.8	24.1	22.2	29.6	48.9	64	46.6
GROUP II 15% urban pop.	76.8	85.9	75.9	95.5	54	76.8	84.1
GROUP III 3% urban pop.	100	100	100	100	100	100	100
	Sanitary septic tank or hermetic tank (%)	Seepage pit or latrine (%)					
GROUP I	4.1	95.9					
GROUP II	49.7	50.3					
GROUP III	100	0					

the urban population growth rate for Yaounde is about 10% per year. However, because the nature of each socio-economic group is quite different, it is likely that they also have different rates of growth. The growth rate for Group I, for example, should logically be higher than that of the other two groups due to a high natural rate of growth and the role Group I neighborhoods play as reception centers for incoming migrants. Due to a lack of recent aerial photos, however, there is not enough data to accurately determine the respective growth rate of each group. For reasons of simplicity, a growth rate of 10% was attributed to each of the groups during the period 1974 - 1978 as Table 8 indicates.

According to Table 8, the population, housing stock and residential area of the city have increased by 46% between 1974 and 1978, a period of only 4 years. Furthermore, the majority of this growth was due to the presence of Group I which had an annual population growth five times greater than that of Group II and 36 times that of Group III. Therefore, the principal urban needs in housing, land and in urban services which must be urgently addressed are those of Group I, a situation which demonstrates once again the extreme urgency of defining a comprehensive housing policy to meet the pressing demands of existing and future housing for this group.

TABLE 8
POPULATION GROWTH BY SOCIO ECONOMIC GROUP (1974-1978)

1974 §								1978 §§		
SOCIO ECONOMIC GROUP	HOUSING TYPE	POPULATION	% OF POP.	HOUSING STOCK	% OF HOUSING STOCK	RESIDENTIAL LAND (RL)	% OF TOTAL RL	POPULATION	HOUSING STOCK	RESIDENTIAL LAND RL
I	A,B,C	219 690	82,3	24 410	80,9	927	65,6	321 650	35 740	1 357
II	D,F,G	41 070	15,4	4 885	16,2	292	20,7	60 130	7 150	432
III	E	6 120	2,3	875	2,9	194	13,7	8 960	1 280	285
TOTAUX		266 880	100 %	30 170	100 %	1 413ha.	100 %	390 740	34 100	2 082 ha

AVERAGE ANNUAL GROWTH (1974-1978)

POPULATION	HOUSING STOCK	RESIDENTIAL LAND (RL)
25 490	2 830	108
4 765	570	35
710	100	23
30 965	3 500	166

§ Estimations for 1974 were made from aerial photographic analyses + survey results

§§ Estimations for 1978 were made on the basis of a 10 % urban growth rate between 1974-1978.

CHAPTER III:
FINANCIAL CAPACITY OF HOUSEHOLDS

A. FINANCIAL PARTICIPATION OF PUBLIC HOUSING BENEFICIARIES

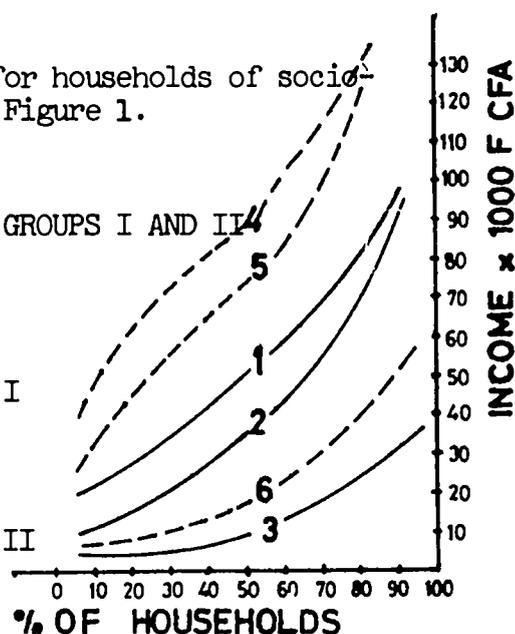
By definition, both sites and services projects and the upgrading of existing neighborhoods aim to improve the living conditions for a target group with low or very moderate household income. In general, the target group is situated between the 15th and 50th percentile of urban incomes.¹ As both sites and services and upgrading projects should be technically and financially designed to be as replicable as possible, they should not rely on considerable government subsidies but rather solicit the financial participation of project beneficiaries. Experience has shown that housing programs which rely heavily on government subsidy constitute eventually a burden on future resources and may lead to their reduction or abandonment; if they are allowed to continue, they do so to the detriment of other equally important sectors. Consequently, the financial capacity of the target group households is one of the decisive factors in determining project characteristics and design standards. The financial capacity which must be determined includes all monthly household incomes and expenditures for housing, transport and utilities as well as savings.

B. MONTHLY INCOMES AND EXPENSES OF THE SOCIO-ECONOMIC GROUPS

The range of monthly incomes for households of socio-economic groups I and II are illustrated in Figure 1.

FIGURE 1
INCOME CURVES FOR SOCIO-ECONOMIC GROUPS I AND II

- Curve 1: Household income Group I
- Curve 2: Head of household income Group I
- Curve 3: Household per capita income Group I
- Curve 4: Household income Group II
- Curve 5: Head of household income Group II
- Curve 6: Household per capita income Group II



¹ A target group defined for USAID sponsored shelter programs.

TABLE 9
INCOME DISTRIBUTION

Threshold (in %)	All surveyed households	Group I	Group II
TOTAL INCOME OF HOUSEHOLDS			
15	28 400	25 400	55 000
40	52 000	40 800	80 000
50	65 000	51 430	86 700
60	76 200	59 430	100 000
80	109 600	81 600	130 000
INCOME-HOUSEHOLD HEAD			
15	14 900	12 670	35 000
40	33 800	27 400	63 350
50	44 500	34 290	70 000
60	53 720	43 200	80 000
80	81 600	69 350	120 000
INCOME PER CAPITA			
15	4 080	3 910	6 150
40	8 280	7 160	12 400
50	11 000	8 500	20 250
60	15 320	12 200	21 600
80	25 000	23 330	39 800

For all households surveyed, the median monthly income was 65,000 FCFA, the average income 68,300 and the average monthly expenditure about 70,000 FCFA. (The resulting difference between expenditures and incomes could possibly be due to either an overestimation of expenses and/or an underestimation of incomes on the part of persons surveyed.) Average per capita income is about 11,300 FCFA/month.

When average household incomes are compared by socio-economic group, the average income of Group II is more than twice that of Group I, whereas Group III enjoys an average income six times that of Group I. Since the households, however, are larger in Groups II and III,

differences between the groups are less great when per capita income is compared.

TABLE 10
BREAKDOWN OF MONTHLY HOUSEHOLD EXPENDITURES

SOCIO-ECONOMIC GROUP.	I	II	III
Household size	5.4	7.3	7.0 (est.)
Incomes (average/household)	48,380	110,260	293,000
Monthly expenditures per household (average)	56,230	95,296	274,050
Per capita monthly expenditures	10,412	13,054	39,150
% of Monthly Budget by Expense Category:			
Food	38.3	34.5	26.7
Rent	8.8	11.8	-
Electricity and fuel for cooking	6.0	9.4	7.4
Transportation	6.1	9.3	8.4
Clothing	5.9	6.6	9.5
Leisure	9.5	7.8	9.9
Education	4.7	6.4	20.1
Health	5.3	4.3	5.5
Family aid	5.1	5.1	4.5
Tontine	10.2	4.8	0

According to the data in the table:

1. Daily per capita food expenditures are about the same for households in two socio-economic groups. Consequently, the percentage of the budget devoted to food diminishes as incomes increase;
2. Since better quality houses command much higher rents, the % of the household budget devoted to housing increases considerably by socio-economic group in spite of higher average incomes;

3. Transportation and electricity/energy costs take up a greater percentage of Group II budgets than those of Group I or Group III;
4. Group III households spend a larger portion of their budget for education and clothing than Group I and II;
5. The percentage of the budget devoted to family assistance and leisure are comparable for all groups depending on the habits of the households and the availability of money; and
6. Participation in tontines (traditional credit societies) diminishes considerably with increasing income and access to other means of credit and financial assistance.

Of all expenditures, the percentage spent for food seems the least possible to reduce, especially considering the present rate of inflation. Housing, transportation and energy expenditures will undoubtedly increase with time for households participating in future sites and services and upgrading projects. Expenditures for education, health, clothing and leisure appear to be more flexible. Family aid requires regularly about 5% of the household budget. Consequently, at least 65% of Group I's household expenditures cannot be reduced. In fact, households benefitting from sites and services projects may be confronted with an expenditure increase of as much as 35% in the 1st year, caused by a food price hike of 10%, cost of housing increases of around 20%, and transport and energy costs similar to those of Group II. Thus, in formulating these projects, it is important to consider the probable increases in expenditures which will be required due to the change in life style.

C. TONTINES AND THEIR IMPORTANCE IN HOUSING SCHEMES

Knowledge of the extent and the amount to which low income family's participate in the tontines is useful for the formulation and execution of appropriate housing schemes. First of all, the current participation level of low income households in tontines indicates the extent to which they are willing and able to take on monthly payments. In fact, about 70% of Group I households participate in tontines, paying average monthly dues of 5,750 FCFA which, in fact, can be divided into 4 categories: less than 1,000 FCFA a month, between 4 - 6,000 FCFA a month (most households), about 10,000 FCFA a month and more than 15,000 FCFA a month. Very low income households, however, which spend less than 6,000 FCFA per person a month and which belong to the lowest 30 percentile of Group I income, participate in tontines only in a marginal fashion, with average monthly contributions of 500 FCFA.

The tontine system also helps in the acquisition of building materials on a larger scale and allows the stockpiling of materials to combat against rising material costs. (Thus, in a sense stockpiling of building materials is a form of savings with interest.) A contribution or tontine in the form of mutual man hours of self-help housing assistance might also be envisaged. This system already exists among friends and family members but might be extended to sites and services plot beneficiaries.

P A R T II

IMPLICATIONS OF THE SURVEY RESULTS ON HOUSING POLICY

CHAPTER IV:

IMPROVEMENT OF THE LEVELS OF URBAN SERVICES IN EXISTING AND FUTURE HOUSING

Tables 3 and 7 which indicate the levels of urban services available to households by housing type and by socio-economic group give a quantified idea of existing living conditions. These tables, along with analysis of the size of the population to be housed (housing stock, residential areas by socio-economic group and housing type, anticipated growth, etc.) present a useful perspective of development tendencies and existing inadequacies while providing a frame of reference for necessary changes and a possible orientation for future housing policy. From these tables, the scale of needs becomes apparent to government authorities not only for improved levels of urban services in existing neighborhoods but also for an adequate response to rapidly growing demands for future housing and urban services.

Considering that Group I households (the inhabitants of housing types A, B, and C) are the most numerous with 82% of the urban population and in the most in need of urban services, housing and government aid, a policy orientation and specific sectorial programs (land, housing finance, water supply, electricity, etc.) in favor of this group is necessary. For this reason the following observations on improving existing housing and services, as well as on the promotion of future housing, specifically concern Group I.

A. IMPROVEMENT OF CURRENT LEVELS OF SERVICES IN EXISTING NEIGHBORHOODS

In theory, a policy of neighborhood improvement depends on:

- available resources including financing, land and human resources
- housing needs, requiring the programming of future resources
- needs of the urban community
- needs of the population concerned.

Even without knowing the exact levels of public resources available, it

is evident that the demand for urban services in both existing and future housing is enormous. Thus, it is important to maximize the use of all available resources.

Existing neighborhoods, for example, in spite of their often unattractive appearance, represent a considerable financial and human investment which should be taken into account. Furthermore, they demonstrate a dynamism on the part of their inhabitants which should be encouraged and better utilized.

Existing neighborhoods also have very strong social and economic structures which should not be neglected. It was found, for example, in the survey that the majority of households chose to reside in these neighborhoods because of family and social ties or because of the proximity to their place of work. In fact, they also showed a clear preference to remain where they are rather than relocate elsewhere. (75% of all households and 97% of all homeowners desired to remain put.)

As neighborhoods of Group I house 82% of the population and cover 65% of the city's residential area, a long-term campaign to improve and upgrade these neighborhoods is required with respect to improvement priorities. Group I households chose the following required urban services in order of importance.

- access roads
- water supply
- street lighting
- electricity.

The importance of access roads should be emphasized because they provide for possible garbage disposal, water supply and electricity, and the possibility of access in the case of an emergency.

Tables 3 and 7 which give current levels of urban services in Group I neighborhoods can serve to evaluate the impact of neighborhood upgrading programs and projects which are undertaken.

For such programs to be successful on a city-wide scale, it is imperative that available resources be renewable by means of direct or indirect participation of the households concerned. This participation should take into account their financial means. According to the survey results, the median monthly income of Group I heads of household is about 34,000 FCFA representing 65% of the total

TABLE 11
UPGRADING POSSIBILITIES FOR A TYPICAL HECTARE IN A LOW INCOME NEIGHBORHOOD
USING A MONTHLY FAMILY CONTRIBUTION OF 2,500 CFA FOR A PERIOD OF FIVE YEARS

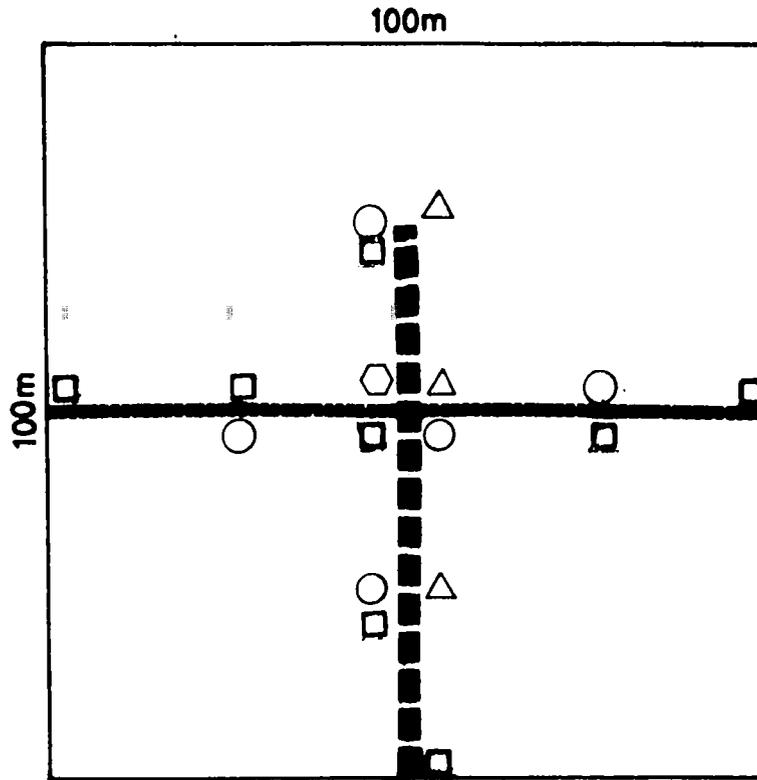
DESCRIPTION	QUALITY	COST/UNIT (IN CFA)	QUANTITY	TOTAL COST (IN CFA)	% TOTAL COST
A. <u>Roads:</u>					
Road 6 m	Laterite	2,700/LM	75 m	2,025,000	31%
Road 4 m	Laterite	11,400/LM	100 m	1,140,000	18%
Sub-Total (A)				3,165,000	49%
B. <u>Water supply:</u>					
Average size conduits	-	5,300/LM	175 m	927,500	14%
Fire hydrant	-	500,000/U	1	500,000	8%
Water supply points	-	100,000/U (Est)	3	300,000	5%
Sub-Total (B)				1,727,500	27%
C. <u>Electricity:</u>					
Low tension network	Wooden poles, preassembled cable 3 x 50 + neutral 2 x 16 aluminum poles	3,000/LM	175	525,000	8%
Street lamps	Complete	100,000/U	5	500,000	8%
Sub-Total (C)				1,025,000	16%
D. <u>Other:</u>					
Garbage bins	3 m ³ bin, concrete block construction	25,000/U	8	200,000	3%
Drainage + sidewalks	Earthen trench + dirt	1,300/LM	250 m	325,000	5%
Sub-Total (D)				525,000	8%
TOTAL A + B + C + D				6,442,500	100%

FIGURE 2

UPGRADING OF EXISTING NEIGHBORHOODS

Hypothetical upgrading scheme for a one hectare area based on a monthly contribution by the inhabitants of 2500cfa perfamily over a period of five years .

(see table 10)



- Garbage bins 3m³(concrete block)
- △ Public water fountains
- ⬡ Fire hydrants
- Street lights and poles
- ■ 6m wide compacted earth road
 - water supply lines
 - electricity lines (low tension)
 - rain water ditches
 - 2m w sidewalks
- 4m wide compacted earth road
 - water supply lines
 - electricity lines (low tension)
 - 1m wide sidewalks

family income. Of this, households regularly manage to put aside about 10% or about 5,600 CFA in tontines (or credit associations) (thus, indicating a possible reserve to capitalize on).

If each household were able, for example, to contribute 2,500 FCFA a month, then Group I neighborhoods, having an average density of 43 households/ha. would be able to collect a sum of almost 1,290,000 FCFA per hectare per year and for all the Group I areas combined, 1,195,830,000 FCFA per year. If one further assumes that five years are necessary to finance the necessary infrastructure on a city-wide scale, then the foreseeable funds which could be found in Group I areas alone would reach 5,979 million FCFA not even including the possible participation of Groups II and III.

Over an area of 1 hectare, 6,450,000 FCFA for the same five-year period could conceivably be raised by the community for upgrading. If the necessary technical studies and the compensation payment to displaced households due to the improvements are to be paid by the government, it would be possible to undertake a considerable amount of upgrading as Table 11 and Figure 2 indicate.

According to these estimates, it should theoretically be possible to install within each hectare: 175 linear meters of six meter wide roads (or 278 linear meters of 4 meter wide roads) with 175 linear meters of water, electricity and drainage networks, sidewalks, 10 garbage bins, 1 fire hydrant and 3 water supply points. If the active participation of the households can be assured, public interest and the financial means should suffice to achieve the desired improvements.

Even though it cannot be calculated, it is quite probable that household expenditures for neighborhood improvements would be in part compensated by the increases in productivity due to an improvement in health and sanitation conditions.

B. DEVELOPING FUTURE HOUSING ZONES

Public authorities can best guide and control the rapid growth of urban areas by the timely development of land destined for future low income housing areas. Without this, an anarchic growth of Group I housing is inevitable with many of the same undesirable consequences which can be observed at present in existing spontaneous neighborhoods.

1. Housing Needs of Group I

With an annual growth rate of about 10%, the urban population of Yaounde will double every 7 years. Housing needs and the demand for serviced housing plots will therefore be enormous.

TABLE 12
GROUP I HOUSING NEEDS DUE TO URBAN GROWTH
(YAOUNDE 1978)

HYPOTHESIS I		HYPOTHESIS II	
Keeping pace with present trends		Property acquisition by economically mobile households	
Descriptions	Quantity	Descriptions	Quantity
Yearly population growth	37,000 inhab.	Yearly population growth	37,000 inhabitants
Yearly Group I population growth (.84 x 37,000)	31,000	Yearly Group I population growth (.84 x 37,000)	31,000
Lodging increase per year in Group I: 31,000 inhabitants at 8.8 inhabitants/dwelling	3,525 dwellings	Yearly household increase in Group I: 31,000 inhabitants at 5.4 inhabitants/household	5,740 (households)
Growth of residential area for Group I: 31,000 inhabitants at 237 inhabitants/hectare	131 hectares	# of Group I households having household head salary over 25,000 CFA/month: .65 x 5740 households	3,730 households
		Growth of residential area: 3,730 households at 30 households (dwellings) per hectare	124 hectares
Group I yearly housing needs	3,525 dwellings	Group I housing needs per year (1 household per dwelling)	3,730 dwellings
Needs for serviced areas	131	Needs for serviced areas	124 ha.

It has been estimated, for example, that an additional 37,000 persons in Yaounde had to be housed in 1978, of which 31,000 were of Group I. If present trends continue, one can expect for Group I alone an annual increase of about 3,525 dwellings (based on 8.8 inhabitants per dwelling) or an increase of 135 hectares of primarily residential land to the urban area.

The possibility of acquiring property with or without land title encourages the most economically mobile households who now rent to leave their present neighborhoods for those at the city's edge. The places they leave in their previous neighborhoods are then filled up by economically less mobile families and/or newcomers to the city.

Two hypotheses can be used by the government to determine the growing needs of housing or serviced plots.

1 - the sufficient development of land with basic infrastructure in order to keep pace with existing urban growth.

2 - the sufficient development of land with basic infrastructure to enable households with incomes over 25,000 FCFA (1978) per month to attain land ownership.

The results of applying these hypotheses to the housing needs of Group I are elaborated in Table 12. Though the hypotheses do not take into consideration all factors which can contribute to future housing needs (i.e., needs resulting from the renovation of existing neighborhoods), they are nevertheless indicative of the growing needs of this group.

2. Levels of Urban Services Required for Future Group I Housing

The development of future Group I housing should be undertaken in response to the group's needs and financial capacities. If desired and feasible, the levels of urban services and infrastructure can be steadily improved over time as the need and financial means increase. The access of future housing beneficiaries to urban services (water, public lighting, access roads, drainage, etc.) will, in any case, represent a significant improvement over current Group I living conditions (see Table 7).

A too high level of infrastructure and urban services for new low income housing developments will have the double consequence of not only reducing the resources available for continuing similar necessary operations but also will encourage the eventual occupation

of these projects by households with income levels higher than those for whom the project was intended. In which case the target population would undoubtedly be forced to continue to settle and develop spontaneous neighborhoods of the present nature.

All things considered, it is in both the interest of the government as well as that of the target population to recover a maximum of the financial investment for each project in order that similar operations can be systematically carried out elsewhere. Housing projects thus will have a good chance for success provided that the levels of infrastructure and services planned correspond to the financial means of the inhabitants concerned. As in the improvement of existing housing, household priorities for access roads, drinking water, street lighting and electricity should be considered. In addition, other services such as garbage disposal, adequate drainage, schools, health and sports facilities should be assured.

3. Viable Future Housing Projects for Group I Households (Sites and Services Projects)

The priority of objectives for land development and especially for "sites and services projects" can be summed up as follows:

- 1 - to realize financially feasible and replicable operations;
- 2 - to enable the maximum number of economically mobile households in Group I to benefit from these projects;
- 3 - to improve the existing service levels for this group; and
- 4 - to guide its urban growth.

More thorough feasibility studies of sites and services operations are required. Nevertheless, it was judged worthwhile at this time to demonstrate in general terms that the basic objectives of the sites and services approach could be achieved. To do so, two theoretical subdivision plans with several different levels of infrastructure were worked out. The alternative development schemes give an idea of infrastructure costs, costs per lot, and the necessary income levels of possible plot beneficiaries. One of these plans, along with the projected infrastructure standards, are presented in Annex II.

The theoretical subdivision plan presented in Annex II is divided into lots of 150, 175 and 200 square meters, all of which are intended for households belonging to socio-economic Group I but varying slightly in their income levels. In general, lots measuring 200 and 175 square meters are more accessible to road, water and electrical networks and thus should have a higher cost per square meter. However, in order to simplify comprehension of the analysis, the lots are presented as having the same costs per square meter.

According to our estimates, the price of a 150 m² lot with the least expensive infrastructure is about 400,000 FCFA, that of 175 m² is about 470,000 FCFA and that of 200 m² around 535,000 FCFA. The norms (or levels of urban services) for these lots would include:

- lot size: lots of at least 150 m² which can accommodate average sized Group I type dwellings and permit a more efficient use of land;
- roads: easy access to vehicular roads, asphalted 7 m wide roads, compacted earth roads 6 m and 4 m pedestrian paths with compacted earth sidewalks on both sides of all roads;
- drinking water: easily accessible stand pipes with a maximum distance of 75 m and a maximum of 32 households per stand pipe; possibility of immediate house connections for 38% of the lots; fire hydrants located at less than 180 m from all lots;
- electricity: public lighting on all roads, street lights placed at intervals of not more than 45 meters on main roads and 90 meters on 4 m wide roads;
- sanitation: lined and desludgeable cesspools on each plot;
- garbage collection: bins at a maximum distance of 65 m from each plot with a maximum of 16 plots per bin;
- drainage: all roads of 7 m wide equipped on both sides with concrete rain water gutters; all other roads have earth trenches;
- public facilities: open space provided for the future development of schools, markets, dispensaries, administration, sports and recreation, church or morgues.

It is difficult to make a direct comparison of the levels of services described above and those which presently exist in low income

neighborhoods. (See Table 7.) Nevertheless, it is evident that the proximity of urban services to the plots and the organized layout of sites and services projects make these services more accessible to the households and more cost effective.

In order to determine the minimum necessary income of a head of household destined to be a sites and services beneficiary, the household's ability to pay must be considered within the framework of the total cost of housing (including the land, dwelling unit and cost of infrastructure). According to the available data, an inexpensive house built by self-help and using traditional materials of the type found in Group I type neighborhoods and in Essos can be constructed for a cost of about 6,900 CFA/m², or a total of about 550,000 CFA for a dwelling of 80 m². Thus, the cost of the house and plot is estimated to be 950,000 CFA. The financing of this house and plot is conceived as a credit over a period of 15 to 20 years, repayable in monthly installments based on a maximum payment not exceeding 25% of the household head's monthly income. A down payment of 10% is also foreseen on the part of the plot recipient. Table 13 shows some possible monthly payments at interest rates varying from 4% to 10% per year. It also indicates the required minimum income of a household head wishing to receive a plot and a dwelling in the lowest price range.

According to the table, the income of a household head receiving a plot can vary between 21,000 and 37,000 CFA, depending upon the payment plan adopted. With the most advantageous payment plan, the minimum income can be lowered so as to reach the maximum number of households. On the other hand, with the least advantageous payment plans and interest rates, the cost recovery and profitability of the operations are better assured. In any case, it is apparent that the objectives and infrastructure levels cited for the desired subdivisions are not impossible to achieve.

TABLE 13
 FINANCING SCHEMES FOR A HYPOTHETICAL DWELLING UNIT -- REQUIRED
 INCOMES OF HOUSEHOLD HEADS (IN CFA)

Cost of House + Infrastructure + Land	Down Payment: 10% of Total Cost	Amount of Loan	Interest Rate: % Per Year	MONTHLY PAYMENTS		MINIMUM INCOME	
				Over 15 Years	Over 20 Years	Over 15 Years	Over 20 Years
950,000	95,000	855,000	4	6,325	5,181	23,300	20,724
950,000	95,000	855,000	6	7,216	6,126	28,864	24,504
950,000	95,000	855,000	8	8,172	7,152	32,688	28,608
950,000	95,000	855,000	10	9,189	8,252	36,756	33,008

CHAPTER V:

POSSIBILITIES OF IMPROVING EXISTING AND FUTURE DWELLING UNITS

The socio-economic surveys and (measured) house plans permit an overview of Group I housing conditions. Based on analysis of existing housing, future projects should be considered not only as a function of the economic and political forces which influence them, but also of the social and cultural needs of the households concerned.

Upgrading projects in existing Group I type neighborhoods, especially those which include the improvement of urban infrastructure, will have a direct impact upon the living conditions of the inhabitants and on the quality of their shelter. In addition, a coherent government policy on land ownership and in particular one which concerns the regularization of land titles in Group I neighborhoods, would also bring about considerable improvements by encouraging people to invest in and improve their dwelling units. The observations and proposals which follow are based upon this concept.

A. OBSERVATIONS ON THE EXISTING SITUATION

In Volumes II and III significant data on housing in Yaounde is presented. It suffices here to describe in general terms the framework within which projects intended for dwelling unit improvement can be elaborated.

1. Description of the Typical Traditional Dwelling Unit

The most frequently found urban dwelling is the one-story detached house built of "poto-poto" (wattle and daub) with corrugated metal sheet roofing. These houses can be found in various stages of completion with respect to their finishings, i.e., interior and exterior cement renderings, painting, roofing, etc. By low income housing standards, the basic dwelling is large, having a covered surface of around 80 m² and an average of five rooms: 4 bedrooms usually located on either side of a central living-dining room. In most cases the house is extended in front by a veranda and in the rear by a detached kitchen (also constructed of poto-poto). This out-

building is often a simple unfinished shell. Often one or more rooms of the house open directly to the exterior and are intended for an older son, a relative, or to be rented. Adjacent to the kitchen is often a "guest room" which is used for relatives during short stays.

The courtyard which separates the kitchen from the main house is generally used for such tasks as preparing food, cooking, laundering and dishwashing. It also serves as a play area for children and, in the case of larger plots located on the edge of the city, can also be used for raising poultry and vegetables.

Each concession has a traditional latrine or seepage pit which is used by one or more households on the concession. Most often this latrine consists of a simple hole in the ground with a rudimentary superstructure of wood or other salvaged materials. In certain areas there are also wells or natural springs which are used for laundry, dishwashing and general purpose cleaning. This water, probably polluted, is used by 18% of the households surveyed for drinking purposes.

The construction methods and the majority of building materials are of local origin and are well adapted to the needs and financial means of Group I type households. Some of the materials, such as the mud for walls, are usually found on-site. The basic dwelling, walls and roof, can be set in place within a matter of a few days. Once this is accomplished, the only work which remains to be done consists of the finishings and putting doors and windows in the desired places. The relatively low cost of traditional dwellings, as compared to those constructed of cement block, allows low income households in Yaounde to build comparatively large dwellings. In addition, this type of construction has the advantage of being able to be improved over time, as additional resources become available.

2. Housing Standards

Housing of types A and B urban fabrics, although appearing very dense, in fact house no more than a maximum of 400 inhabitants per hectare with an average of around 250. The impression of high density is actually due to a high proportion of the land being covered by buildings - houses, kitchens, shops, etc. The fact that houses are usually rather large (80 m²) reinforces this appearance of high density. In addition, even though there is an insufficient network of vehicular access roads, a significant amount of space between houses is used inefficiently for pedestrian traffic and rain water drainage. The use of well-defined paths and open space is rare.

B. IMPROVEMENT OF EXISTING DWELLING UNITS

Improvement programs for Group I dwelling units should be determined within the context of housing improvements in general. Such a framework should first of all consider the improvement of basic infrastructure and a solution to the land tenure problem (i.e., the occupation of plots without officially recognized titles) which are the major preoccupations for households in Group I.

The approach chosen to give stability to a neighborhood will depend upon the projected land use of the area presently lived on. After having put in improved infrastructure and established a cadastral survey for the area, it would then be possible to either sell the plots or lease them over a satisfactory duration. A coherent land policy and an accompanying information campaign would be necessary to encourage the spontaneous improvement of housing in these neighborhoods. Existing open space could be preserved as public areas in order to avoid an excessive density in certain areas.

A third key element in housing improvement is the access to credit sources. The results of the field survey show that only 10% of Group I households were able to obtain construction or home improvement loans in spite of the fact that most head of households in this group were gainfully employed. Thus, for the moment, tontines and family assistance are the main sources of funds used for home improvement. Unfortunately, they are often not sufficient to enable households to undertake significant dwelling unit improvements.

If regular contributions were organized for the purchase of construction materials (cement for example), a sort of savings-with-interest would be possible since the cost of materials have risen sharply due to inflation.

Additional measures can also be applied to dwelling unit improvement, namely an information campaign on new construction techniques concerning improved foundations, termite protection and the use of stabilized earth blocks and community self-help initiatives.

As noted earlier, the high demand for housing in areas of housing types A and B has caused an excessive densification of dwelling units. In some of the houses that were surveyed, for example, renters were obliged to pass through the owner's living room in order to reach their own individual rooms. There were also a few cases where renters were found cooking in their bedrooms in spite of bad ventilation and the evident fire hazard for all inhabitants of the house.

Traditional houses, being quite large, offer an average of about 9 m² of floor space per person. The large surface area of these dwellings corresponds well to the needs of the Cameroonian family which is often composed of numerous members (including both close and distant relatives). Almost all households include a "brother, cousin or nephew" from the village.

Considering only individually built Group II houses (i.e., excluding SIC housing and apartments) which make up the majority of the housing in this group, it becomes clear that room sizes and the amount of space per person (11 m²/person) do not differ greatly from those of Group I. On the other hand, the major complaint against SIC housing expressed by inhabitants was the lack of sufficient interior space. In order to reduce costs due to cement block construction and the high level of infrastructure, SIC was obliged to reduce the size of these houses.

Concerning water and electricity, only 11% and 22% of Group I households respectively have individual connections to these services. Thus, most dwelling units are not equipped for these services.

C. IMPROVEMENT OF FUTURE DWELLING UNITS

Planned future housing programs have the advantage of being able to control neighborhood development in a systematic way with the provision of necessary urban infrastructure and public services. They also guarantee land tenure stability and thus open up credit possibilities to households for the purchase of construction materials to be used in a self-help housing approach. Therefore, the biggest problems which existing neighborhoods now face can be avoided in the creation of future neighborhoods.

New housing areas, however, do not automatically reproduce the same strong economic and social forces or animation which can easily be seen in most existing neighborhoods. This is why decisions taken by public authorities on the location of these new neighborhoods, their levels of infrastructure and public facilities, their proximity to urban transport, and the absorptive capacity of commercial and artisan activities are all extremely important.

A thorough knowledge of how existing neighborhoods function and especially of the characteristics and intensity of the economic and social forces which play a role in their development is obviously indispensable. It is particularly important that newly developed areas be located close to existing zones of employment, as problems with the means and costs of transportation between home and work could cause the projects to fail.

D. CRITICAL CONSIDERATIONS CONCERNING THE DWELLING UNIT IN FUTURE HOUSING PROGRAMS

1. Viability of Housing Projects

Fundamentally, planning of housing programs should be based on a correlation between the proposed standards for serviced plot and dwelling unit construction, and the financial means of the households concerned. As a corollary to produce replicable housing programs, it is also necessary for the government to be able to recover its investment.

2. Standards

In future housing projects destined for households of Group I, care should also be taken not to make radical changes in existing norms concerning density and dwelling size. A density of about 35 dwellings per hectare with lots ranging in size from 150 to 200 m² should be low enough to satisfy the spatial needs of the majority of household without exceeding the desired low plot cost for infrastructure. It has been calculated, for example, that the amount of financing needed for a serviced plot of 400 m² without any house, would also finance an equally well serviced plot of 150 m² with an 80 m² house built of stabilized earth blocks.

Judging by existing conditions, a house size of about 80 m² and having the possibility to be improved or expanded seems adequate for the majority of Group I households. A dwelling of this size would normally include 4 bedrooms, each approximately 12 m² (3m X 4m) and a living-dining room of about 30 m² (6m X 5m).

3. Housing Preferences Expressed by the Households Surveyed

The field survey indicated that the majority of Group I households, and especially homeowners, are relatively satisfied with their houses and attach a much greater importance to the improvement of urban services and infrastructure. Of the homeowners, for example, 97% expressed a preference to stay where they were. Given the choice, most families would also prefer a medium sized dwelling on a serviced plot to a large sized house on a non-serviced plot.

It was also noted that few households would accept to live on an upper floor - the reasons cited being a certain danger for children and fear of heights. On the other hand, no real objection was expressed in regard to dwelling units with common walls.

4. Use of Traditional Materials and Construction Techniques

Only the use of self-help housing construction can satisfy the housing needs of Group I and remain affordable. Since the cost of a cement block house is prohibitive to most Group I households, this necessarily implies the use of traditional building technologies and local materials.

The traditional building system has the added advantage of providing a ready stock of suppliers and workers able to fulfill the demand for housing construction. Already the traditional sector yearly provides several times the number of dwellings produced by the modern sector, while at the same time being an important source of employment.

The use of locally available building materials also reduces costs due to long distance transportation and avoids price and availability fluctuations found in national and international markets. In this and in other ways it often permits a considerable savings in construction costs. In any case, future housing projects can also be used to stimulate significant improvements in the traditional building system by encouraging, for example, the use of stabilized earth blocks and by bringing about improvements in building techniques - including better foundations, termite proofing and rain water drainage, etc. This might be achieved by the construction of several prototype houses or by setting up small scale building material suppliers and providing on-site technical assistance including a guide to self-help housing. This guide would also include several suggested model house plans.

E. HOUSING EVOLUTION AND POTENTIAL

Housing programs should also be sufficiently flexible to allow an evolution in the quality of house construction over time (and) in accordance with the available resources of the household. If a time limit is to be established for a certain level of plot development, this limit should take into consideration the economic capabilities of the households for whom the plots are being provided.

House plans based on what are considered to be the most successful neighborhood houses in terms of their planning and use of space could also be drawn up and circulated. This would be done with the idea of encouraging a more efficient use of space, allowing for the possibility of extensions and/or incorporating extra rooms for lodgers, shops, workshops, etc. Zoning regulations, for example, should be flexible enough to allow for small-scale commerce and handicrafts in Group I residential areas.

A great potential exists for utilizing the dynamism of the traditional housing sector within a framework of national housing policy and sites and services projects. A policy of this nature would allow for the control of urban growth, the acquisition of property by most households and a general improvement in living conditions for the target group.

VOLUME I

A N N E X I:

DATA COLLECTION BY MEANS OF TYPOLOGY-METHODOLOGY

The collection and classification of data using the housing typology-methodology has several advantages, namely:

1. Data from other sources can be integrated into the data base established by the typology;
2. Data on a metropolitan area can easily be updated between two census takings without needing extensive field surveys;
3. Data broken down by housing type and according to socio-economic groups can be more useful than data simply broken down by administrative or census districts. (Water consumption for the whole population of a city or district, for example, may be considered adequate, but this may not necessarily be the case when considered by housing type or group);
4. Real needs in housing and infrastructure as well as the economic feasibility of operations can be more easily evaluated by type;
5. Rental characteristics of the housing stock can be determined;
6. A governmental policy based on real needs of the population can be better oriented; and
7. Spontaneous developmental tendencies of the urban area can be identified by comparing typologies of a few years apart.

ANNEX II:

STANDARDS

Annex II compares different infrastructure standards and costs when they are applied to a hypothetical subdivision. It is a brief summary of a more thorough analysis of standards and construction costs found in an earlier document prepared by the Sites and Services and Upgrading Unit entitled "Presentation of the Sites and Services Project" and presented to the Direction of Town Planning and Housing, MAETUR, and USAID on November 28, 1978. This document included a summary of urban population data, housing needs by income group, an analysis of monthly household incomes and expenditures, the definition of a target group to be concerned by the project based on their financial means, and standards for urban infrastructure and housing construction. From the analysis of these elements, part of which is also presented here, conclusions and recommendations were made.

Tables 14 and 15 give the results of evaluating different infrastructure standards and costs as applied to the subdivision shown in Figure 3. They show that the costs of serviced plots vary considerably with their degree of infrastructure. In order to conform to the financial limitations of the target group households, it is necessary to keep infrastructure and construction standards at an inexpensive level, but one which provides for adequate sanitary conditions.

The financial means of the target group households has an important influence on the proposed infrastructure and construction standards. Figures 4 and 5 (which were also included in the November presentation) show the relationship between plot size, degree of infrastructure, housing construction materials and different financing schemes for the same subdivision shown in Figure 3.

Figure 4 shows the effects that varying the plot size and different levels of infrastructure (types IA, IIB and IID which are described in Tables 14 and 15) have on the amount of monthly payment needed to finance the development of plots with a loan of 6% over 15 years. The curves in Figure 4 can be described as follows:

- the horizontal axis to the right indicates plot size, the vertical axis gives the number of plots per hectare and the horizontal axis to the left, the cost of monthly payments.

URBAN AND RURAL LANDS
DEVELOPMENT AND EQUIPMENT AUTHORITY
SITES AND SERVICES UNIT

HYPOTHETICAL
SUBDIVISION

FIGURE 3 PG 40

Infrastructure Type 2D

Scale 1/2000

☐ Garbage bin

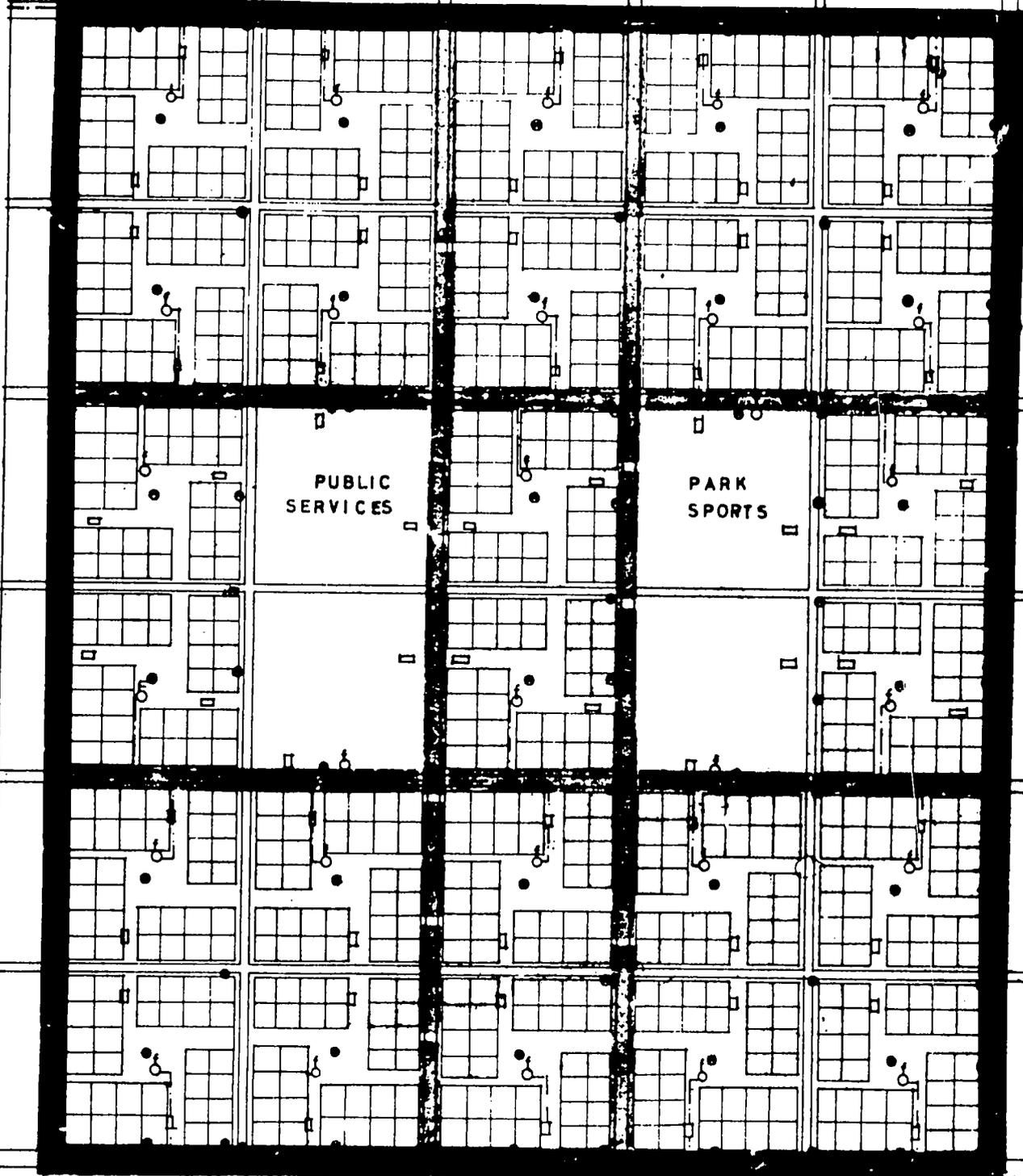
● Streetlights

○ Fire Hydrant

⊕ Water Standpipes

— Med Sized Pipe

— Small Sized pipe



4 m wide pedestrian path
 6 m wide asphalt or laterite road w/12m R.O.W
 7 m wide asphalt road w/13 R.O.W

- within the right side of the graph, a curve is plotted which relates different plot sizes and the number of plots per hectare given a residential area of 51.5% of the total surface area.
- within the left side of the graph, the curves show the relationship between the number of plots per hectare (as determined by plot size) and the monthly payments for different types of infrastructure development given the terms of the loan previously mentioned.
- from these relationships, one can see that a 200m² plot with the highest level of infrastructure requires a smaller monthly payment (7,800 FCFA) than a lot of 400m² with the lowest level of infrastructure (9,000 FCFA).

In Figure 5, only one level of infrastructure is considered (type II D) but combined with the construction of a house of 80m². Three types of construction were considered: poto-poto (wattle and daub), stabilized mud blocks, and wattle and daub with cement covered walls. This graph is read in the same way as Figure 4: the curve on the right side shows the relationship between plot size and the number of plots per hectare given a residential area of 51.5%. Curve 1 on the left side shows the relationship between the number of plots per hectare and the monthly payments for a type II D level of infrastructure plus the cost of land (estimated at 1000 FCFA per m² of plot). Curve 2 gives the monthly payments for plots with the same level of infrastructure and land costs but also including the construction of an 80 m² house built of poto-poto. Curve 3 gives the monthly payments for the same infrastructure and land costs but with an 80m² house built of stabilized mud blocks. Curve 4 gives the same monthly payments for infrastructure and land but adds an 80m² house built of wattle and daub with walls covered with cement. By studying these curves, correlations can be made between the number of plots per hectare, the costs of infrastructure development, housing construction, plot sizes and monthly payments.

Figure 5 indicates, for example, that a loan for the purchase of a plot of 400m² without a dwelling requires a monthly payment (10,500 FCFA) almost equal to that necessary for a loan with similar terms to cover the cost of a 200 m² plot with the same level of infrastructure plus an 80m² house of stabilized mud blocks. Thus, just a change in plot size can cause considerable variations in the monthly payments and the amount of housing investment families can make given their levels of income. With the higher costs of larger plots, many families will have serious difficulties in financing the construction of an adequate house.

TABLE 14

EVALUATION OF PLOT COSTS (IN CFA) ACCORDING TO DIMENSIONS						
N°	Infrastructure Cost/HA	Cost/M²	100 M²	150 M²	175 M²	200 M²
I						
A	24 430 600	4 741	474 100	711 150	829 675	948 200
B	24 005 000	4 659	465 900	698 850	815 325	931 800
C	20 000 000	4 054	405 400	608 100	709 450	810 800
D	16 035 000	3 112	311 200	466 800	544 600	622 400
II						
A	22 222 000	4 313	431 300	646 950	754 775	862 600
B	21 798 000	4231	423 100	634 650	740 425	846 200
C	17 598 000	3 415	341 500	512 250	597 625	683 000
D	13 829 000	2 683	268 300	402 450	463 525	536 600

TABLE 15
TYPES OF INFRASTRUCTURE DEVELOPMENT AND COSTS FOR A POSSIBLE LOW INCOME SUBDIVISION

N ^o	DESCRIPTION OF WORKS						EQUIPMENT COSTS	
	Roads	Sidewalks	Drainage	Water	Electricity	Sewerage	Hectare	M ²
I								
a	Road of 7m of double strata asphalt, + 6m laterite	Asphalted	Covered concrete gutter (7) + earthen gutter (6)	House connection + fire hydrant	House connection + public lighting	Septic tanks + garbage bins	24,430,000	4,741
b	"	"	Open concrete gutter (7) + earthen gutter (6)	"	"	"	24,005,000	4,659
c	"	"	"	Stand-pipes + fire hydrants	Public lighting	"	20,900,000	4,054
d	"	"	"	"	"	Lined privy + garbage dump	16,035,000	3,112
II								
a	7m double strata 4m laterite	Compacted earth	Covered concrete gutter (7) + earthen gutter (6 + 4)	House connection + fire hydrants	House connection + public lighting	Septic tanks + garbage bins	22,222,000	4,313
b	"	"	Open concrete gutter + earthen gutter (6 + 4)	"	"	"	21,798,000	4,231
c	"	"	"	House connection + fire hydrants	Public lighting	"	17,598,000	3,415
d	"	"	"	"	"	Lined privy + garbage bins	13,829,000	2,683

FIGURE 4

MONTHLY PAYMENT FOR INFRASTRUCTURE
 TYPES IA IIB IID
 (NOT INCLUDING THE COST OF LAND)

51% RESIDENTIAL SURFACE

INTEREST RATE = 8% OVER 20 YEARS

6% OVER 15 YEARS

MONTHLY PAYMENTS (CFA) CORRESPONDING TO
 FOLLOWING LOT SURFACE AREA

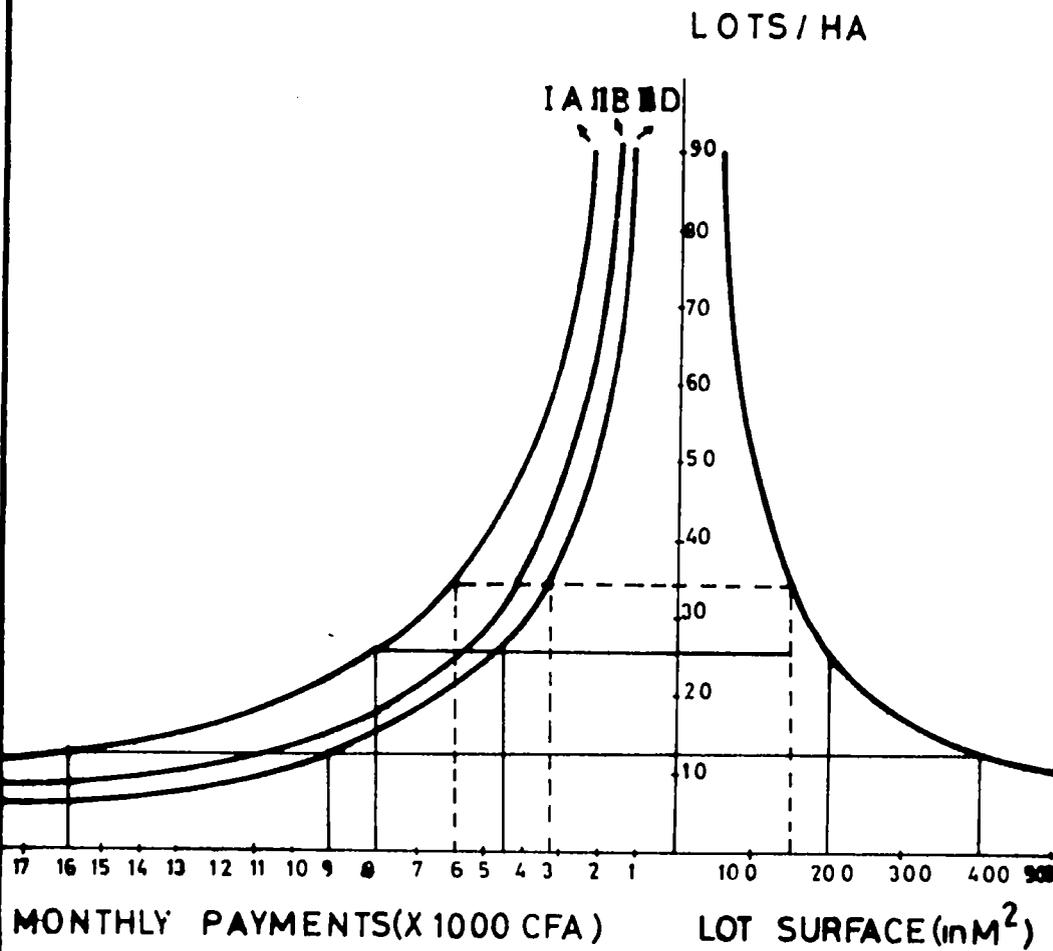
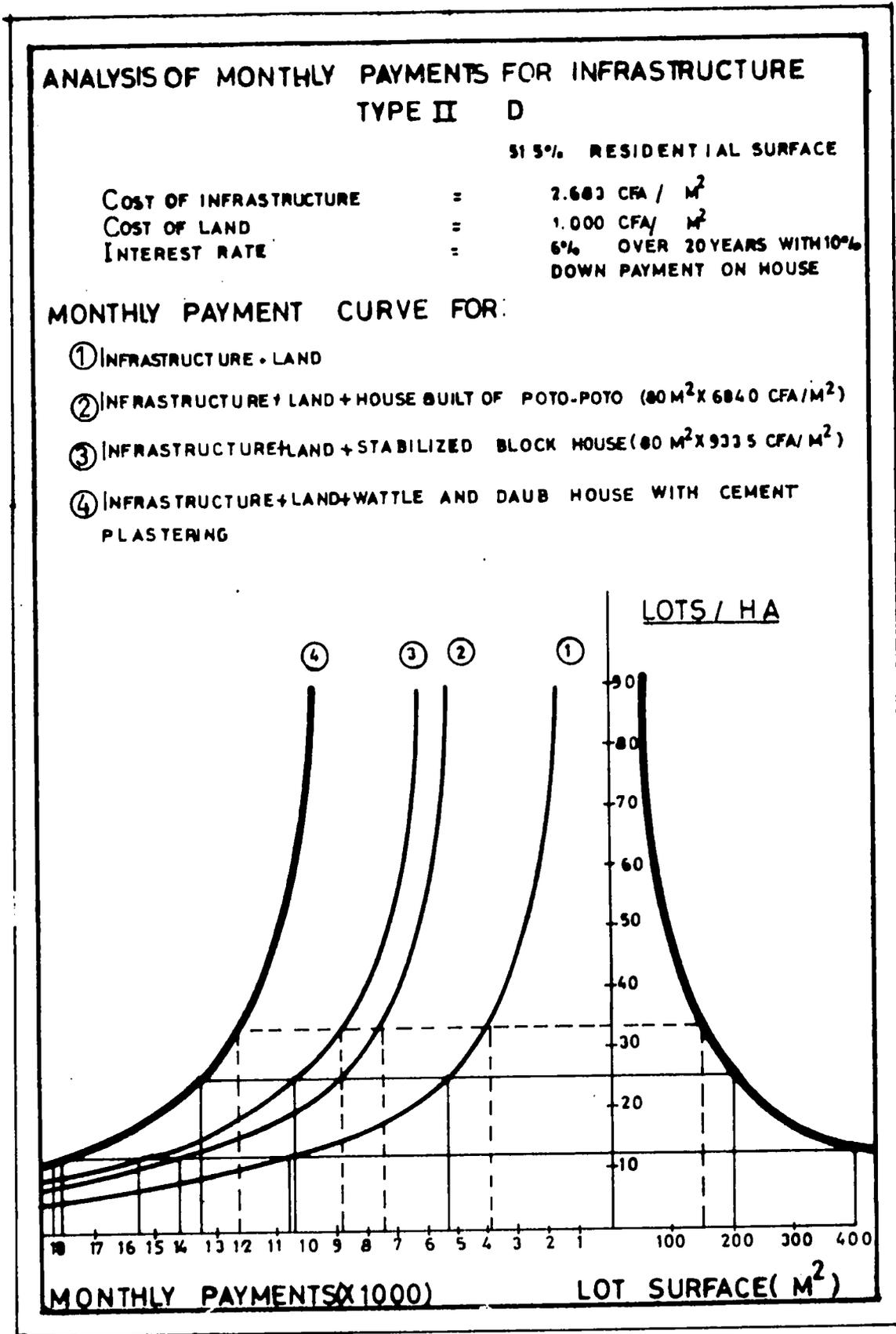


FIGURE 5



VOLUME II
RESULTS OF THE SURVEY

CHAPTER I:

DESCRIPTION OF THE HOUSEHOLDS

A. SOCIAL CHARACTERISTICS OF THE HOUSEHOLDS

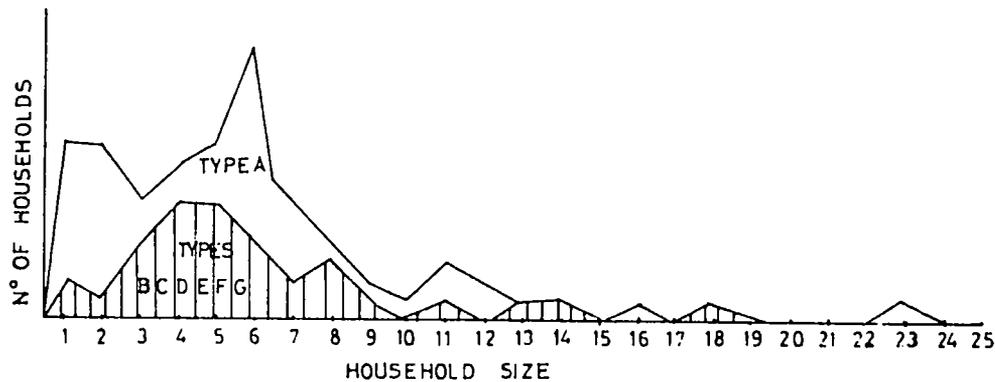
1. Family Situation

Our survey involved 97 households which included a total of 579 persons. The distribution of the sample according to housing type is as follows:

TABLE 1
DISTRIBUTION OF SAMPLE BY HOUSING TYPE

HOUSING TYPE	A	B	C	D	E	F	G	TOTAL	ABC	DFG
Households surveyed	53	10	10	14	2	7	1	97	73	22
Population	294	47	55	102	39	35	7	579	396	144

FIGURE 1
DISTRIBUTION OF HOUSEHOLDS SURVEYED BY HOUSEHOLD SIZE



For housing of type A, there were 31 renting families with a total of 154 persons. The owners in the type A category totaled 22 families grouping 140 persons.

a. Household size

The distribution of the different types of households according to ownership (owners or renters) and family status (married or single) is found in the following table:

TABLE 2
HOUSEHOLD SIZE BY HOUSING TYPE OWNERSHIP AND FAMILY STATUS

		A	B	C	D	E	F	G	Average	ABC	DEG
Total		5.5	4.7	5.5	7.3	19.5	5.0	7.0	6.0	5.4	6.5
Owner-ship	Renter	5.0	2.0	4.7	5.0	19.5	5.0	7.0	5.2	4.5	5.1
	Owner	6.4	8.7	6.7	13.0	-	-	-	7.4	6.7	13.0
Family status	Family	6.3	6.3	5.5	8.3	19.5	5.0	7.0	6.7	6.1	6.7
	Unmarried	1.1	1.0	-	1.5	-	-	-	1.2	1.1	1.5

The average household size overall is 6.0 persons. Note that the average household size for those who own is 7.4, for those who rent 5.2, for those with families 6.7, and for those unmarried individuals 1.2. (There were cases of two singles together.) In general, therefore, the average household size of those who own their homes is greater than that of renting households. This phenomenon is, in part, explained by the presence of a large number of renting households consisting of single individuals in housing types A, B, and D. This is especially true for type B where the average size of renting households is only 2.0 persons whereas the average family size is 6.3. The owning households of type B, which are also frequently native to Yaounde, are the largest, with an average of 8.7 persons per household.

The data on average household size for owners in type D and of families in type E is somewhat biased by the fact that families of 23 and 30 members, respectively, were retained in the sample. If these families were not counted, the average owning household size for type D would be 9.7 persons and that of families in type E, 9.0 persons. These figures appear to be closer to reality.

In looking at Table 3, one can observe that household size is also a function of the length of time that its head has been in the city.

TABLE 3
 HEAD OF HOUSEHOLD: CORRELATION BETWEEN HOUSEHOLD SIZE AND
 DURATION OF RESIDENCE IN CITY

HOUSEHOLD SIZE	DURATION OF RESIDENCE					TOTAL
	Less than 2 years	Between 2 + 5 years	Between 5 + 10 years	Between 10 + 20 years	+ 20 years	
Fewer than 3 persons	8	8	10	7	2	35
4 - 6 persons	2	2	10	9	10	33
7 - 9 persons	-	3	3	7	3	16
10 - 11 persons	-	-	-	4	3	7
12 - 15 persons	1	-	-	1	3	5
+ 15 persons	-	-	-	3	1	4
Total	11	13	23	31	22	100

b. Composition of the family

By grouping the households of types A, B, and C, one can analyze the 'typical' composition of a low-income family. The most commonly found family members are:

- the father (or unmarried male) in 82% of households
- the mother (or unmarried female) in 68% of households
- a daughter (under 15 years of age) in 42% of households
- a son (under 15 years of age) in 41% of households
- a brother (over 1(years of age) in 26% of households
- other relative (over 15) in 18% of households
- a daughter (over 15) in 17% of households
- a son (over 15) in 14% of households

2. Sex and Age of the Survey Population

For the whole of the survey population, females outnumber males 54% to 46%. In more affluent households (types D,E,F, and G), the difference is even more marked with 63% of the members female and 37% male. Low-income households (types A, B and C) show the opposite: 51% males and 49% females.

Table 4 shows the percentage of the survey population according to age group. 78% of all males and 83% of all females representing 81% of the survey population are under 30 years of age.

Furthermore, 50% of the males and 63% of the females or 57% of the population studied are under 20 years of age. 46% of the males, between the ages of 20 and 50, can be considered of working age. The percentages for the group A + B + C and for the total of households are similar.

TABLE 4
DISTRIBUTION OF THE SURVEY POPULATION BY AGE GROUP ACCORDING TO SEX

AGE	Cum %	Male + Female %	Male %	Female %
+ 61 years	100.0	0.6	0.5	0.8
51-60	99.4	2.3	3.2	1.6
41-50	97.1	5.0	7.3	3.1
31-40	92.1	11.4	10.9	11.7
21-30	80.7	23.7	28.2	19.9
16-20	57.0	16.2	13.6	18.4
11-15	40.8	10.3	9.1	11.3
6-10	30.5	10.5	9.5	11.3
0-5	20.0	20.0	17.7	21.9

Females outnumber males between the ages of 0 - 20 for all households. The reverse is true, however, in the 20 - 30 age group, where males outnumber females 55% to 45%. This is due to the influence of type A, B, and C households in which males outnumber females 60% to 40%. It is precisely in this age group that one finds a great number of students and unmarried men who have left the countryside for the city.

TABLE 5
DISTRIBUTION OF HOUSEHOLD HEADS BY AGE AND TYPE OF HOUSING

AGE	(in %) Housing types					Average	A + B + C
	A	B	C	D	F		
Under 20 yrs	-	-	-	-	-	0	-
20 - 30 yrs	30	33	44	33	29	32	33
30 - 40 yrs	31	22	44	33	57	35	31
40 - 50 yrs	24	45	22	25	14	23	25
50 - 60 yrs	11			9		8	8
Over 60 yrs	4					2	3

Fifty percent of all heads of households and 88% of those in type C are 40 years of age or less. In the latter case, one finds a large number of young households sufficiently mobile economically to build a house on the outskirts of the city. In type F, or government housing, one also finds young households with improving financial situations. In type B is found a large number of young entrepreneurs in the informal sector.

3. Origin of Household Heads and Length of Residence in City

Table 6 shows the origin or ethnic group of the household heads surveyed compared with the results of a larger study carried out previously by ORSTOM in 1975. The results of the two studies are remarkably similar. It therefore seems that the survey sample is an accurate reflection of the ethnic composition of the urban population.

TABLE 6
DISTRIBUTION OF HOUSEHOLD HEADS ACCORDING TO ETHNIC GROUP
OR DISTRICT OF ORIGIN
(in % of population)

District of Origin	Ethnic Group	ORSTOM Survey 1975 %	STAR Survey 1978 %
Center South	Ewondo	23.8	19.6
	Eton	12.0	12.4
	Bafia	7.4	7.2
	Boulou	-	2.1
		43.2	41.3
West	Bamiléké	20.0	21.6
	Bamoun	-	2.1
		20.0	23.7
Coast	Douala	-	2.1
	Bassa	8.0	13.4
			15.5
North	Foulbé	5.0	5.2
East	Makéa	3.0	5.0

It is interesting to note the correlation between the ethnic group of the head of household and the different types of housing. (See Table 9). In type B housing for example, the Ewondo, or natives of Yaounde constitute the majority of households. This is explained by the fact that the city developed in the following manner: first, along the major roads which serve the neighboring villages, and afterwards by the successive filling of city blocks. Consequently, the Ewondos who have lived in their homes for some time are in B type neighborhoods. Largely present in A type housing, the Bamileke, an ethnic group from the most densely populated part of the country with a high tendency for migration, is also the only group found in all housing types. In addition, almost half of the Eton households in the sample live in the Mbala neighborhood which is situated on the main road leading to their villages. For the same reason, most Ewondo households live in the southern part of the city near the Mbalmayo road and the railroad. In type F housing, one finds that the heads of household have been in Yaounde on the average for 10 1/2 years and were joined by other family members or began a family after 5 years. Considering that the type F houses are in SIC projects, these families appear to have a regular source of income but remain renters. Most families who are renting are newcomers to the neighborhood. In general, the household head's length of residence in the house is a function of whether the household rents or not. Owners remain, obviously, the longest time in the house.

As Table 7 indicates, the number of children in the sample born in Yaounde is higher than that of those that have migrated to the city regardless of housing type.

TABLE 7
% OF CHILDREN BORN IN YAOUNDE BY HOUSING TYPE

Housing type	born in the city		migrant	
	%	numbers	%	numbers
A	73	124	28	47
B	92	23	8	2
C	65	13	35	7
D	80	49	20	12
E	92	21	9	2
F	67	10	33	5
TOTAL	76	240	24	75

The average length of residence, in the city and in the present house, of the household head and of the other family members is presented in Table 8. For all types, except B and D, the length

of residence is almost twice as long for the head of household as for other family members. Furthermore, more than half of the heads of household (53%) have lived in Yaounde for longer than 10 years, while 44% have been in their present neighborhood for more than 5 years.

TABLE 8
LENGTH OF RESIDENCE ACCORDING TO HOUSING TYPE

	Housing types					
	A	B	C	D	E	F
Average length of time in city	13.9	16.9	17.3	8.4	11.5	10.6
Household head other members	8.9	13.0	7.6	8.3	6.0	4.9
Average time in house						
Household head	7.2	7.1	2.1	3.4	10.5	2.7

On the average, heads of household of type A have lived in Yaounde for about 14 years. As the survey indicates, the majority of them (60%) are renters, including half of type A households which have been in Yaounde for more than 10 years. The average household head has been living in his present house for a little more than 7 years.

Household heads of type B have been living in Yaounde for an average of 17 years. In general, they remained single or without children for four years. Several type B households take advantage of the favorable location of their homes to open shops, handicraft workshops or small businesses.

Type C households include relative newcomers to Yaounde and young native households which have moved to the periphery of the city to build their homes. Consequently, the average length of residence in Yaounde for these household heads is 17 years, but for those in new houses the average duration is only 2 years.

As compared to those of the other types, one observes that the household heads of type D have lived in Yaounde for a relatively short time (8 1/3 years). This length of time is almost the same for all family members -- which implies that type D families migrated together and must have had enough income to do so.

TABLE 9
DISTRIBUTION OF HOUSEHOLD HEADS ACCORDING TO ORIGIN AND HOUSING TYPE

Ethnic Group	Housing types				
	type A %	type B %	type C %	type D %	type F %
Ewondo	15	60	20	8	29
Bamiléké	21	30	30	14	14
Eton	13	-	30	7	-
Bassa	19	-	-	21	-
Bafia	7	-	10	14	-
Foulbé	7	-	-	-	14
Makéa	6	-	10	7	-
Boulou	-	-	-	7	-
Batanga	2	-	-	7	-
Banen	-	-	-	7	-
Bamoun	-	-	-	-	14
Douala	-	-	-	-	29
Others	8	10	-	-	-

4. Religion

In the sample, Catholic households predominated: 49 out of 97, or 51%; Protestant households followed with 35 out of 97, or 36%; and Moslem households came next with 6 out of 97, or 6%. 11% of the households declared another religion or none at all (4% of the households were mixed). The greatest number of Catholics are found among the Ewondo and Eton populations (native to Yaounde), the most Protestants are found among the Bamileke and Bassa, whereas the Foulbe are, for the most part, Moslems. In addition, 51% of Catholics, 52% of Protestants, and 83% of Moslems surveyed live in type A housing, and 80% of the Moslems are settled in the Briqueterie.

The distribution of households surveyed according to religion and housing type is as follows:

TABLE 10
DISTRIBUTION OF HOUSEHOLDS ACCORDING TO RELIGION AND HOUSING TYPE

RELIGION	type A	type B	type C	type D
Catholic	47 %	50 %	80 %	35 %
Protestants	34 %	30 %	10	64 %
Moslem	9 %	-	-	-

B. ECONOMIC CHARACTERISTICS

1. Employment

Among the 579 persons surveyed, 135 or 23% belong to the active population (population which is gainfully employed), giving an average of 1.4 work units per household.

The most common occupations of the survey population included the civil servant (13%), merchant (7%) and dressmaker (5%). With respect to the sectors of employment, the greatest number of jobs were found in the service sector (18%) which includes chauffeurs, maids and houseboys, night watchmen, cooks, taxi drivers, cart-pushers, etc. The handicrafts sector represented 14% of the jobs, while the education, commerce, and public sectors each accounted for 13% of the jobs. Workers in the construction sector numbered 12% of the total, while office employees (such as managers, accountants, secretaries) represented about 11%. About 3% of the heads of households were entirely unemployed and 1% retired.

As we see later, the less skilled employees are those who have changed employment sectors and jobs the most often. This category includes the night watchmen, manual labourers, and temporary help. Those with a steady job represent 54% of the responses obtained in this domain. Without a doubt, the most stable jobs are those in the public sector (civil servants and government agents). The less stable jobs are held by 15% of the total active population:

TABLE 11
DISTRIBUTION OF ACTIVE POPULATION ACCORDING TO EMPLOYMENT SECTOR
AND HOUSING TYPE

Activity	Housing type					Total	
	A	B	C	D	F	Number	%
Construction	8	29	29	5	8	16	12
Handicrafts	11	14	14	10	23	19	14
Service	25	7	29	15	8	24	18
Office employee	-	-	-	10	15	15	11
Education	11	7	-	25	31	18	13
Commerce	14	43	7	5		18	13
Health	7	-	-	5	7	5	4
Agriculture	3	-	-			3	2
Public service	11	-	21	15	8	17	13

2. Household Incomes and Expenditures

There are two aims in introducing questions into the survey about household income and monthly expenses:

1. To determine the financial capacity of households by housing type which will assist in the determination of target groups for future sites and services projects; and
2. To determine the correlation between expenditure and consumption of basic goods and services. This served as a check on income data and as a means of measuring level of services and standards.

In this regard, the following points deserve attention:

- a. In the format of the questionnaire, questions concerning income are at the end, immediately after those concerning expenditures. This sequence permitted an immediate comparison of incomes and expenditures. It allowed us to control and verify answers, and to evaluate their coherence.

b. It was observed that, when questioned, people did not hesitate to enumerate their expenditures frankly, which was not the case for incomes. One can, therefore, conclude that the figures for expenditures are the most accurate and the most useful for the needs of our project. Since the sample is limited, especially for types B, E, and G, only the results of type A seem truly representative and valid. The others remain merely indicative and should be considered as such.

c. According to the housing typology, there are very few middle income neighborhoods. On the contrary, the survey revealed a large number of middle income households living in low income neighborhoods. However, on the whole the population by housing type appeared to be relatively homogeneous.

The expenditures noted during the study seem a bit higher than those noted during other studies made recently in Yaounde. (See the studies of the Cellule d'Urbanisme on the low-income neighborhoods to the Northwest part of the city.) This could be the result of several factors, including:

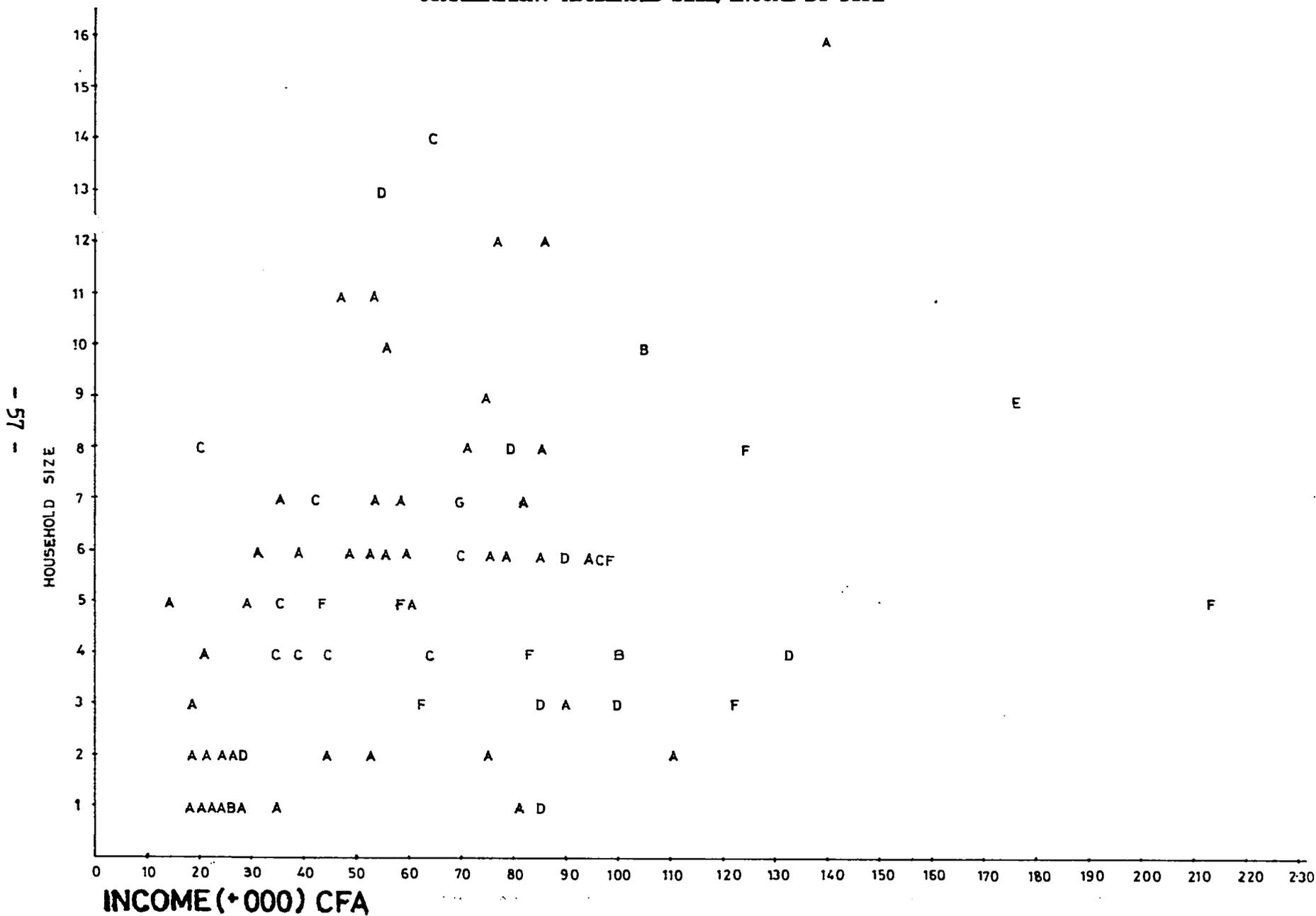
- In linking incomes to expenditures in the questionnaire, we discovered a higher non-salaried income of households.
- In order to obtain a better idea of the self-help housing possibilities, a larger percentage of middle income households were surveyed (22%) than that which, according to our estimates, existed in 1974 (13%).
- Lastly, it was impossible to survey entirely single person households and this absence created an additional distortion. About 13% of the households in the survey consisted of one or two single persons.

The median monthly income of the 74 households questioned about their expenditures is 65,000 FCFA. That of the household head is about 44,500 FCFA, constituting about 70% of the total income of the household. 20% is contributed by other family members and 10% comes from rents and family allowances from the government. 69% of households have supplemental sources of income to that of the head of household.

In 44 type A households, median monthly expenditures were 53,700 FCFA, with an average of 55,150 FCFA. The median monthly income can be broken down as follows: household head 67%, other members 24%, rent 9%. Households with sources of income outside that of their head represented 79% of the sample. Although the income from rents is low for most households, that of 53% of owners who rent a part of their house is about 26,000 FCFA per month and per owner. Obviously, the opportunity to rent an apartment has an influence upon the organization of the family budget.

FIGURE 2

CORRELATION: HOUSEHOLD SIZE/INCOME BY TYPE

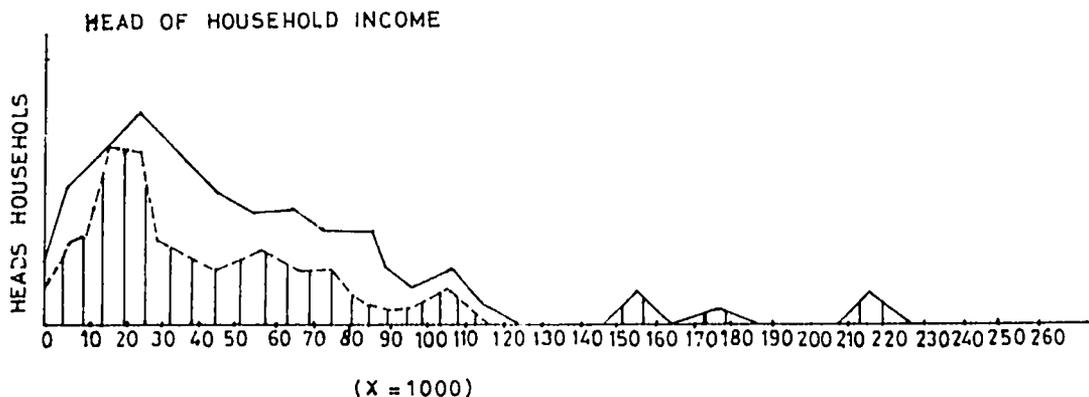
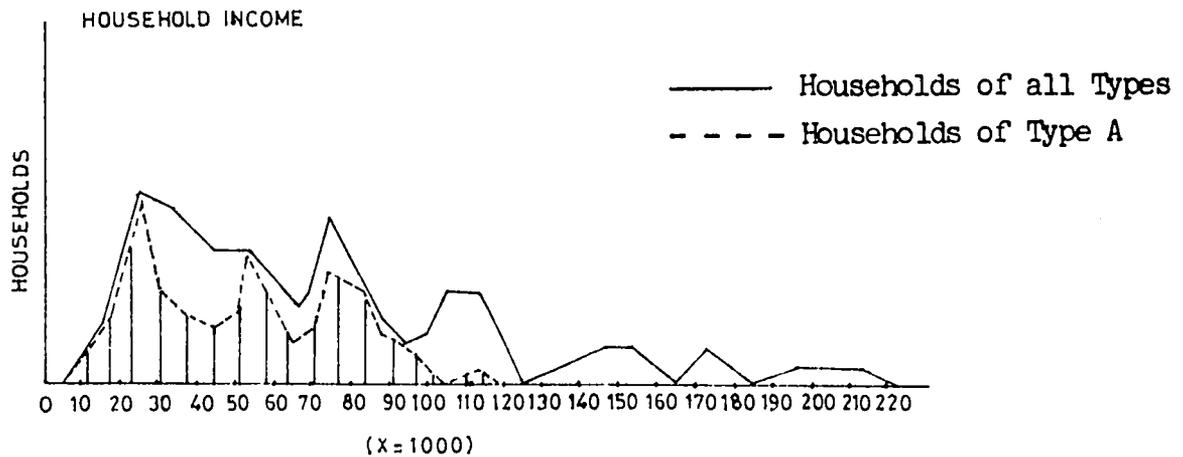


The survey also reveals that the average incomes of households in housing types A, B, and C are very similar. 71% of these households have incomes in addition to that of the head of household.

It is interesting to compare the income data from type A to that of the rest of the sample. Even though the difference in household income by housing type may not be striking, it becomes twice as great when simply the incomes of the heads of household are compared. For the entire sample the average income for the head of household is 44,500 FCFA while in type A it is 28,000 FCFA. In general, however, supplemental household income in housing type A is about equal to that of the head of household.

The income distribution for Yaounde according to the survey is illustrated in the following charts. Although the size of our sample does not enable us to trace the curves accurately, it at least gives us an idea of the existing situation.

FIGURE 3 (A + B)
INCOME CURVES



For the entire sample as well as for type A, the income curves of the heads of households are more regular than those of the total household income. One can assume that even with a larger sample, the curves indicating the household heads' incomes would be roughly the same, whereas household income curves are more complex.

In each of the four curves the principal mode lies between 15,000 and 30,000 FCFA. For the two curves indicating total household income, the distribution is along the two other principal modes, and lies between 50 - 60,000 and 70 - 90,000 FCFA.

After analysis of the responses obtained, it appears that the 50 - 60,000 FCFA mode represents an important proportion of low-income households well established in the city, whose heads have a stable job and whose other members are also active. The 70 - 90,000 FCFA mode results from the fact that 65% of type A households at this income level are homeowners and probably have some income from rent. Middle-income households are in this last income group.

TABLE 12
MONTHLY HOUSEHOLD EXPENDITURES
(IN %)

	HOUSING TYPES							AVERAGE
	A	B	C	D	E	F	G	
Nº of households in sample	44	4	9	12	2	4	1	76
Household size	5.2	4.8	5.9	8.1	19.5	5.0	7.0	6.1
Declared income (monthly household)	50,200	32,400	46,600	109,050	293,000	123,950	42,500	68,300
Monthly expenditures	55,150	62,200	57,500	94,300	274,050	104,610	70,000	70,697
Monthly expenditures per person	10,600	13,750	9,680	11,670	14,423	20,930	10,000	11,460
Expenditures by category: (%)								
Food	37.6	36.4	42.9	34.0	26.7	34.1	42.9	37.2
Rent	9.0	6.0	9.2	11.9	0 *	10.7	14.3	9.2
Transport	6.1	8.2	5.3	10.7	8.4	7.6	-	7.0
Energy	6.2	3.4	6.0	9.4	7.4	8.1	15.0	6.8
Clothing	6.4	2.0	5.0	7.4	9.5	5.5	2.1	6.2
Leisure	9.8	6.6	9.6	6.8	9.9	9.3	14.3	9.2
Health	5.8	1.4	4.3	5.2	5.5	2.7	0.7	5.1

TABLE 12
(Continued)

	HOUSING TYPES							AVERAGE
	A	B	C	D	E	F	G	
Expenditures by category: (%)								
Education	4.3	5.5	6.4	7.0	28.1	4.4	7.1	5.7
Mutual family aid	5.4	4.9	4.0	5.0	4.5	6.0	2.9	4.9
Tontine (traditional credit society)	9.4	25.6	7.3	2.8	-	11.6	0.7	8.7

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* Rents of surveyed type E housing were paid for

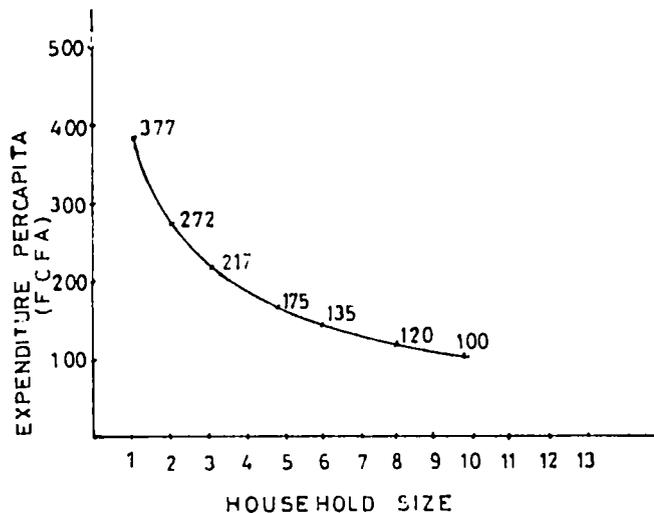
a. Expenditures for food

The results of the survey indicate that the daily expenditures for food are comparable for all housing types. Diets differ little, even among those with a higher income level. The amount spent by a family for food is, therefore, more likely determined by the household size than by the quality of the food. The majority of families surveyed spend between 35% and 40% of the total monthly income, or about 55% of the household head's income, on food. For an average size family (6 - 7 members), the daily expenditure per head is about 135FCFA.

When one considers that MIDEVIV (Mission for the Development and Marketing of Food Crops) in Yaounde has calculated that a minimum expenditure of 105 FCFA per person per day is necessary to achieve an acceptable level of nutrition, it then appears to us that even low-income households are relatively well nourished. Households with a monthly income below 30,000 FCFA for example spend about 48% of their budget for food, or 140 FCFA per person and per day. The following graph illustrates daily expenditures per person in function of household size.

FIGURE 4

NUTRITION: DAILY EXPENDITURE PER CAPITA BY HOUSEHOLD SIZE



b. Rent

Table 13 shows the correlations between rent, its corresponding percentage of income, and the average rent per square meter for each housing type. Renting households of type A spend on the average 15% of their monthly budget (7,800 FCFA) on lodging. Renting households of the more affluent groups (D, F, and G) pay an average rent which is about 3 times higher than that of low-income groups, while those of type E (the highest income group) occupy housing with rents 15 times higher than that of type A rent.

While the great majority of households pay less than 20% of their total monthly income for rent (or about 25% of the household head's income), those of type F, who live in S.I.C. projects, are a notable exception. These households pay an average rent of 23,700 FCFA, or 27% of their monthly resources.

Table 13 further indicates that, per surface area, the cheapest housing is to be found in the B housing with an average of 155 FCFA/m². These units are, however, smaller with a maximum of one or two rooms. Nevertheless, it responds rather well to the demand of single persons living in these neighborhoods. It is also noteworthy that per square meter the rents charged for S.I.C. projects and type E villas are about the same.

TABLE 13
CORRELATIONS BETWEEN RENTS, % OF INCOME, DWELLING UNIT SIZE AND RENTS/m² BY HOUSING TYPE

TYPE	RENT (CFA)	% OF INCOME	DWELLING UNIT SIZE (in m ²)	RENT/m ² CFA
A	7 800	15	37.7	207
B	3 000	11	19.4	155
C	6 000	14	34.4	174
D	17 375	17	85.5	203
E	100 000	-	206.9	483
F	23 700	27	49.7	482
G	60 000	-	84.4	711

c. Energy/Electricity

Low income households (types A,B, and C) pay about 3,500 FCFA per month (6% of the monthly household budget) for all forms of energy (cooking, electricity and light). Since no type C household surveyed had electricity, their average monthly expenditure for light amounts to only 700 FCFA. Their expenditures for energy are, however, comparable with those of other housing types. The expenditures for energy and electricity/light are remarkably similar for the two types D and F. Type A and B households pay about 1,500 FCFA per month for light and electricity, those of types D and F about twice as much (approximately 3,000 FCFA) and those of type E eight times as much (12,000 FCFA approximately). In almost all cases where a household has informal access to electricity, without having a private connection to the network, a higher monthly contribution is paid than if there was a private connection.

The following tables give a more precise indication of the monthly expenditures for energy and electricity by housing and household type.

TABLE 14
AVERAGE MONTHLY HOUSEHOLD EXPENDITURES FOR ENERGY
AND ELECTRICITY

	HOUSING TYPE					
	A	B	C	D	E	F
Lighting (electricity, candles, petrol lamps, etc..)						
Owner	2 130	3 250	820	2 050	-	-
Renter	1 080	700	620	3 620	12 000	3 110
Energy (cooking food)						
Owner	2 500	2 560	1 370	5 170	-	-
Renter	2 880	1 020	3 470	2 360	11 500	2 920
TOTAL						
Owner	4 630	5 810	2 190	7 220	-	-
Renter	3 960	1 720	4 090	5 980	23 500	6 030

TABLE 15
 AVERAGE MONTHLY HOUSEHOLD LIGHTING EXPENDITURES
 ACCORDING TO ACCESS TO ELECTRICITY
 (IN CFA)

	HOUSING TYPES			
	A	B	C	D
Without electricity				
Owner	1 070	1 800	810	-
Renter	660	700	620	-
With access to electricity				
Owner	4 200	-	-	-
Renter	3 050	-	-	5 750
With private connection				
Owner	3 040	3 730	-	2 400
Renter	2 330	-	-	2 560

d. Transportation

In spite of the fact that nearly half of all travel is done on foot, a sizeable number of households surveyed spend considerable sums on transportation. Very few people cover more than 3km on foot, even to go to work. For distances exceeding 3km, buses and taxis are used. For type A households, transport costs account for 6% of the monthly budget. In type B, two of the surveyed households cause the expenditures for the group to be skewed upward: one which has its own car, and another 11-member family which often uses taxis. The percentage for the category 'Transportation' reaches 8% here. Type D households spend about 11% of their budget on transport (10,100 CFA/month) as type D households most often use taxis for transportation.

Per person transportation costs are on the average about 800 FCFA per month. Households in type A spend about 650 FCFA per month per person while those in type C about 515. Households of type D and E spend about one and a half times the average while those in type F spend twice the average amount. Households living on the urban periphery

surprisingly spend the least for transportation according to the survey. It is possible that since their life-style is still semi-rural, they move around less, and fewer members of the family go into the city to work or to run errands. It is also possible that public transportation does not serve their area and that they are forced to make most middle-distance trips on foot or that they avoid unnecessary trips whenever possible.

e. Clothing

Clothing expenditures were found to be irregular and to vary considerably. The sample revealed that on the average a family spends between 5 and 9.5% of its monthly budget on clothing. Per person, the more affluent households spend about twice (1,000 FCFA/month/person) the amount spent by less privileged households (500 to 600 FCFA/month/person).

f. Leisure

Expenditures for leisure also vary considerably, even between households of the same housing type. In general these expenditures range between 6 and 10% of the monthly budget (5,500 FCFA and 10,000 FCFA). The majority of households in low-income groups spend about 10% of their monthly budget on this item which includes entertaining friends and drinks.

g. Health

Poor households, with fewer available resources for their health needs, spend less on this category than those of higher income households. However, percentage-wise type A households have the highest expenditures.

h. Mutual family aid

Family aid which consists of between 4% and 6% of the monthly budget is an integral part of the social and economic system. Households, however, which participate in traditional credit associations (tontines) contribute less in family aid than those who do not. In a sense, financial assistance to the family constitutes a sort of family 'tontine'. Average monthly costs of family aid vary between 2,500 FCFA and 6,000 FCFA.

i. Education

Education costs tend to be annual rather than monthly. Nevertheless, for the needs of the survey, they were considered as monthly expenditures. They obviously depend on the household size and number of school-age children. For an average-sized household, these costs represent about 5% of the monthly budget (about 4,000 FCFA). Many households use money from the 'tontine' to pay school costs.

j. Tontine

The tontine is a form of mutual economic aid or savings to which each participant contributes a regular fixed sum. At the end of a designated period each member takes his turn and collects the communal savings. This method permits people to put aside enough money for special occasions. The size, dues, and frequency of turnover for the different tontines can vary considerably, but in all cases, the money saved produces no interest.

About 70% of type A households participate in this form of savings, more than 80% in type C, and only 33% in type D. The participation fee can also vary a great deal. The average for households living in type A housing is 7,500 FCFA/month, that of type C 4,900 FCFA/month, and that of type D 7,800 FCFA/month. In types A and C, homeowners contribute more than renters to tontines but this situation is reversed in type D. Most households that participate in tontines do so in order to meet school costs, improve their houses, or to buy clothing and durable goods.

3. Durable Goods

In order to study the socio-economic differences between households by housing type, households were asked, among other things, to indicate their personal mode of transportation and the household appliances which they possessed. Tables 16 and 17 summarize the results of the survey.

a. Personal modes of transport

TABLE 16
PERSONAL TRANSPORTATION MODES BY HOUSING TYPE (IN %)

Mode of Transport	HOUSING TYPES							Average
	A	B	C	D	E	F	G	
None	89	90	80	57	0	34	100	79
Bicycle	2	0	0	0	0	0	0	1
Motorbike	4	0	0	0	0	0	0	2
Motorcycle	5	0	10	14	100	14	0	7
Car	0	10	10	29	0	43	0	11

It can be seen that about 79% of households have no means of

transportation — a high figure. Furthermore, in housing type A, 89% of those surveyed are without any personal means of transportation and are limited to trips made on foot, by bus or by taxi. (See Chapter III, A.) The survey reveals that few households have bicycles (1%) or motorbikes (2%). Motorcycles and cars are possessed by 7% and 11% of households, respectively, on the whole for housing types D, E, and F. Of these, 13% have a motorcycle and 43% a car. No type A household was found to have a car and only 5% had motorcycles. In the few rare cases where households of types B and C had cars, they were found to be used for commercial purposes (as taxis, for transporting agricultural products, etc), but never for personal means of transport, which is, on the contrary, common for households of types D, E and F.

b. Household appliances

The number of household appliances per household by type of housing is as follows:

TABLE 17
OWNERSHIP OF HOUSEHOLD APPLIANCES BY HOUSING TYPE (IN %)

Type of Appliance	HOUSING TYPE							TOTAL
	A	B	C	D	E	F	G	
Radio	81	60	100	100	100	100	100	86
Coal iron	53	30	80	21	0	29	0	46
Electric iron	17	3	0	71	100	71	100	31
Sewing machine	34	30	50	57	100	43	0	40
Record player	28	10	40	64	0	43	100	31
Refrigerator	0.3	10	10	57	100	100	100	28
Fan	0	0	0	7	0	43	0	4
Telephone	0	0	0	0	100	0	0	2
Others	9	0	0	7	50	14	0	2
No answer	9	30	0	0	0	0	0	8

The most common appliances are radios owned by 86% of the households and which are often battery-operated, the coal iron owned by 46% of households, and the manual or electric sewing machine (40%). Electric irons and record players are found in 31% of the households.

In addition, refrigerators, a luxury item, are found in 28% of the households surveyed. Appliances rarely used are telephones (2% of households, only in type E) and electric fans (4%).

4. Finances

a. Savings Accounts (Postal Savings Booklets and Bank Accounts)

Table 18 provides a comparison of the frequency of bank accounts and postal savings among households surveyed. The table shows that savings accounts are more common in households than postal savings although the latter bears more than 5% interest, whereas the former costs the holders about 1,000 FCFA per trimester. In general, people open savings accounts in order to be eligible for a loan from the bank, an opportunity that postal savings do not offer. In addition, one is also allowed overdrafts at the bank.

TABLE 18

PERCENTAGE OF HOUSEHOLDS WITH POSTAL SAVINGS BOOKLETS OR BANK ACCOUNTS
(IN %)

	HOUSING TYPE						AVERAGE
	A	B	C	D	E	F	
Postal savings booklet	30	10	10	36	50	43	28
Bank account	36	20	50	79	50	100	47

In the sample about 27% of the households have had a loan of some kind. In addition 11% of the total number of households having received a loan resided in type A. Surprisingly, 63% of these loans were granted by banks while the remainder was provided by employers. For type A, the minimum bank loan is about 4 00,000 FCFA, with an interest rate of 8% per annum, repayable over 15 months. Loans granted by employers are even larger with an interest rate of 10%. Affluent households of type E housing can obtain large loans of up to 15,000,000 FCFA at 5% interest, repayable over 15 years. Most loans were used for construction or the purchase of household goods. As far as debts for construction are concerned, 3% of type A and 8% of the sample are still indebted.

b. Tontine

The tontine is a sort of interest-free loan whose duration

can sometimes exceed one year, according to frequency of rotation and the number of members. The percentage of households participating in a tontine is 41% for the whole sample and 65% for type A. In addition, for this same type, twice as many households participate in tontines than those having either a postal savings booklet or a bank account.

C. PLOT PURCHASES AND HOUSE CONSTRUCTION

Tables 19 and 20 show the sums which people are able to produce for the purchase of a plot or the construction of a house. As far as the purchase of a plot is concerned, 33% of the sampled households and 37% of type A said that they would be able to spend between 100,000 and 200,000 FCFA. Almost half of the sample, and 40% of type A are able to spend more, but most are unable to produce 500,000 FCFA. For the construction of a house, 39% of households are willing to spend between 500,000 and 1,000,000 FCFA. 23% of type A can spend more than 1,000,000 of which 8% would spend more than 2,500,000 FCFA. The data in the two tables would suggest that the price ceilings in a sites and services project should be about 200,000 FCFA for a plot and less than 1,000,000 for the construction, or a total house plus plot cost of 1,200,000 FCFA.

TABLE 19

SUMS AVAILABLE FOR THE PURCHASE OF A PLOT/PERCENTAGE OF HOUSEHOLDS WILLING TO PAY (IN CFA)

	AVERAGE		TYPE A	
	%	% Cum	%	% Cum
0 - 100 000	18	18	23	23
100 000 - 200 000	33	53	37	60
200 000 - 300 000	11	62	11	71
300 000 - 400 000	7	69	7	78
400 000 - 500 000	12	81	9	87
500 000 - 600 000	6	87	7	94
600 000 - 700 000	4	91	2	96
700 000 - 800 000	6	97	2	98
800 000 - 900 000	0	97	0	98
900 000 - 1 000 000	2	99	2	100
1000 000 - 1 500 000	0	99	0	100
1500 000 - 2 000 000	1	100	0	100

TABLE 20
SUMS AVAILABLE FOR HOUSE CONSTRUCTION/PERCENTAGE OF HOUSEHOLDS WILLING TO PAY
(IN CFA)

	AVERAGE		TYPE A	
	%	% Cum	%	% Cum
0 - 500 000	23	23	31	31
500 000 - 1 000 000	30	53	38	69
1 000 000 - 1 500 000	12	65	8	77
1 500 000 - 2 000 000	7	72	5	82
2 000 000 - 2 500 000	4	76	5	87
2 500 000 - 3 000 000	5	81	5	92
3 000 000 - 3 500 000	1	82	0	92
3 500 000 - 4 000 000	1	83	0	92
4 000 000 - 4 500 000	1	84	0	92
4 500 000 - 5 000 000	12	96	8	100
5 000 000 -10 000 000	1	97	0	100
+ 10 000 000	3	100	0	100

CHAPTER II:

HOUSING DESCRIPTION

A. NEIGHBORHOOD MIGRATION

1. Causes for Change of Domicile and Criteria for Neighborhood Selection

The following two tables illustrate the reasons for changing residency and the selection of a new neighborhood. Out of all households, 11% left their former houses in order to become house owners; 24% moved because the old house had become too small for their needs; and 11% moved because of rent increases which seemed excessive to them. Among type A households, 9% were forced out by the municipality and their homes were torn down. More than half of type F households (government housing) cited the lack of sufficient space as a reason for moving.

In choosing a new neighborhood, 18% of the households desired a place in proximity to friends and family. Fourteen percent cited the importance of living in close proximity to their place of work.

TABLE 21
REASONS FOR CHANGE OF DOMICILE
(IN %)

CAUSES	AVERAGE	A	A+B+C	D	F
Small size of house	24	14	15	36	63
Desire to own home	11	16	15	-	-
Rent increases	11	-	11	14	-
Destruction of former house by municipality	12	9	11	21	-

TABLE 22
NEIGHBORHOOD SELECTION CRITERIA BY HOUSING TYPE
(IN %)

CRITERIA	AVERAGE	A	A+B+C	D	F
Proximity to family or friends	13	18	18	-	-
Proximity to place of work	11	14	15	-	-
Type of housing desired	10	8	6	15	33
House or plot free of charge	11	14	13	-	17
Acquisition of plot	14	13	10	15	-
Displacement	2	-	-	15	-

B. LAND SITUATION

1. Status of Land Tenure

Renting households account for more than 50% of the total surveyed. The high percentage of renters is explained by the fact that it is difficult to become a landowner in Yaounde. The second most common form of land tenure is property ownership without a legal title. Very few households, in effect, possess a legal land title.

Of the entire sample, 28% of the households considered themselves to be plot owners, with or without land title. These households accounted for 32% of type A, 40% of types B and C, and 21% of type D.

Owners obtained their plots by the means indicated in Tables 23 and 24. The households surveyed in types E, F, and G were generally found to be renters.

TABLE 23
ACQUISITION OF PLOT (IN %)

MEANS	HOUSING TYPE			
	A	B	C	D
Inheritance	5	10	-	-
Gift	2	10	10	21
Free access	4	-	-	-
Purchase	21	20	30	-
House rental	55	60	60	72
Plot rental	4	-	-	7

TABLE 24
ORIGIN OF PLOTS

ORIGIN	HOUSING TYPE			
	A	B	C	D
Tribal leader	9	-	10	-
Private person	19	20	20	7
Relative	8	20	10	21
House rental	-	-	-	-
Government	2	-	-	-

Properties are private in most cases (75%). Traditional ownership is rather under-represented: one finds the highest percentage (23%) of this in type A zones. In type F areas, property is publicly owned in most cases (75%).

TABLE 25
TYPE OF PLOT OWNERSHIP (IN %)

	HOUSING TYPE						AVERAGE
	A	B	C	D	E	F	
Private	73	100	83	100	50	50	75
Traditional	23	-	17	-	-	-	13
Public	4	-	-	-	50	75	12

2. Place of Residence of Plot Owners

In order to assess the degree of absentee ownership, it was determined whether plot owners live on the plot, off the plot but in the neighborhood, or outside the neighborhood entirely. The results of the analysis are found in Table D. Surprisingly, it was found that 50% of the land owners are absentee landlords.

TABLE 26
PLACE OF RESIDENCE OF OWNERS (IN %)

PLACE	HOUSING TYPE			
	A	B	C	D
Compound on plot	45	90	40	43
Close proximity to plot	10	10	40	7
Neighborhood	11	-	-	-
Outside neighborhood	13	20	20	50
Other	21	-	-	-

In cases where plots are rented to those who occupy them, the renters may build no more buildings than that desired by the rightful owner. Even if a house falls into ruin, the occupant may not repair it without consulting the owner.

3. Dwelling Unit Ownership

The difficulty in becoming a land owner causes the number of renters to exceed that of house owners. Only 32% of the household sample and 34% in type A consider themselves to be house owners. It is, in fact, exceptional to find houses for sale in Yaounde as the only way, in general, of obtaining a house is to build it. However, because the plot acquisition is becoming more and more difficult, it appears that some land owners resell the same plot if the first person does not begin construction immediately after purchase. Most new house construction occurs on the urban periphery.

TABLE 27

DWELLING UNIT ACQUISITION

MEANS	HOUSING TYPES			
	A	B	C	D
Inheritance	2	0	0	0
Gift	6	0	10	0
Free Access	2	0	0	0
Purchase	6	0	10	0
Other	4	0	0	0
Construction	28	40	20	29
Renters	53	60	60	71

a. Dwelling unit occupation and length of residence

It is extremely difficult for renting households to acquire land in Yaounde. Furthermore, success appears to be linked to the head of household's length of residence in the city. Table 28 shows the correlation between dwelling unit ownership and length of residence in Yaounde.

In the course of the survey not a single household was found which had been in the city less than 10 years and possessed a land title. In fact, only 25% of the households with a length of city residence between 5 and 10 years owned land without title. Only those households which have resided more than 20 years in the city have a greater percentage of land owners (71%) than those which are renters (29%).

TABLE 28

DWELLING UNIT RENTAL OR OWNERSHIP WITH
OR WITHOUT LAND TITLE V.S. LENGTH OF
URBAN RESIDENCE

	LESS THAN 2 YEARS	2 - 5 YEARS (%)	5 - 10 YEARS (%)	10-20 YEARS (%)	MORE THAN 20 YEARS (%)	TOTAL (%)
Dwelling unit owner- ship with land title	0	0	0	5	6	11
Dwelling unit owner- ship without land title	0	0	5	10	6	21
Dwelling unit rental	14	10	15	17	4	60
Free lodging	1	2	1	3	1	8
TOTAL	15	12	21	35	17	

Table 29 shows the relationship between dwelling unit ownership and length of residence in the neighborhood. It is interesting to note that the percentage of renting families diminishes as the length of residence increases.

TABLE 29

DWELLING UNIT OWNERSHIP STATUS WITH OR WITHOUT
TITLE V.S. LENGTH OF NEIGHBORHOOD RESIDENCE

	LESS THAN 2 YEARS (%)	2-5 YEARS (%)	5-10 YEARS (%)	10-20 YEARS (%)	MORE THAN 20 YEARS (%)	TOTAL (%)
Ownership with title	-	-	3	3	5	11
Ownership without title	4	3	7	4	3	21
Renting	28	17	10	4	-	60
Free lodging	3	2	1	1	1	8
TOTAL	35	22	21	12	10	

4. Place of Residence of Dwelling Unit Owner

It is interesting to note that there are a greater number of house owners living on the plot (54%) than there are land owners (44%). This is explained by the fact that many dwelling owners do not own the plot on which the house stands; they may be plot renters or have an ambiguous tenure status. The ambiguity of land tenure is due to the following three observations:

- for certain sellers, the sale of plots without land titles constitutes a rental for an indeterminate period;
- for the buyers, it is a bona fide property;
- for government authorities, lack of title constitutes illegal land ownership.

Relatively few dwelling unit owners living off the plot reside in the same neighborhood as is indicated in Table 30. More remarkable, however, is the fact that 15% of the dwelling unit owners of type A live outside the city.

TABLE 30

PLACE OF RESIDENCE OF HOME OWNERS (in %)

PLACE	HOUSING TYPE			
	A	B	C	D
Plot	59	90	60	43
Proximity to plot	7	10	20	7
Neighborhood	6	-	10	-
Outside of neighborhood	13	-	10	50
Other	15	-	-	-

C. FIELD SURVEY OBSERVATIONS ON DWELLING UNITS

In addition to the questionnaire, the survey consisted of taking accurate measurements of the dwelling units and general observations of their physical characteristics. This was done in order to obtain in physical terms a precise idea of current housing conditions and standards, data which will serve as a frame of reference for improvement programs of existing as well as future housing.

The observations which were made focused on the buildings' location, surroundings and physical characteristics. With respect to the types of building materials used, the survey proved to be consistent with surveys by the Town Planning Unit and the Service of Surveys and Statistics at MINEH. Thus, it contained a small but representative sample. A greater number of poto-poto (wattle and daub) with cement plaster was voluntarily chosen, however, as is reflected in Table 31.

TABLE 31
 BUILDING MATERIAL USAGE (COMPARISON OF STAR
 AND TOWN PLANNING UNIT SURVEYS)

BUILDING MATERIAL	HOUSE TYPE	STAR SURVEY 1978	TOWN PLANNING UNIT 1978
-Concrete block	AAADEEEFFFF	18	19
-Poto poto (wattle and daub) with cement finishing	AAAAAAAAAAAA BBBBCCCC DDDDDD	42	36
-Poto poto (wattle and daub)	AAAAAAAAAAAAABCCD	25	32
-Wood (rough planks)	AAAAAAD	12	9
-Waste material	AA	3/40	4/45

TABLE 32
 BUILDING MATERIAL USAGE: HOUSING TYPES A & D

BUILDING MATERIAL	% of TYPE A	% of TYPE D
Concrete block	12	11
Poto-poto with cement finishing	33	67
Poto-poto	30	11
Wood (rough planks)	18	11
Salvaged wood	7	0

1. Site

The site characteristics of the houses surveyed are found in Tables 33 - 36. Only 32% of type A houses and 36% of the entire sample are on flat sites. In the majority of cases, however, the site is adequate

for building. Accessibility and rainwater drainage pose a problem for about 40% of type A dwelling units. About half of the type A units surveyed were accessible only by pedestrian paths and only 28% could be reached by automobile.

TABLE 33
SITE CHARACTERISTICS: TOPOGRAPHY

TOPOGRAPHY	TOTAL	TYPE A
Flat	36%	32%
Slight slope	47%	41%
Steep slope	17%	27%

TABLE 34
SUITABILITY OF SITE FOR CONSTRUCTION

SUITABILITY OF SITE FOR CONSTRUCTION	TOTAL	TYPE A
Good	78%	59%
Average	13%	23%
Poor	9%	18%

TABLE 35
SUITABILITY OF RAINWATER RUNOFF

RAINWATER RUNOFF	TOTAL	TYPE A
Good	38%	18%
Average	44%	46%
Poor	18%	36%

TABLE 36
EASE OF ACCESS TO DWELLING
(IN %)

ACCESS TO DWELLING	TOTAL	TYPE A
Easy	62	27
Not too difficult	18	32
Difficult	20	41

TABLE 37
MEANS OF ACCESS TO DWELLING
(IN %)

	TOTAL	TYPE A
Main road	22	14
Road open to vehicular traffic	36	14
Pedestrian path	27	50
Dead-end road	15	22

2. Plot

23% of type A and 36% of all plots are fenced in. Few households have a vegetable garden and fewer still raise poultry or other small animals. On most plots, however, outbuildings are found -- the most common of which are indicated in the following table.

TABLE 38
TYPE OF OUTBUILDINGS ON PLOT (IN %)

TYPE OF OUTBUILDING	TOTAL SAMPLE	TYPE A
Garage	7	0
Shed	17	23
Storage area	13	14
Workshop	2	0
Kitchen	58	55
Latrine	58	64

3. Building Characteristics

a. Foundations

83% of type A houses and 76% of the entire sample have no foundations. When these do exist, they are usually built of concrete block.

b. Walls

The building materials most commonly used for walls may be found in Tables 31 and 32.

c. Floors

48% of type A housing have an earthen floor and 52% a cement floor. For all other types, however, the latter percentage is higher. With respect to the entire sample, the flooring in 35% of the dwelling units is bare earth, in 65% cement, and in 15% floor tiles.

d. Roofing

96% of the total house sample and 97% of type A have sheet metal roofs. Only one house with a tile roof was found.

e. Ceilings

59% of type A houses lack a false ceiling and, as a consequence, have exposed rafters and roofing while 41% of the units are equipped with ceilings. Of the latter, 59% are painted.

f. Cement finishes

38% of type A houses and 57% of those in the entire sample are plastered with cement on the exterior and 71% of these are painted. A greater number of dwelling units (63% in type A and 65% in the entire sample) are plastered with cement on the interior. Of the latter, 79% are painted.

g. Openings

In 93% of the units surveyed, the doors and window frames are made of wood. Furthermore, 89% of the houses are equipped with shutters while only 13% have window panes. One third of the houses were found to have anti-theft grillwork installed.

D. CONSTRUCTION

1. Costs of House Construction

Though it was difficult to obtain precise data on building costs, the results obtained for house construction in type A seem fairly satisfactory. For dwelling units built on the average five years ago, the average cost of a unit 72 square meters was about 600,000 FCFA or 8,4000 FCFA/m². Furthermore, most of the dwelling units were completed in 18 months to 2 years.

2. Means of Construction

a. House

The results of the survey indicate that one-third of the type A houses were built by day-laborers, 21% by the family, and 14% by a combination of family and outside labor. No type A house had been built by a construction company. For the whole of the sample, 36% of the houses were built by day laborers, 18% by family members, 10% by the family with help of friends, and the same percentage with the help of laborers. It was found that houses built by construction companies are in fact rare with the exception of the S.I.C. projects, which represent 7,5% of the overall sample.

House improvements made by the occupants include in particular for type A the plastering of walls and roof repairs. For type D, they include: painting, water, and electricity. Improvements which remain to be done are most often interior plastering, wall painting and cementing the floor. 16% of type A households indicated that they intended to eventually tear down their house in order to build a better one.

b. Toilet construction

Although about 10% of the toilets, consisting for the most

part of pit latrines, were installed by the owners themselves, a great number are dug by day laborers. In addition, all cases of self-help toilet construction are found in housing types A, B, C, and D, as well as almost all of those dug by day laborers. Sanitary facilities built by construction companies are found for the most part in housing types D, E, F and G.

TABLE 39
TOILET CONSTRUCTION
(IN %)

BUILDERS	TYPE OF HOUSING							AVERAGE
	A	B	C	D	E	F	G	
Household	11	20	10	7	0	0	0	14
Day laborer	89	70	90	86	50	0	0	78
Company	0	10	0	7	50	100	100	11

c. Electrical wiring

About 46% of the households surveyed have dwelling units wired for electricity. Some, however, have not yet been connected to the municipal system. The number of households with electrical wiring and those with access to electricity (47%) give comparable results.

The methods employed for the installation of electrical wiring is as follows:

TABLE 40
INSTALLATION OF ELECTRICAL WIRING (IN %)

MEANS OF INSTALLATION	TYPE OF HOUSING							AVERAGE
	A	B	C	D	E	F	G	
Household	2	0	10	14	0	0	0	9
Day laborer	32	30	0	64	50	0	0	67
Construction Company	2	0	0	0	50	100	100	22
Other	0	0	0	7	0	0	0	2

Day laborers are the most common means of installing electrical wiring. In types A, B, and D they were used in 67% of the units with wiring. Exactly how often day laborers are used in type E housing is unknown but, as in types F and G, the involvement of larger scale construction companies is certain.

About 9% of the households in the sample installed their own electrical wiring -- a relatively large number. All these are found in A, C, and D although installation of wiring in type C housing is uncommon due to inaccessibility to the municipal electrical service.

d. Rainwater drainage

According to the survey, the initiative in digging drainage ditches for rainwater is mainly private. Though organized community action in this area is rare, the households surveyed felt the role of the municipality in this area is also minimal.

TABLE 41 a
PROVISION OF RAINWATER DRAINAGE DITCHES
(IN %)

INITIATIVE	TYPE OF HOUSING						
	A	B	C	D	E	F	G
Private	87	100	80	92	100	0	0
Neighbor	2	0	0	0	0	0	0
Community	0	0	0	0	0	0	0
Other	11	0	20	7	0	57	0
Municipality	0	0	0	0	0	0	100

The maintenance of drainage canals usually consisting of small ditches between houses is also done by private initiative, most often by the owners or occupants of dwellings in proximity. According to the households surveyed, the municipality and the government (for type F) have been of little assistance in this regard. On the other hand, community organizations, when they exist, seem to play no role whatsoever in the construction or maintenance of drainage ditches.

TABLE 41b
 MAINTENANCE OF RAINWATER DRAINAGE DITCHES
 (IN %)

INITIATIVE	TYPE OF HOUSING						
	A	B	C	D	E	F	G
Private	89	100	80	93	100	100	0
Community	0	0	0	0	0	0	0
Municipality	0	0	0	0	0	0	100
Other	11	0	20	7	0	0	0

E. DWELLINGS AND THEIR ENVIRONMENT

More than 80% of the households surveyed said that they were satisfied with their dwelling unit. Of all housing types, occupants of type F dwellings (S.I.C.) are the least satisfied (71% unsatisfied). However, the level of satisfaction is quite high in the low-income group (A and B type dwellings) and this is undoubtedly explained by the fact that a great number of these households live in their own homes. For those who rent, the level of satisfaction is lower (73%) than that of owners (97%). The latter are almost always satisfied with their homes. Generally speaking, one can say that the property ownership influences the degree of acceptability of the house.

In response to the question of whether these same households were satisfied with the open space in proximity to their dwelling units, 65% replied in the affirmative although renters appeared to be relatively indifferent in this regard. As a rule, households are more concerned with their dwelling unit.

The percentage of households satisfied with their dwelling units corresponds to the percentage of households that prefer to remain put rather than change their place of residence. This is the case for 75% of the type A households. Most households that would prefer to leave

are renters but even these are in the minority.

With respect to protection from the environment, most households found their dwelling units adequate. Specifically, 83% felt sufficiently protected from the wind, 65% from heat, and 61% from rain. It is interesting to note that the most common house improvement concerns the roof.

The lack of interior space is one of the major problems encountered by households, especially those in type F (S.I.C. projects). Lack of water and electricity were also cited as problems as well as difficulty in access to the house. Problems associated with rain are the most prevalent for type D households.

24% of type A households and 56% of those in type F cited privacy as the main advantage of their dwelling unit. For type D, the most important quality was judged to be the interior space, while a good number of type B households cited proximity to a main road as the main asset. In general, the households regardless of housing type seem well aware of the positive aspects of their housing.

F. HYPOTHETICAL DWELLING

Table 42 shows the preferences of different households when confronted with the choice of a spacious dwelling without services (water, electricity, access roads, etc.) and an average sized serviced dwelling. As the table indicates, most households preferred the latter. Thus, there is a preference for services over space within obvious limits.

TABLE 42
HYPOTHETICAL DWELLING PREFERENCES -- SPACE
VS SERVICES

PREFERENCE	HOUSING TYPE							AVERAGE
	A	B	C	D	E	F	G	
Spacious, without services	36	50	20	7	-	-	-	28
Average size, with water & electricity, access road, etc.	64	50	80	93	100	100	100	72

Table 43 concerns the acceptability of living in a house with common walls, on an upper floor, or on two levels, one of which would be on the ground floor. It was found that many people do not want to live on an upper floor because of possible danger for children and for fear of heights. On the other hand, a large number of households would accept a dwelling with common walls.

TABLE 43
HOUSEHOLD PREFERENCES:
DWELLING ON UPPER FLOOR, GROUND FLOOR OR WITH COMMON WALL

	ACCEPTABILITY			
	Average		Type A	
	YES	NO	YES	NO
With adjoining wall	66	39	76	24
On 2nd floor	23	77	28	72
On 1st and 2nd floors	40	60	46	54

Most households, including single persons, desire to have a house with 5 or 6 rooms. The dimensions of the rooms are described as about 3 x 4 m (12m²), with a living room of 5 x 6 m (30m²). Table 44 shows the correlation between the average number of rooms households possess by housing type and those they desire.

TABLE 44
ROOMS PER DWELLING UNIT: CORRELATION BETWEEN THOSE
POSSESSED BY HOUSEHOLDS AND THOSE DESIRED

	A	B	C	D	E	F
Number of rooms desired	5.7	6.6	5.9	6.4	9.5	5.1
Present number of rooms	3.9	2.8	3.3	4.9	8.0	3.6
Difference	1.8	3.8	2.6	1.5	1.5	1.5

G. ACCEPTABILITY OF PROPOSED SITES FOR HOUSING DEVELOPMENT

There is little disagreement among the households surveyed by housing type regarding the acceptability of proposed sites for future housing developments.

In spite of the fact that a slight predominance of the households surveyed were in the southwestern neighborhoods of the city, they expressed a clear preference for the northwestern zones, and in particular the Mbala, Etoudi, and Essos neighborhoods. This preference may be explained by the fact that these sites border roads leading to their villages of origin (one of the tendencies of current city settlement). It is also possible that despite explanations by the survey team, many persons did not know precisely where the southwestern sites are. Those mentioned most often are presently in the process of subdivision. In general, households are well aware of the municipal projects in the areas and realize that if they are provided a plot and meet the conditions required, they will be allowed to stay without harassment.

Concerning the acceptability of the site of the sites and services project in Biyem Assi, 36% of the household sample responded favorably while 64% were neutral or responded negatively. A considerable number of those expressing a favorable opinion did so in citing the proximity of a SOTUC (bus) line as the reason. No other reason was singularly as important. Most of the households who responded negatively cited the long distance between the site and the city center. 16% said simply that they had no opinion.

Households will probably show greater interest in the proposed sites to the southwest of Yaounde when a concrete project has begun and opportunities are provided for public services and transport. Nevertheless, given the scale of the operations proposed, a market study is highly recommended.

CHAPTER III:

EXISTING LEVELS OF SERVICES AND INFRASTRUCTURE

A. TRANSPORT

1. Average Distance from Home to Place of Work and Means of Transport

Almost half of all trips made by the households surveyed are made on foot (44%). Those made by taxi and bus accounted for 20% and 19% respectively while those by personal car and motorcycle accounted for 10% and 7%. Only 2% of all trips are made in employer organized transport.

TABLE 45
MEANS OF TRANSPORT (IN %)

MEANS	AVERAGE: ALL HOUSING TYPES	TYPE A
On foot	44%	56%
Bus	19	18
Taxi	20	17
Personal car	10	4
Motorcycle	7	5

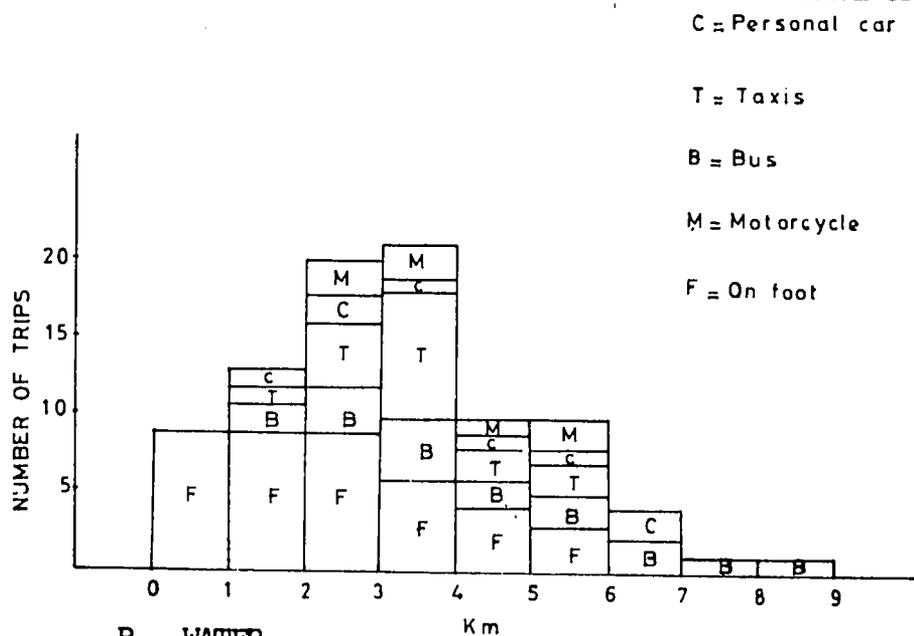
Table 46 shows that the occupants of type A dwellings travel an average distance of 3.1 km to their place of work. On foot the average distance covered is 2.8 km, by bus 3.9 km and by taxi 3.4 km. The occupants of type B dwellings travel mainly on foot to work over a distance of 1.3 km on the average. Type C households cover a greater average distance to work (4.5 km): 2.8 km on foot, 5.9 km by bus and 5 km by taxi.

TABLE 46
AVERAGE DISTANCE TO PLACE OF WORK (IN %)

Means	Type A	Type B	Type C	Type D	Type E	Type F	Average
On foot	2.8	1.3	2.8	2.3	-	-	2.7
Bus	3.9	-	5.9	5.9	-	3.9	4.4
Taxi	3.4	-	5.0	3.6	2.7	3.4	3.4
Personal car	-	-	2.8	4.2	4.0	4.4	4.1
Average	3.1	1.3	4.5	3.8	3.5	3.9	3.3

The following histogram shows the distribution of transport means utilized, taking into account the distance from one's place of work. 42% of this travel covers a distance of about 2 to 4 km, 23% less than 2 km, and 26% more than 4 km. For distances over 4 km, taxis and buses are used in 46% of cases, and personal cars and motorcycles 27% of the time.

FIGURE 5: MEANS OF TRANSPORTATION AND DISTANCE FROM PLACE OF WORK



B. WATER

1. Potable Water Supply

The frequency of use regarding potable water supply

sources is summarized in the following table.

TABLE 47
SOURCES OF POTABLE WATER (IN %)

SOURCE OF SUPPLY	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Private connection	13	0	2	71	100	26	100	28
Neighbor	9	30	20	7	0	0	0	11
Public standpipe	75	60	50	21	0	14	0	57
Rainwater	6	0	0	0	0	0	0	3
Creek	2	0	0	0	0	0	0	1
Well	26	10	20	0	0	0	0	18

The most common potable water supply sources are: standpipes (57% of households), private connections (28%) and wells (18%). The use of rainwater and creeks is not common. About 11% of households have access to the urban water supply network through a neighboring connection. In this case, the price per bucket sold (10 francs for 20 litres) is superior to that of the SNEC (95 francs per 1,000 litres) and permits the household with a connection to pay for the cost of a connection and service charges.

According to Table 47, about 3/4 of the population living in type A housing or 45% of the urban population uses public standpipes for its water supply. Considering that the municipality is obliged to shoulder these costs vis-a-vis SNEC, it is supporting this at a considerable expense. In addition, 26% of the population of type A neighborhoods, representing 16% of the urban population, uses well water for drinking. Thus, the high density and great number of latrines in type A neighborhoods present a serious threat to public health. Type E, F and G households have, for the most part, direct access to the urban water supply network.

2. Non-Potable Water Supply

Non-potable water is usually used for laundering, dish-washing and all types of household cleaning. Households which have

direct access to public water supply use this water for all purposes. Households without direct access, however, use water from various, often contaminated, sources. The frequency of use of non-potable water supply sources by housing type is indicated in the following table.

TABLE 48
SOURCES OF NON-POTABLE WATER SUPPLY (IN %)

SOURCES	HOUSING TYPES							
	A	B	C	D	E	F	G	Average
Private well	6	0	10	0	0	0	0	4
Common well	75	40	50	0	0	0	0	51
Rainwater	9	50	10	0	0	0	0	11
Creek	9	10	0	0	0	0	0	6
SNEC	30	60	30	100	100	100	100	51

The principal supply sources of non-potable water are common wells (51% of households) and the city water supply (51%). Households living in type A and C neighborhoods frequently use several different sources of non-potable water. Types D, E, F and G use, on the other hand, the city water supply exclusively. Rainwater is also used, and several households have devised do-it-yourself systems for collecting rainwater from rooftops. No household surveyed, however, possessed a cistern as such. The high percentage of households in types A and C which are using non-potable water from likely contaminated sources (61%) is considerable. The need for non-contaminated water for all purposes should be a high-priority endeavor of the public authorities.

3. Sanitary Facilities

The sanitary unit is defined in the survey as any installation used for the disposal of fecal waste. Tables 49 and 50 show the types of sanitary units most prevalent by housing type and the degree to which they are shared.

TABLE 49

TYPES OF SANITARY UNITS BY HOUSING TYPE
(IN %)

SANITARY UNIT	TYPE OF HOUSING							TOTAL
	A	B	C	D	E	F	G	
Pit privy	94	100	100	79	0	0	0	84
Cesspool	6	0	0	14	50	43	100	10
Septic tank	0	0	0	7	50	57	0	6

The most common type of sanitary unit is the pit privy which is used by 84% of the households surveyed. In urban fabric types A, B and C, it is used by 96% of the households and by 79% of those in type D. Types E, F, and G use either cesspools or septic tanks and their usage is strictly private. In types A, B, C, and D sanitary units usually consisting of pit privies are shared 64% of the time, mostly with other households on the plot. Relatively few (34%) have private facilities.

TABLE 50

COMMON USE OF SANITARY UNITS BY HOUSING TYPE

USE	TYPE OF HOUSING							TOTAL
	A	B	C	D	E	F	G	
Private	30	20	30	64	100	100	100	41
In common w/neighbors on plot	68	80	70	36	0	0	0	58
In common w/neighbors	2	0	0	0	0	0	0	1

4. Bathing: Access to Showers

About 30% of the households claimed to have access to a shower shared with others. Those who have a private shower, and consequently a private water connection, represent 25% of the sample. Less than 45% of the type D households and 21% of those in types A, B, and C have as a minimum a shower shared with other households. However, 100%

of the households in types E, F and G, which represent about 8% of the urban population, have private showers and bathing facilities.

TABLE 51
HOUSINGS HAVING ACCESS TO A SHOWER BY HOUSING
TYPE (IN %)

	HOUSING TYPES						
	A	B	C	D	E	F	G
Access to	21	0	20	43	100	100	100
Private	13	0	10	43	100	100	100

The majority of households without showers bathe in their latrines with a pail of water; children are often bathed outdoors.

C. POWER/ELECTRICITY

1. Electricity

a. Electrical connection

Table 52 gives the percentages of households having in direct access to electricity and having a private connection. The survey showed that about 47% of the households have access to electricity, although only 37% have their own connection. In types A and B, only 30% have private electrical connections. None of the households in type C semi-rural fabric had a connection. 93% of type D households had access to a neighboring source of electricity, whereas only 64% had a private connection. 100% of types E, F and G have private electrical connections.

It appears that the ability to possess a private electrical connection depends upon the income level of the households rather than on other criteria, such as topography and land tenure. The exception is in type C where most units are beyond the limits of urban electrification; thus, no units with a connection were found regardless of income.

TABLE 52
HOUSEHOLDS WITH ACCESS TO ELECTRICITY (IN %)

ACCESS	HOUSING TYPES							Average
	A	B	C	D	E	F	G	
To electricity	38	30	0	93	100	100	100	47
To private connection	26	30	0	64	100	100	100	37

b. Utilization of electricity

Table 53 shows how households with access to electricity use it. About 45% use electricity for simple lighting and 30% for household appliances, such as radios, record players, irons, and refrigerators. (See Table 17.) The use of electricity for cooking is rare -- found only in 2 of the 97 households surveyed.

None of the surveyed households use electricity for tools or business machines although a number of small businesses and handicraft shops were found in the dwelling units surveyed. As this type of utilization most certainly exists, a more thorough study is necessary to evaluate the impact electricity has or could have upon handicrafts and small businesses.

TABLE 53
UTILIZATION OF ELECTRICITY BY HOUSING TYPE (IN %)

	A	B	C	D	E	F	G
Lighting	34	30	0	93	100	100	100
Cooking	0	0	0	0	0	29	0
Appliances	13	10	0	65	100	100	100
Business machines & tools	0	0	0	0	0	0	0

2. Non-Electric Lighting

The use of petrol lamps for lighting is very widespread except in types E and G and is used almost exclusively by households without access to electricity. About 76% of all households, with or without electricity, use petrol lamps. Candles are used only occasionally

(during electrical failures) and are not a usual means of lighting. Households of types D, E, F, and G use electricity mostly for lighting.

TABLE 54
MEANS OF NON-ELECTRIC LIGHTING

MEANS	TYPES OF HOUSING						
	A	B	C	D	E	F	G
Petrol lamp	79	100	100	50	0	71	0
Candles	11	10	30	7	0	14	0

3. Cooking Energy Sources

The most common energy sources found for cooking purposes include: petrol, wood, gas and charcoal. Electricity is almost never used for this purpose.

TABLE 55
ENERGY SOURCES FOR COOKING BY HOUSING TYPE

ENERGY SOURCE	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Gas	21	10	10	50	100	43	100	26
Wood	55	50	60	29	50	29	0	48
Kerosene	49	50	80	50	0	86	100	55
Charcoal	2	2	4	2	0	2	0	6

All households (especially families) use at least 2 energy sources depending on the dish to be prepared. The most widely used energy sources are kerosene (55% of the households), wood (48%) and gas (26%). The use of charcoal for cooking is only 6%. In housing types A, B, C and D where cooking is generally done outside the main dwelling unit, wood is the most common energy source. When, on the

other hand, households are forced to cook in the dwelling unit, kerosene is almost invariably used -- often with poor ventilation. (See House Plans, Volume III.) The use of gas is most common in housing types D, E, F and G.

D. GARBAGE DISPOSAL

Inadequate garbage disposal poses serious problems for the households surveyed. Questioned about the places used for garbage disposal, 49% claimed to use municipal garbage bins; at least half was disposed in other areas (see Table 56).

TABLE 56
PLACE OF GARBAGE DISPOSAL BY HOUSING TYPE
(IN %)

PLACE	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Municipal garbage bins	59	50	0	29	0	100	100	49
Ravine	21	0	20	36	0	0	0	19
Side street	6	0	20	14	0	0	0	7
Main street	6	40	10	7	50	0	0	10
Trench	2	0	40	0	0	0	0	5
Other	11	10	10	14	50	0	0	11

Garbage pick-up methods were not found to be uniform. The most common point of garbage disposal is the municipal garbage bin, a steel container of about 3m³, used by about half of the households surveyed. From time to time, these bins are emptied by the municipal garbage trucks, which in turn deposit the garbage at the city dump. The regularity and efficiency of this system pose serious problems though the situation may be improved considerably as the city is considering letting a contract to a private firm for garbage removal.

About 19% of the households claim to use ravines to dispose of their garbage. In type D neighborhoods particularly, garbage is more frequently thrown into ravines than into municipal bins. Household garbage thrown on the streets is also picked up by the municipality. This system is very common in urban fabrics of type B and E, which have a fairly well-developed street infrastructure. In type C areas, it is most common to burn garbage in trenches dug on the plot.

Table 57 summarizes garbage collection or disposal methods by housing type.

TABLE 57
METHODS OF GARBAGE DISPOSAL BY TYPE (IN %)

METHOD	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Burning	19	0	100	7	0	0	0	18
Municipal pick-up	66	100	20	64	100	100	100	68
Fill	4	0	10	29	0	0	0	7
Other	11	0	10	0	0	0	0	7

About 68% of households assume that their garbage is picked up, whereas 32% burn it, use it as fill, or leave it in place. Garbage collection is common in all urban fabrics, except in type C where most garbage is burned.

An estimate of the daily per head production of household garbage is presented in Table 58.

TABLE 58
DAILY GARBAGE PRODUCTION BY HOUSING TYPE

PRODUCTION	HOUSING TYPES							Average
	A	B	C	D	E	F	G	
Liter/person/day	3	5.7	2.7	2.3	1.6	4.0	2.2	3
Pop. of Yaounde 1974 by type (survey est.)	152,815	14,630	38,400	23,900	6,995	6,125	7,000	249,870
% of pop.	61	6	15	10	3	2	3	100%
M ³ garbage produced daily	455	83	104	53	11	28	15	749 m ³

E. RAINWATER DRAINAGE

In housing types A, B, and D, most rainwater is run off into small ditches dug from plot to plot. Only in types E, F, and G, which consist of the prestigious neighborhoods, government housing projects and the city center, are concrete storm sewers common.

TABLE 59
ACCESS TO CONCRETE STORM SEWERS
(IN %)

SYSTEM	HOUSING TYPES						
	A	B	C	D	E	F	G
Open concrete storm sewer	0	10	0	29	100	100	0
Closed concrete storm sewer	0	0	0	0	0	0	100

F. USE OF PUBLIC SPACE

1. Games

In more than half of the households surveyed, children were said to spend most of their time playing in their own yard. It was found, for example, that the average distance to the nearest playground is about 825m. For children in types A, B and C, the distance may range from 900 to 1000m. Only the children living in housing types E and F have access to nearby playgrounds (100 - 200m). Little space for playing and no playgrounds were found in the city center (type G).

2. Other Activities

About 31% of the households surveyed replied that they find occasions to gather with family and friends outdoors. Asked purposes open spaces in the neighborhood might serve, 47% of households in types A, B, and C thought they could be used for dances, games, and traditional ceremonies, 19% would assign them a recreational function, and 4% would turn them into public gardens.

In types D, E, and F, more emphasis was put on recreation and public gardens. Only 13% would reserve the areas for games, dances and ceremonies.

G. NEIGHBORHOOD IMPROVEMENT PRIORITIES

The households' principal concerns regarding neighborhood improvement needs are as follows:

<u>Priority problems</u>	<u>% of all households</u>	<u>% of type A households</u>
Lack of access roads	31	38
Lack of drinking water	26	31
Lack of public lighting	18	17
Lack of electricity	5	8

Problems concerning drainage, density, hygiene and mosquitoes were also mentioned often. In type A neighborhoods, the needs for access roads, drinking water, etc. are far greater than elsewhere.

In response to a question on neighborhood safety, especially at night, about 57% of households said that they felt safe. Others, who did not feel safe, attributed this feeling to the lack of public lighting — the latter representing 30% of the households surveyed. According to 9% of households, the poor state of the roads is an essential cause of their feeling unsafe and 11% were in favor of the setting-up of an effective service to "combat crime".

68% of the households found that shops and general commerce are accessible and adequate, and 62% found that the distance between their place of work, market and schools is satisfactory. The households furthest from these services are found in type C neighborhoods. As a rule, though, people appear to make an effort to settle close to their place of work and to schools.

CHAPTER IV:

LEVELS OF SERVICE AND NEEDS OF
SOCIO-ECONOMIC ASSISTANCE PROGRAMS

A. HEALTH

1. Health Problems

The survey revealed that about 41% of households have serious health problems. (See Tables 60 and 61). The most frequent illnesses cited are 'malaria', or fever, (18% of households) and stomach or gastro-intestinal ailments (10%). Other health problems mentioned included among others rheumatism, blood disturbances (anemia, etc.), headaches, chest pains, toothaches, and measles.

In urban fabric types A, C, and D, the percentage of households affected by these problems is higher than in the overall sample. The opposite is true of types B, E, F, and G, fabrics which by definition have direct access to urban infrastructure.

TABLE 60
HOUSEHOLDS WITH SERIOUS HEALTH PROBLEMS
BY HOUSING TYPE (IN %)

RESPONSE	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Yes	49	30	70	50	0	21	0	47
No	51	70	30	50	100	79	100	53

TABLE 61
 MOST COMMON STATED HEALTH PROBLEMS BY HOUSING TYPE
 (IN %)

HEALTH PROBLEMS	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Malaria (fever)	13	10	50	30	0	14	0	18
Stomach ailments	13	10	20	10	0	0	0	10
Rheumatism	6	0	0	7	0	0	0	4

2. Measures Taken for Disease Prevention

The households were questioned about what measures they use for disease prophylaxis. The most common responses were the use of nivaquine (about half of the households), vaccinations, and cleanliness as disease prevention measures. As for drinking water, only 2% of the households make an effort at water purification.

3. Prophylaxis and Hygiene

Table 62 indicates the kinds of public health services generally available.

TABLE 62
 HEALTH SERVICES BY HOUSING TYPE (IN %)

SERVICES	HOUSING TYPES															
	A		B		C		D		E		F		G		TOTAL	
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no
Nutrition counselling	41	51	60	10	50	50	29	64	0	100	57	43	100	0	46	43
Family planning	38	60	50	20	50	40	29	71	0	100	71	29	100	0	46	54
Vaccination	85	15	60	10	90	10	100	0	100	0	100	0	100	0	87	10
Extermination of rats, mosquitoes	39	16	70	30	70	30	64	34	100	0	43	57	0	100	48	32
Maternal and child care	33	17	60	10	60	20	64	29	100	0	86	14	100	0	64	25

In general, households said that they solicited the following services: vaccinations, 87%; mosquito and rat extermination, 48%; and maternal and child help, 64%. The least accessible of these services are nutrition counselling and family planning with 46% each. Although type A housing seems slightly less well served, there seems to be a wide range of public services offered.

The municipality of Yaounde, being responsible for the extermination of rats and mosquitoes, systematically sends its mobile hygiene units into the neighborhoods. The frequency of this service, however, is unknown.

4. Accessibility of Health Services

About 73% of the households surveyed found the above services relatively accessible although slightly less so in types A and B.

TABLE 63
ACCESSIBILITY OF HEALTH SERVICES (IN %)

RESPONSE	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Yes	62	50	100	100	50	100	100	73
No	32	20	0	0	0	0	0	21

5. Place of Treatment

The majority (79%) of households seek public health services at the Central Hospital, while 16% use dispensaries and private clinics and 15% use traditional healers. (The households revealed that the help of traditional healers is most often sought out when hospital care has failed or vice-versa.) However, several household heads were reluctant to answer this question so it appears likely that the percentage of persons seeking out traditional healers is in reality higher.

The Central Hospital is used most often for treatment of illnesses and emergencies. In general, maternal/child health clinics are frequented by most households on their own initiative.

TABLE 64
PLACE OF TREATMENT FOR ILLNESS
(IN %)

ESTABLISHMENT	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Hospital	78	80	80	79	50	86	100	79
Native healer	8	30	30	27	0	14	100	15
Dispensary	13	0	10	7	0	14	0	10
Clinic	6	0	0	14	50	0	0	6
Home	9	0	0	7	0	0	0	6
Private doctor	0	0	0	7	50	14	0	6
Other	6	0	10	0	0	0	0	4

B. EDUCATION

1. Level of Education

According to the survey, the number of women who have attended school is almost as large as that of men (women 44% and men 46%). The graph below shows the level of education reached by those who have terminated their schooling. 24% of those questioned (12% of which were females) had continued up to the second year of 'middle school' (CM2 = end of primary school). The table shows that almost 39% of the men and 47% of the women completed the CM2 level and terminated their schooling. The "3rd" class (approximately the 10th grade in the U.S.) was the last school year attended by 11% of the survey population, of which 4% were women. 9% of the men and no women in the survey had some higher education. A few persons in the sample had attended a Koranic school.

FIGURE 6
LAST COMPLETED SCHOOL LEVEL BY CLASS AND BY SEX

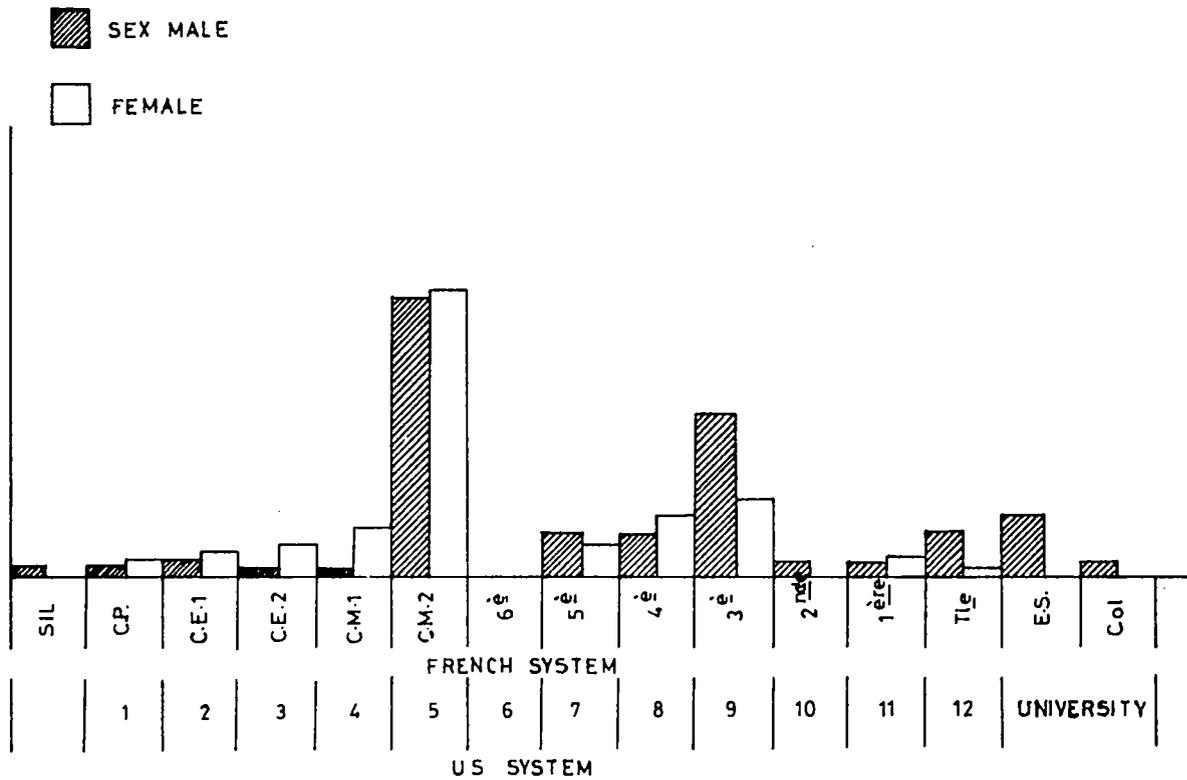


Table 65 shows, by household type, the percentages of the sample having finished the four most frequent completed school years.

TABLE 65
COMPLETION OF DESIGNATED SCHOOL YEARS (IN %)

	HOUSING TYPES						TOTAL
	A	B	C	D	E	F	
0-2	83	75	96	91	89	93	88
3eme	27	25	17	34	67	50	31
Terminal	5	25	0	14	33	7	9
University	2	0	0	11	11	7	5

2. Educational Programs

About 18% of the households have at least one member who participates in some sort of educational program (other than school or work) -- a fairly high figure. The most commonly sought-out programs are those administered by evening schools (97%). Sewing courses are in second place with 3%. Evening courses are given generally by the private sector and include general education and technical training.

The general education courses are intended for those who wish to pursue their studies to a higher level. These are the most frequented, although this is not specified in the results of the survey. Technical education is divided into two sections: economy (accounting and secretarial skills) and industry (masonry, carpentry, mechanics, electricity).

About 37% of the households surveyed were particularly interested in educational programs offered by night schools (sewing, English, mechanics, typing, accounting ...). Considering the level of participation which already exists and the interest expressed for educational programs, it appears that many households are interested in improving their educational level and consequently their standard of living. For this reason, one can conclude that future educational programs should enjoy great popularity if they correspond to the interests of the population.

C. EMPLOYMENT GENERATION

According to the survey, the major obstacle to households' achieving their goals is financial (52% of households in general and 62% in type A). Poor health was mentioned in second place (10% of the entire sample and 13% in type A housing). Other important problems mentioned were: unemployment, expenses of a large family in relation to income, lack of information on educational opportunities, etc.

The following table gives the percentages of households having taken advantage of professional or vocational training programs.

TABLE 66
PROFESSIONALS OF HOUSEHOLDS HAVING HAD VOCATIONAL TRAINING (IN %)

RESPONSES	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Yes	19	60	60	50	100	43	100	30
No	81	40	40	50	0	57	0	70

One notes that 30% of households have at least one member who has had some vocational training. This training is generally technical in nature and by the private sector. In decreasing order of importance, other types of training encountered are: industrial and commercial training, military training, specialized school training (for orderlies, journalism, teaching, statistics, etc.). The households of types A and B have had less exposure to vocational training than households of other types. A relationship also seems to exist between the degree of vocational training received and the corresponding household income level.

D. COMMUNITY ORGANIZATION

1. Relationships with Neighbors

The surveyed households were asked if they knew their neighbors. Only 49% answered 'yes', 38% did not know all of them, and 12% knew none at all.

TABLE 67
ACQUAINTANCE WITH NEIGHBORS BY HOUSING TYPE

RESPONSES	HOUSING TYPES							TOTAL
	A	B	C	D	E	F	G	
Yes	57	20	40	36	0	29	0	49
Not all	8	30	50	36	100	21	100	37
None at all	5	0	10	29	6	29	0	12

In general, neighbors of housing types A and B know each other better than those of other housing types. The life style, proximity of households, and sometime groupings by ethnic origin probably contribute to this relationship. Housing types D and F know their neighbors least. These types are by definition and for the most part, municipal subdivisions or SIC projects. Many households offered the explanation that there was a lack of collaboration between the different ethnic groups and that they wished to avoid confrontations with them. As future projects are more likely to mix households according to income than cultural similiarity, it is important to give this problem consideration.

2. Mutual Aid Among Neighbors

The table below shows the different responses obtained regarding the existance of mutual help among neighbors. It was found that some form of mutual assistance exists for more than half of the households.

TABLE 68
EXISTENCE OF MUTUAL AID AMONG NEIGHBORS BY TYPE

RESPONSE	A	B	C	D	E	F	G	TOTAL
YES	59	80	60	29	0	29	100	54
NO	41	20	40	71	100	71	0	46

34% of the time, the mutual aid consists of food-sharing, baby-sitting, moral support and material support in case of misfortune. There is also a form of material aid offered for building and repairing houses and other types of manual labor (9% of all households and 13% of type A households). About 7% of households lend or borrow money with their neighbors; 41% contribute with neighbors to a tontine.

3. Community Organizations

About 21% of the total household sample said that community organizations exist which are interested in neighborhood improvement. In fact, these organizations, aside from initiatives by neighborhood 'chiefs' and the UNC, appear to be very informal in nature. Their structure was not clearly defined during the survey, but they are probably often organized among neighbors and members of the same ethic group. Community organizations in the neighborhoods of Melen, Carrière, and the Briqueterie appear to be of this nature. Whatever the type of community organization, whether official or non-official, the participation of the community

itself in neighborhood development appears to be very limited.

Since in most of the areas surveyed there were few spontaneous forms of community action, the potential role of the 'chef de quartier' could be important. According to most households, the role of this 'chef' consists of: mediating conflicts among neighbors, community organization, animation, and dissemination of information, leading neighborhood and party meetings and collecting taxes. A great number of households consider the most important function of the neighborhood chief to be that of mediating in quarrels.

The initiative of the neighborhood chief seems to vary greatly according to the neighborhood and the person concerned. A few rare cases were noted where a 'chef de quartier' was able to make the population aware of the importance of general hygiene and to stimulate the sale of foodstuffs which were almost impossible to obtain. In other cases, however, households (12% of the total) thought that the 'chef' played no role whatsoever.

In spite of his limitations, however, the 'chef de quartier' remains a potentially active entity with neighborhood recognition. In fact, 18% of the households surveyed believed that besides the 'chef de quartier' no one played an important role in community development. On the other hand, others (14%) attributed a favorable role to the UNC base committees and section chiefs.

It is evident that community organization, especially in new subdivision projects, will not come about by itself since impetus and initiative are lacking. Thus, the creation of new community structures or the reinforcement of existing ones ('chefs de quartiers' and section chiefs) is important in order to make neighborhood organization and improvement more dynamic.

4. Counselling

The sources referred to for specific counselling by households are found in Table 69. The items include: legal aid, information, family money management and credit.

TABLE 69
SOURCES OF COUNSELLING (USAGE IN % OF HOUSEHOLDS)

SOURCES OF COUNSELLING	TYPE A			AVERAGE OF ALL TYPES			
	Legal Aid	Urban information	Family budget	Legal Aid	City Information	Family budget	Crédit
Police	15	1	1	14			
Chef de quartier	25	13		21	12		
Lawyer	-	-		1			
Friends	6	11	8	8	12	4	3
Relatives	25	4	13	24	3	12	6
Radio	2	23		1	23		
Newspaper		6			3		1
Bank							5
Credit organizations							4
Municipality		6			13		
Others	2	8	2	1	5	1	
None or no answer	26	30	77	30	28	83	80

For counselling in general, the above table shows that heads of household very often address themselves to friends, relatives and third persons.

a. Legal aid

Many households feel they require no assistance (perhaps because important problems have not come up). In any case, about 25% seek out the 'chef de quartier', 25% their relatives, and 15% the police.

b. Urban information

Most households obtain urban information via the radio or

from the 'chef de quartier' or friends. A small percentage of households go to the municipality or refer to the newspaper. It would appear that the radio is the chief source of urban information and that the newspaper is, in fact, less widely consulted.

c. Family Budget Management

No public authorities are consulted for questions concerning the family budget; this question is more often reserved for friends and family.

d. Credit

For questions concerning credit, households address themselves to relatives or to banks. The majority, however, consult no one.

Note: Programs intended to help households in the above categories should include an information campaign by means of radio and newspaper. 'Chefs de quartiers', police and the municipality should assist in this role. If information is adequately disseminated, most of the urban population will probably be reached, either directly or through family and friends.

V O L U M E III
HOUSE CASE STUDIES

VOLUME III

CHAPTER I:

GENERAL OBSERVATIONS

Volume III illustrates graphically current housing standards and characteristics by means of detailed plans and measurements of the dwelling units visited. These descriptions should enable government authorities to find solutions to future housing problems which correspond to the cultural, social and economic needs of low income households. This volume was conceived primarily as a working document for its readers and, thus, furnishes only rudimentary analyses of the findings. (See Annexes I and II.)

A. DESCRIPTION OF CASE STUDIES

In each of the case studies, the floorplans of the dwelling units surveyed are accompanied by the following information:

- the site plan and orientation
- the position of the house on the plot
- the house plan with the furniture arrangement
- the front elevation
- the scale of drawing
- a brief description of the household (see details attached)
- a brief description of the dwelling (see details attached)

All case studies are numbered (see Figure 1 and Table 1 and give the neighborhood location of each house visited. They are also described by housing types, or urban fabric types, which were determined from the most recent aerial photographs of the urban zone (1974). A detailed description of these types may be found in Figure A and Table I of "Methodology of the Survey".

Each house described is considered to be typical of its housing type or urban fabric. Furthermore, the number of houses investigated by housing type is roughly proportional to the number of houses by type in the urban zone. Whenever a large number of case studies were made by housing type, a variety of house locations depending on topography, soil conditions, and road access were studied.

The size, employment status, age, and income of the households are briefly described as well as data concerning the dwelling unit.

The data for each case study is provided as follows:

Household members:

- number of direct members (grandparents, parents, children)
- number of indirect members (brothers, sisters, cousins, nephews, nieces, etc.)
- age categories (children 0 - 10 years)
(adolescents 10 - 18 years)
(adults 18 years and over)

Head of household:

- occupation and income

Dwelling unit:

- ownership status (own or rent)
- plot area
- built-up area
per dwelling unit
per household
- building material
- cost of construction (in 1978 costs)

N.B. The construction costs were calculated from the following data, based on surveys undertaken in moderate or low income neighborhoods by the Town Planning Unit at DUH/MINEH in January 1978:

Wattle and daub	-	4,855 - 6,135	FCFA per m ²
Wattle and daub with cement plaster	-	13,530 - 23,480	FCFA per m ²
Wood planks	-	8,000 - 10,000	FCFA per m ² *
Concrete block	-	28,335 - 30,650	FCFA per m ²

* STAR estimates, 1978.

CHAPTER II :

CASE STUDIES

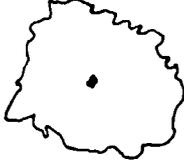
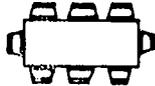
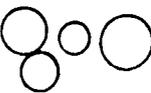
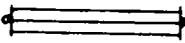
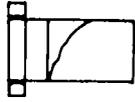
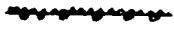
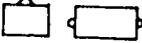
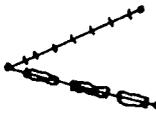
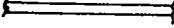
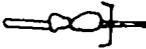
TABLE 1
 LOCATION OF HOUSE CASE STUDIES
 (See also Figure 1)

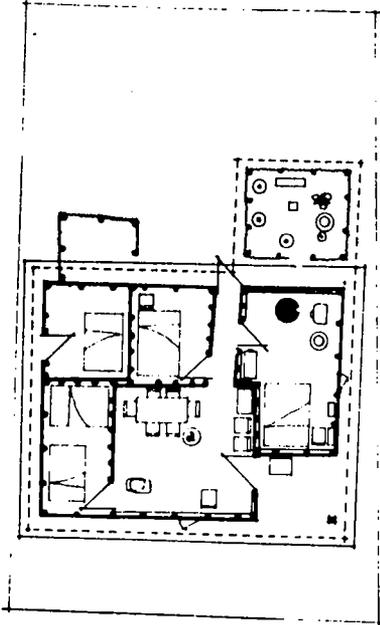
CASE STUDY	NEIGHBORHOOD	HOUSING TYPE	CASE STUDY	NEIGHBORHOOD	HOUSING TYPE
1	Mvog Ada	A	26	Briqueterie	A
2	Mvog Ada	A	27	Mokolo	B
3	Etam Bafia/ Mvogmbi	B	28	Briqueterie	B
4	Nkondongo	B	29	Mokolo	A
5	Etam Bafia/ Mvogmbi	A	30	Mokolo	A
6	Ekounou	A	31	Briqueterie	A
7	Nlongkak	A	32	Etoa Meki	D
8	Mvog Atangana Mbala	A	33	Elig Edjoa	A
9	Centre Jamot (Mbala)	A	34	Mbala IV	C
10	Dakar	A	35	Melen	C
11	Dakar	A	36	Nkolndongo	D
12	Obili	C	37	Essos	D
13	Biyem Assi	C	38	Essos	D
14	Biyem Assi	C	39	Essos II	D
15	Ngoaেকে	A	40	Nkolndongo	D
16	Melen	A	40Z	Nkolndongo	D
17	Melen	A	41	Melen	D
18	Carriere	A	42	Mvolye-Dakar	F
19	Melen	A	43	Nkomkana	D
20	Melen	A	44	Bastos	E
21	Melen	A	45	Quartier Lac	E
22	Elig Effa	A	46	Messa	F
23	Tsinga Elobi	A	47	Cite Verte	F
24	Briqueterie	A	48	Tsinga	D
25	Briqueterie	A	49	Madagascar	F
			50	Center City	G

TABLE 2
SEQUENCE OF CASE STUDIES

SEQUENCE (unnumbered pages)	CASE STUDIES	SEQUENCE (unnumbered pages)	CASE STUDIES
1...	1,2	15...	26,29
2...	4,3	16...	28,27
3...	40 7,5	17...	30,31
4...	6,7	18...	32,33
5...	8	19...	34,35
6...	9,10	20...	36,37
7...	11,12	21...	38,41
8...	13,14	22...	39,40
9...	15,16	23...	42,43
10...	17,18	24...	44
11...	19,20	25...	45
12...	21,22	26...	46,47
13...	23,25	27...	48
14...	24	28...	49,50

LEGEND : SYMBOLS USED IN PLANS
 FIG. 2 OF SURVEYED HOUSES

PLOT		TRADITIONAL KITCHEN		LIVING/DINING ROOM	
	tree or fruit tree		wood fire		table and chairs
	fence		wash basins/dishes		living room ensemble
	banana trees		bottles		side board
	clothes line		grinding stones		refrigerator
	lawn/plants		wood		bench
	vegetable garden		latrine		double bed
		MODERN KITCHEN			bed and mosquito net
CONSTRUCTION			gas stove		child's crib
	sheet metal fence		kerosene stove		suitcase/trunk
	wall of wood planks		sink		hooks/wall
	wattle & daub wall w/ or w/out plaster	STORAGE AREA			ropes for hanging clothes
	concrete block wall		bunch of bananas		sewing machine
	elevation/wattle and daub wall		food		desk
	elevation: wood plank wall		mattress		floormat
	elevation: sheet metal wall		box/cardboard carton		
	elevation: rough cut wood		bicycle/motorcycle		



CASE STUDY 1: TYPE A



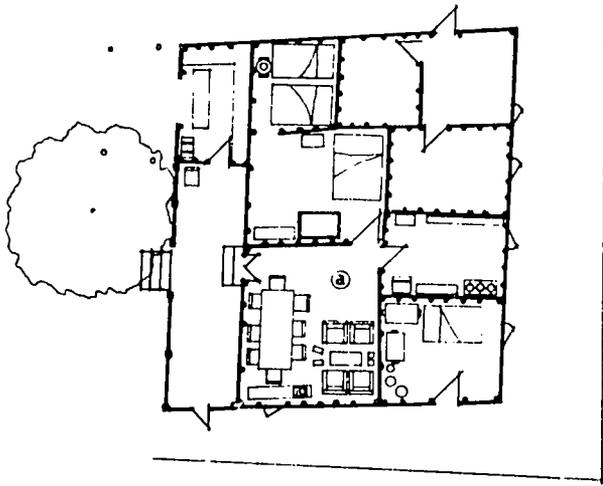
HEAD OF HOUSEHOLD
 Occupation : a) Teacher
 Income : - 70 000 PCFA

DEWELLING UNIT
 Type of occupancy : a) Renter
 Rent : - 5 000 PCFA

Plot Area : 200 m²
 Built-up Area :
 Dwelling unit - 60 m²
 Outbuilding - 7.8 m²
 Per Household - a) 60 m²

Building Material :
 Dwelling Unit - Wood planks
 Outbuildings - Sheet Metal

Costs of construction (1978 costs):
 Dwelling unit - 478 000 PCFA
 Outbuildings - 31 000 PCFA



CASE STUDY 2: TYPE A



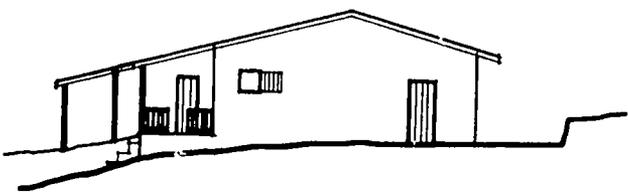
HEAD OF HOUSEHOLD
 Occupation : a) Postal Worker
 Income : 20 000 PCFA

DEWELLING UNIT
 Type of occupancy : a) Renter
 Rent : a) Unknown

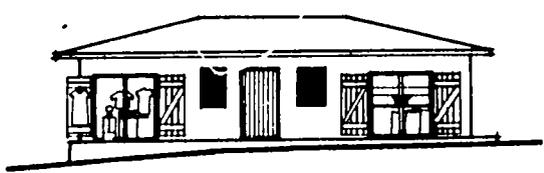
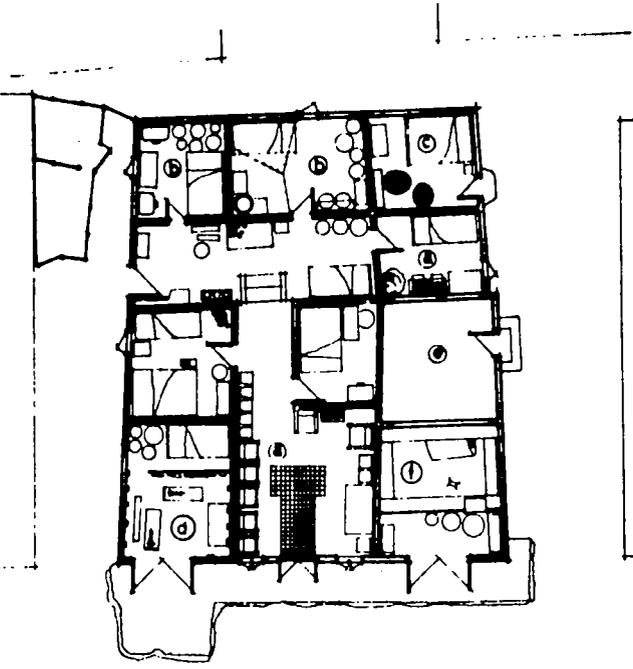
Plot Area : a) 208 m²
 Built up Area :
 Dwelling Unit - 72 m²
 Per Household - a) 72 m²

Building Material :
 Dwelling Unit - Wood Planks
 Outbuildings -

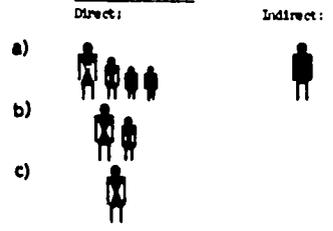
Costs of Construction (1978 costs):
 Dwelling unit - 580 000 PCFA
 Outbuildings -



CASE STUDY 4: TYPE B



HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation:	Income:
a) Merchant	a) 100 000
b) Merchant	b) 75 000
c) Single woman	c) 10 000
d) Tailor	d, e, f) Unknown
e) -	
f) Grocer	

DWELLING UNIT

Type of Occupancy:	Rent (PCPA):
a) Owner	a) -
b) Renter	b) 3 000
c) Renter	c) Unknown
d, e, f) Renter	d, e, f) Unknown

Plot Area: 280 m²

Built-up Area:

- Dwelling Unit = 131 m²
- Outbuilding = 0,5 m²
- Per Household or Step - a) 55,7 m²; b) 27,0 m²; c) 5,1 m²; d) 12,8 m²; e) 11,9 m²; f) 15,0 m²

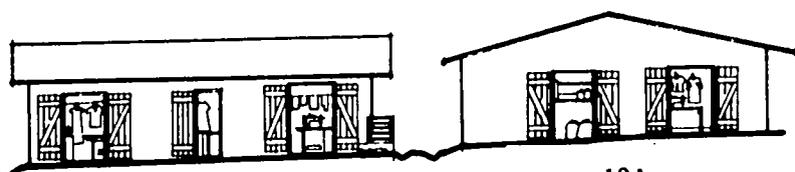
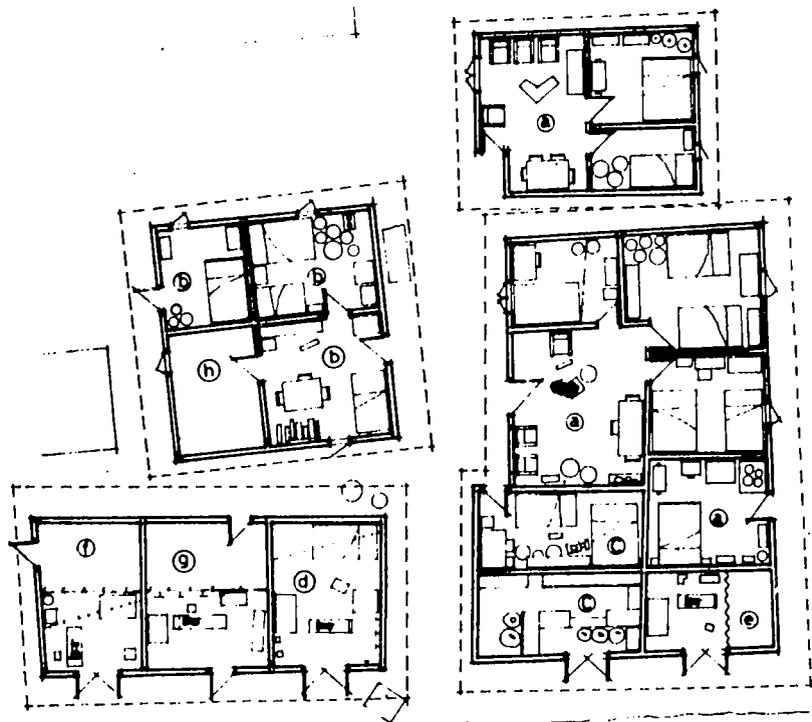
Building Material:

- Dwelling Unit - Wall + slab w/cement finishing
- Outbuilding - latrine - sheet metal

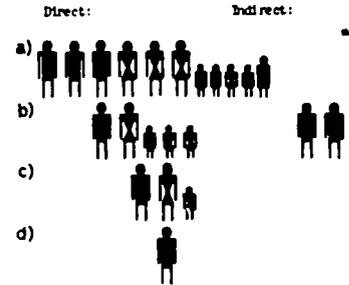
Cost of Construction (1978 costs):

- Dwelling Unit = 2 140 000
- Outbuilding = -

CASE STUDY 3: TYPE B



HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation:	Income:
a) Saleslady	a) 90 000 PCPA
b) Carpenter	b) 20 000
c) Grocer	c) 35 000
d) Tailor	d) 55 000
e) -	e, f, g, h) Unknown
f, g, h) Unknown	

DWELLING UNIT

Type of Occupancy:	Rent:
a) Owner	a) -
b) Renter	b) 2 500 PCPA
c) Renter	c) 5 000
d, e, f, g, h) Renter	d, e, f, g, h) ext. 2 000 - 1 000 PCPA

Plot Area: 500 m²

Built-up Area:

- Dwelling Unit(s) 1) 94 m²; 2) 28 m²; 3) 41 m²; 4) 16 m²

Outbuildings -

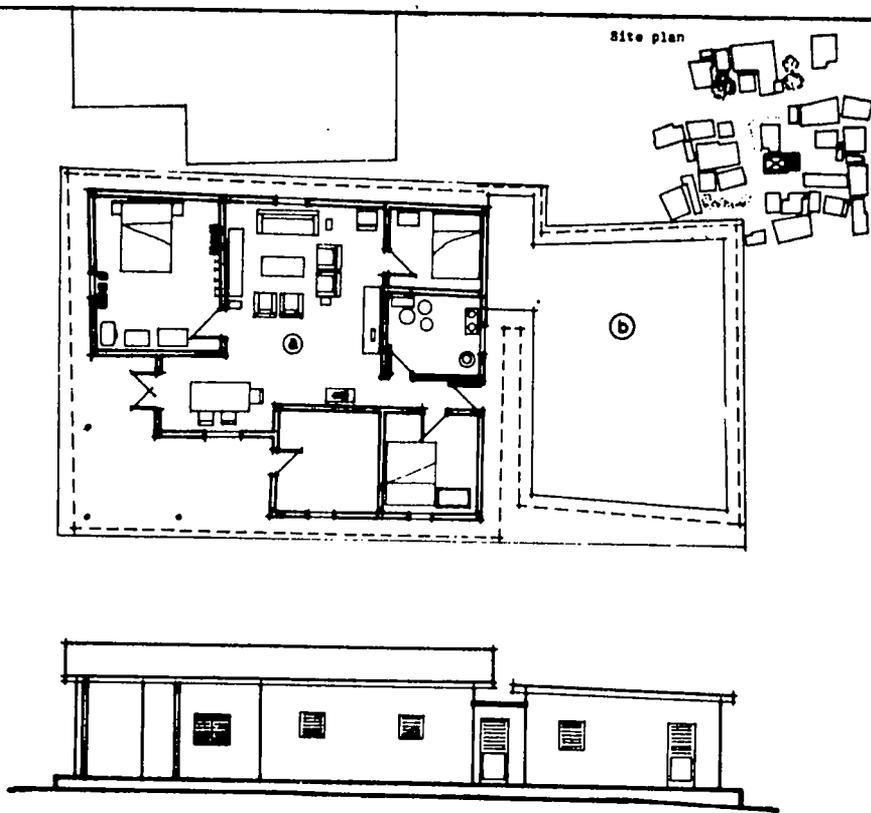
- Per Household - a) 89 m²; b) 52 m²; c) 28 m²; d) 14 m²; e) 18,9 m²; f) 13 m²; g) 16,3 m²; h) 9 m²

Building Material:

- Dwelling Unit - Wall + slab; with + without cement finishing

Cost of Construction (1978 costs):

- Dwelling Unit - Total 87 m² = 7 600 000 PCPA



CASE STUDY 402, TYPE D

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation :

- a) Accountant
- b) Unknown

Income : (PCPA)

- a) 75 000
- b) Unknown

DWELLING UNIT

Type of Occupancy :

- a) Renter
- b) Unknown

Rent :

- a) 20 000
- b) Unknown

Plot Area : 250 m²

Built-up Area :

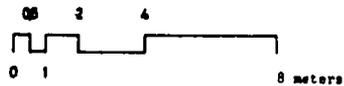
- Dwelling Unit - 1) 101 m² ; 2) 51 m²
- Per Household - a) 85 m² + veranda ; b) 51 m²

Building Material :

Dwelling Unit - Mattle + daub + cement plaster

Costs of Construction (1978 costs) :

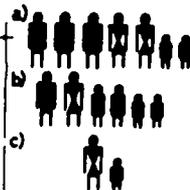
- Dwelling Unit - 1) 2 100 000 ; 2) 1 200 000



CASE STUDY 51, TYPE A

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation :

- a) Shopkeeper
- b) Civil Servant
- c) Seamstress

Income : (PCPA)

- a) 60 000
- b) 60 000
- c) 40 000

DWELLING UNIT

Type of Occupancy :

- a) Renter
- b) Renter
- c) Renter

Rent : (PCPA)

- a) 15 000
- b) 10 000
- c) 6 000

Plot Area : 450 m²

Built-up Area :

- Dwelling Unit - 112 m²
- Outbuilding - 1) m²
- Per Household - a) 53 m² ; b) 42 m² ; c) 16.6m²

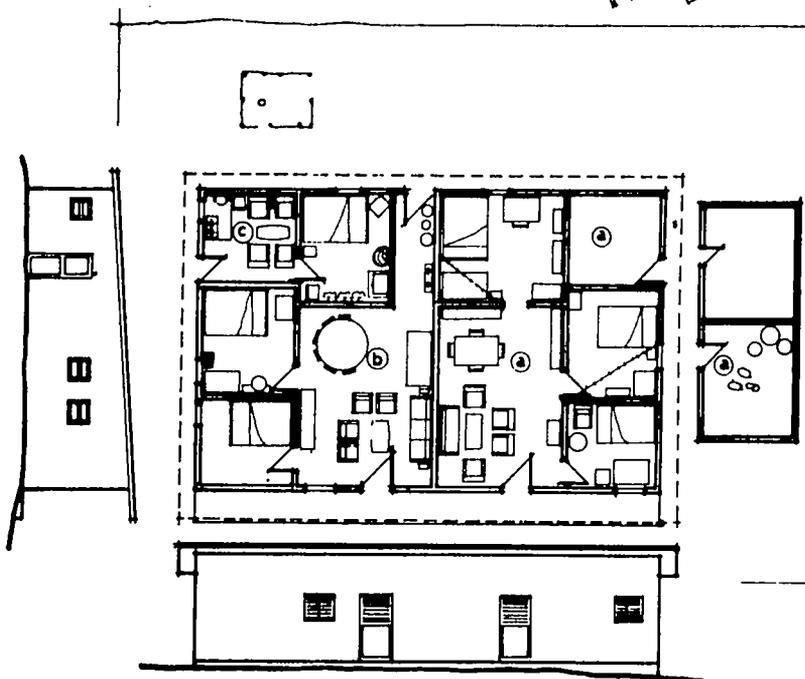
Building Material :

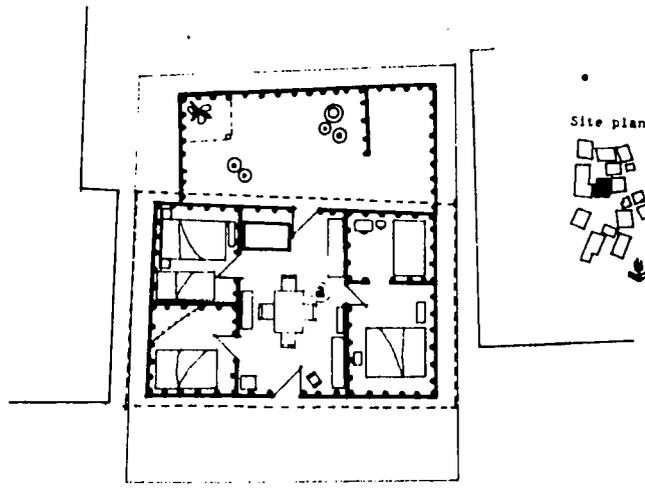
Dwelling Unit - Mattle + daub w/cement plaster

Outbuilding - Mattle + daub

Costs of Construction (1978 costs) :

- Dwelling Unit - 1 500 000 to 2 500 000
- Outbuilding -





CASE STUDY 6: TYPE A

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation: a) Tile Mason Income: a) 27'800 CPA

DWELLING UNIT

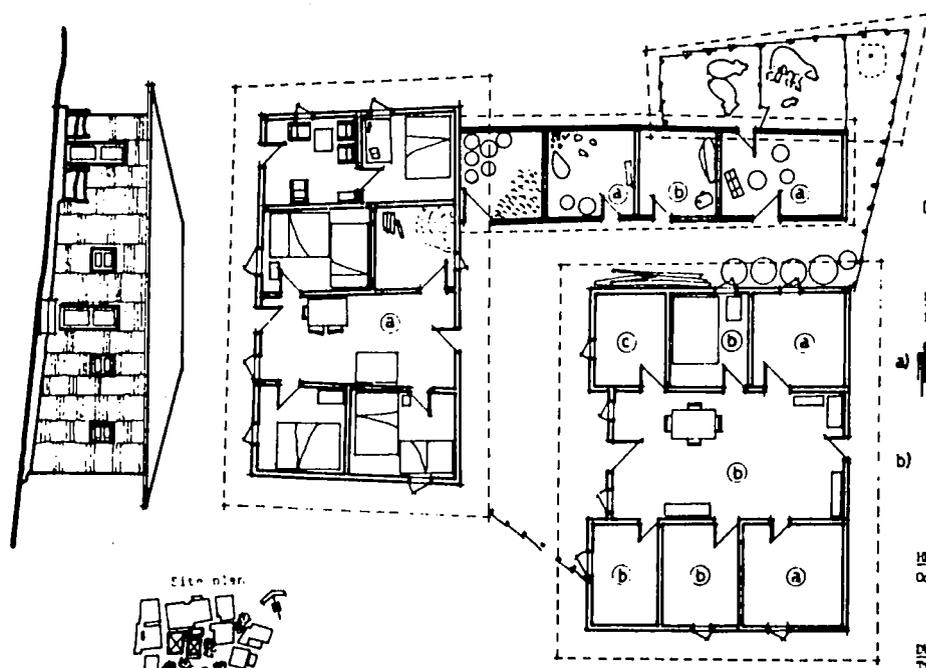
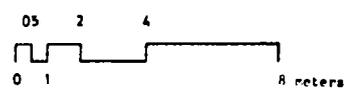
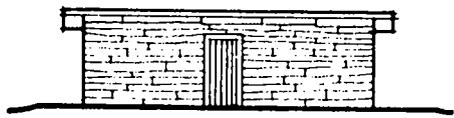
Type of Occupancy: a) Owner Rent: a) --

Plot Area: 120 m²

Built-Up Area:
 Dwelling Unit - 63.3 m²
 Outbuilding - 26 m²
 Per household - 53.3 m² + 26 m²

Building Material:
 Dwelling Unit - Rough hewn planks
 Outbuilding - Rough hewn planks

Construction Costs (1978 costs):
 Dwelling Unit - 500 000 CPA
 Outbuilding - 180 000 CPA



CASE STUDY 7: TYPE A

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation:
 a) Merchant Income: a) 35 000 CPA
 b) Driver Income: b) 28 000 CPA
 c) Unknown Income: c) Unknown

DWELLING UNIT

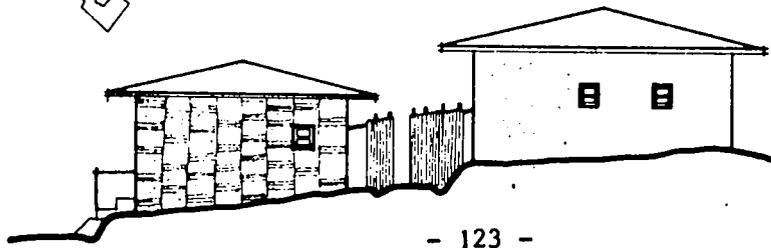
Type of Occupancy:
 a) Owner Rent: a) --
 b) Renter Rent: b) 8 000 CPA
 c) Renter Rent: c) Unknown

Plot Area: 400 m²

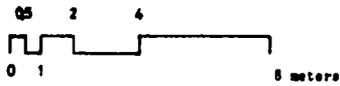
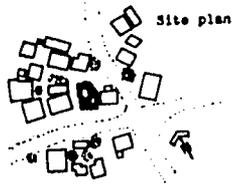
Built-Up Area:
 Dwelling Unit - 1) 59 m² 2) 71 m²
 Outbuilding - 31 m²
 Per Household - a) 75.6 m² + 19 m²
 b) 57 m² + 7.2 m²
 c) 5.7 m²

Building Material:
 Dwelling Unit - 1) Wattle + daub
 2) Wattle + daub + cement plaster
 Outbuilding - wattle + daub

Construction (1978 Costs):
 Dwelling Unit - 1) 400 000 CPA
 2) 1 200 000 CPA
 Outbuilding - 150 000 CPA



CASE STUDY 8: TYPE A



HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

Occupation:

- a) Merchant
- b) Tailor

Income:

- a) 60 000 CPA
- b) 25 000

DWELLING UNIT

Type of Occupancy:

- a) Renter
- b) Owner

Rent:

- a) 12 500 CPA
- b) 4 000 CPA

Plot Area: 680 m²

Built-up Area:

Dwelling Units: 1) 67 m²; 2) 70 m²

Outbuildings: 1) 23.5 m²; 2) 18 m²

Per Household: a) 54 m² + 23.5 m²; b) 11 m²

Building Material:

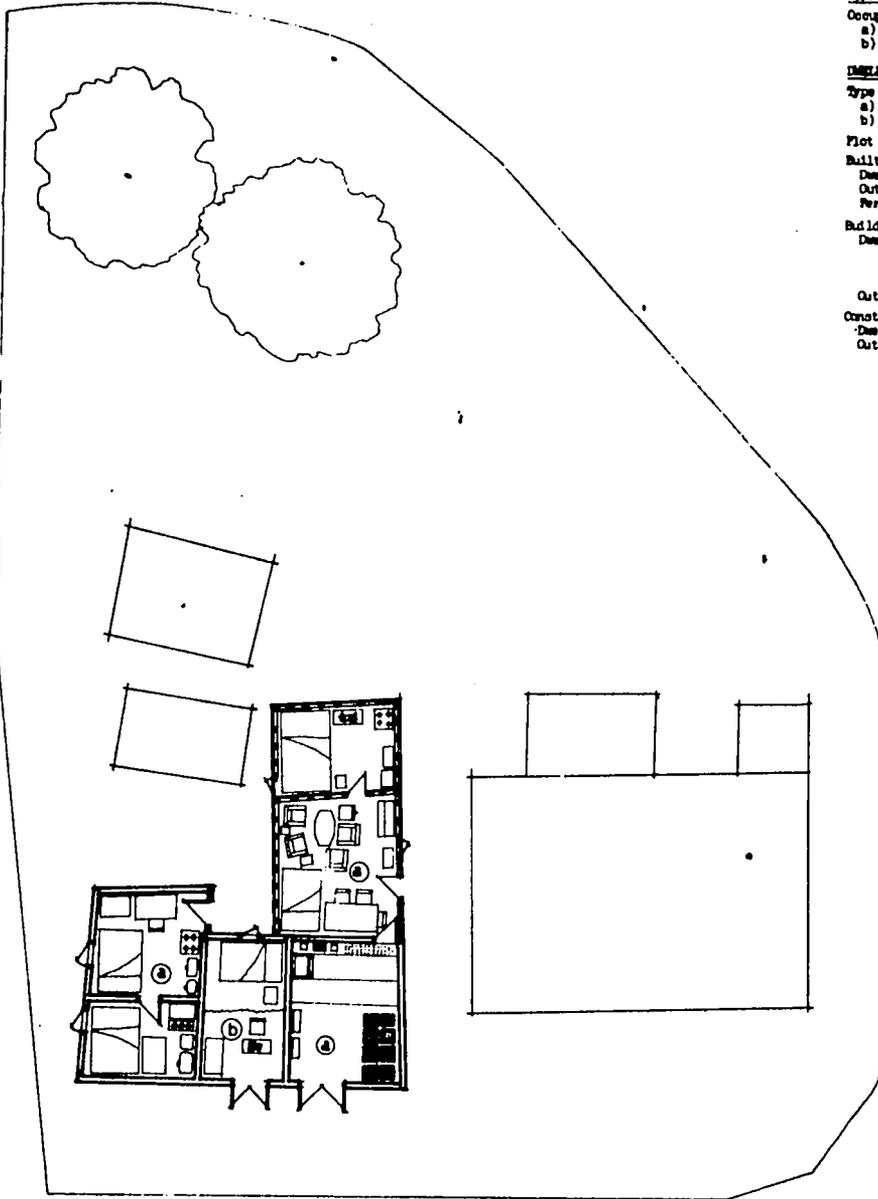
- Dwelling Material: 1) Mattle + daub + cement plaster, wood planks
- 2) Mattle + daub + cement plaster, wood planks

Outbuildings:

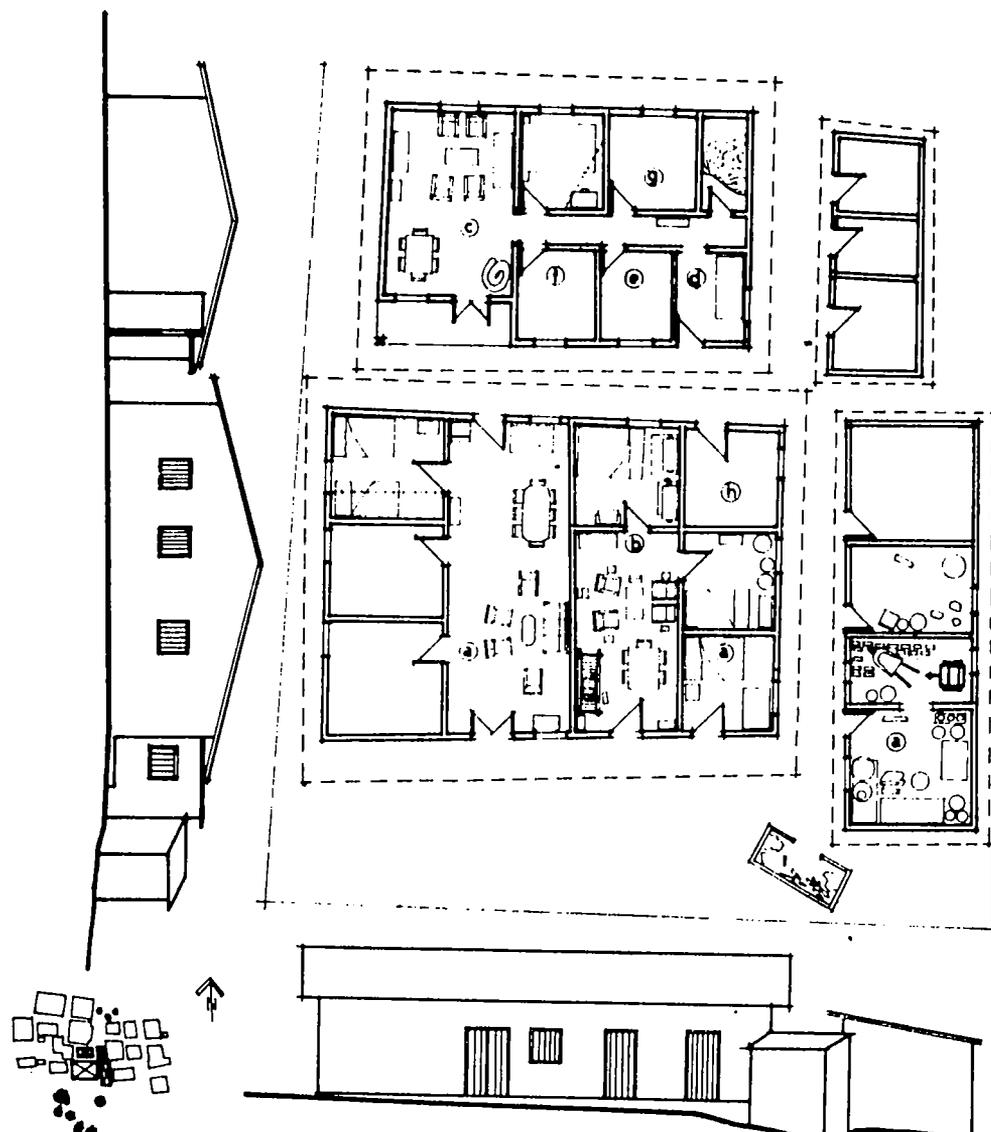
Construction Costs: (1978 Costs)

Dwelling Unit: 900 000 - 1 500 000 CPA

Outbuildings:

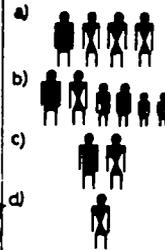


CASE STUDY 9: TYPE A



HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation : Income : (PCPA)
 a) Teacher a) 40 000
 b) Civil servant b) 25 000
 c) Unemployed c) 15 000
 d) Unemployed d) 25 000 (p/ma)
 e, f, g) Unknown

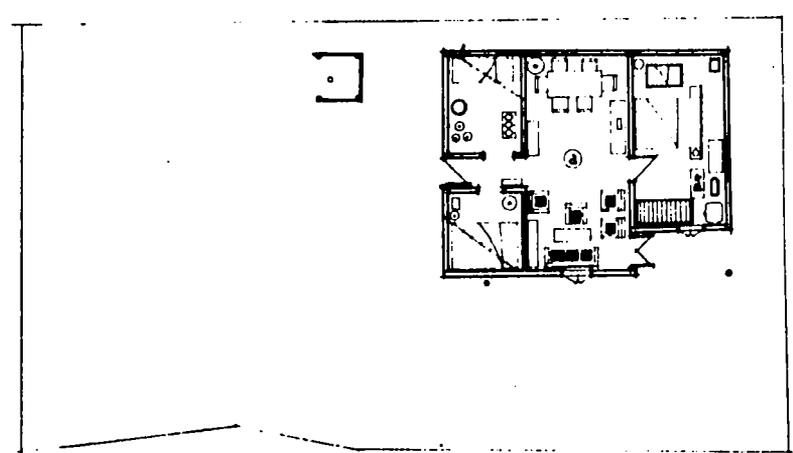
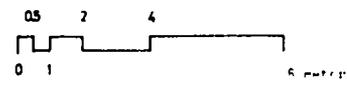
DWELLING UNIT

Type of Occupancy : Rent : PCVA
 a) Owner 1) Renter a) -
 b) Renter e) Renter b) 6 500
 c) Renter f) Renter c) 4 500
 d) Renter g) Renter d) 2 000
 e, f, g) est. 2 000

Plot Area : 550 m²
 Built-up Area :
 Dwelling Units - 1) 115 m² 2) 60 m²
 Outbuildings - 1) 41.5 2) 16.3
 Per Household - a) 72 + 19 = 91 m² ;
 b) 42 + 12.6 ; c) 30 ; d) 5.5 + 0.3 ;
 e) 6.2 ; f) 6.4 ; g) 7.0
 Building Material :
 Dwelling Unit - 1 + 2) Mattle + daub w/cement plaster
 Outbuildings - 1+2) Mattle + daub + cement plaster
 Costs of Construction (1978 costs) :
 Dwelling unit - 1 400 000 CPA
 Outbuildings - 2 000 000 CPA

CASE STUDY 10: TYPE A

Site plan



HOUSEHOLD MEMBERS

Direct: Indirect:



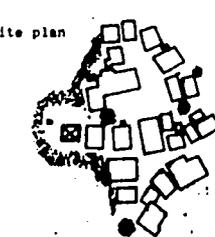
HEAD OF HOUSEHOLD

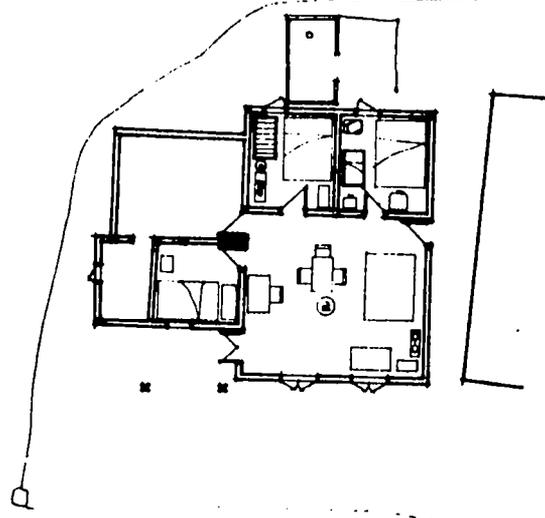
Occupation : Income :
 a) Shopkeeper a) 50 000

DWELLING UNIT

Type of occupancy : Rent :
 a) Owner
 Plot Area : 390 m²
 Built-up Area :
 Dwelling Unit : 51 m² Latrine : 1.7 m²
 Per Household : 51 m² + 1.7 m²
 Building Material :
 Dwelling Unit : Mattle and daub
 Costs of Construction (1978 costs)
 Dwelling Unit : 230 000 CPA

Site plan





CASE STUDY 11: TYPE A

HOUSEHOLD MEMBERS

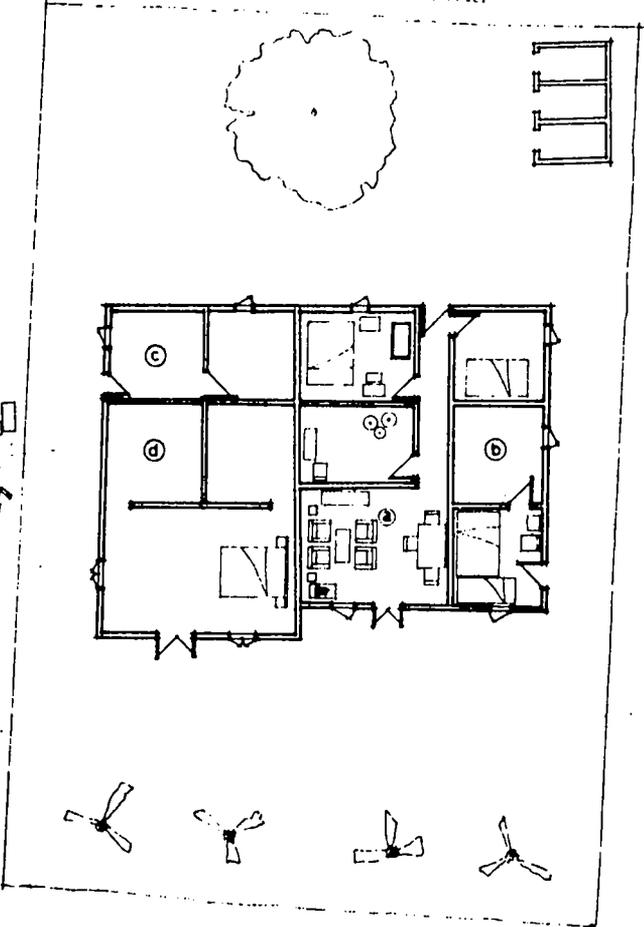
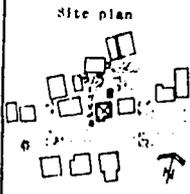
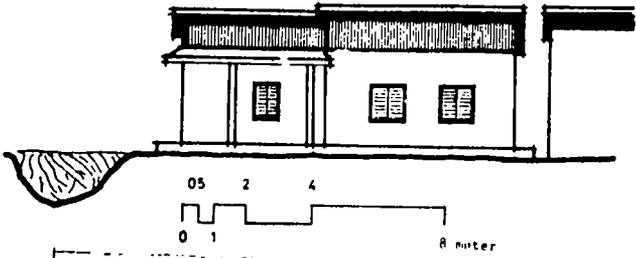


HEAD OF HOUSEHOLD

Occupation: a) Driver Income: a) 150 000 CPA

DWELLING UNIT

Type of Occupancy: a) Owner Rent: a) -
 Plot Area: 200 m²
 Built-Up Area:
 Dwelling Unit - 61.6 m²
 Latrine - 4 m²
 Per Household - 61.6 m² + 4 m²
 Building Material:
 Dwelling Unit - wattle + daub + cement plaster
 Construction Costs (1978 Costs):
 Dwelling Unit - 850 000 CPA



CASE STUDY 12: TYPE C

HOUSEHOLD MEMBERS

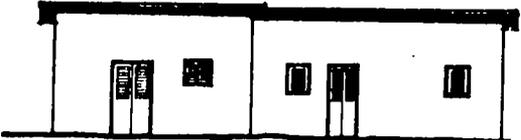


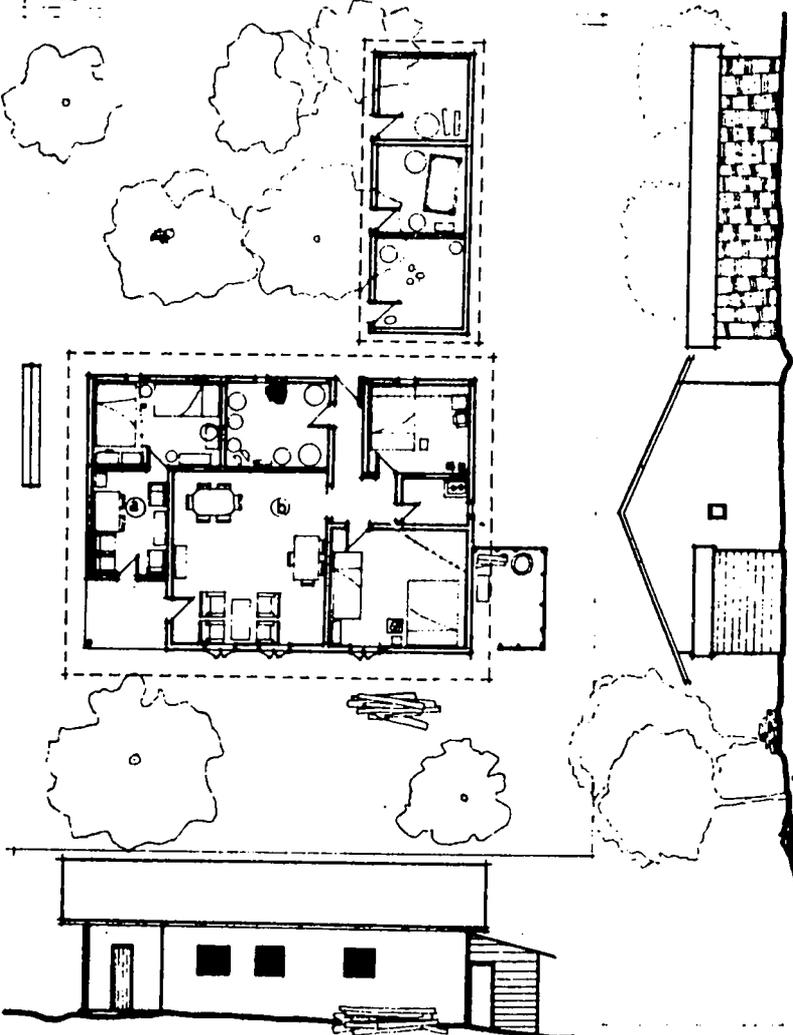
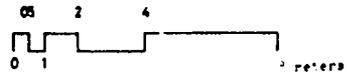
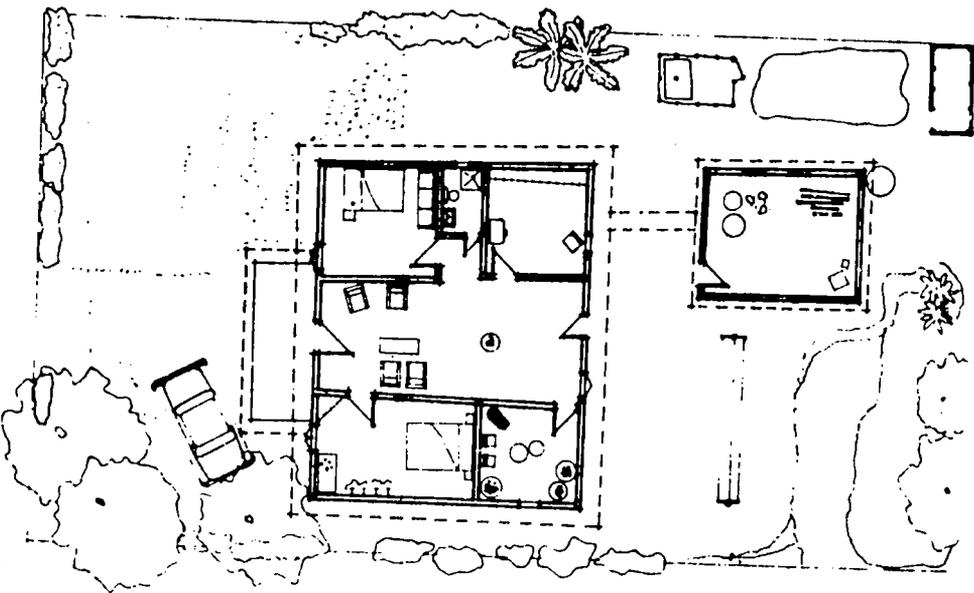
HEAD OF HOUSEHOLD

Occupation: a) Policeman Income: a) 43 000 CPA
 b) Unknown b) Unknown
 c,d) Empty c,d) Empty

DWELLING UNIT

Type of Occupancy: a) Renter Rent: a) 9 000 CPA
 b) Renter b) Unknown
 c,d) Empty c,d) Empty
 Plot Area: 530 m²
 Built-Up Area:
 Dwelling Unit - 120 m²
 Latrines - 8.36 m²
 Per Household - a) 42 m² c) 18 m²
 b) 18 m² d) 42 m²
 Building Material:
 Dwelling Unit - wattle + daub
 Outbuildings - wattle + daub
 Construction Costs (1978 Costs):
 Dwelling Unit - 600 000 CPA





CASE STUDY 13: TYPE C

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation: a) Taxi Driver Income: a) 150 000 CPA

DWELLING UNIT

Type of Occupancy: a) Owner Rent: a) --
Plot Area: 500 m²

Build-Up Area:
Dwelling Unit - 83 m²
Outbuildings - 16.1 m²
Per Household - 83 m² + 16.1 m²

Building Material:
Dwelling Unit - Wattle + daub + cement plaster
Outbuilding - Wattle + daub

Construction Costs (1977 Costs):
Dwelling Unit - 1 750 000 CPA
Outbuilding - 140 000 CPA

CASE STUDY 14: TYPE C

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation: a) Repairman Income: a) 80 000 CPA
b) Soldier b) 75 000 CPA

DWELLING UNIT

Type of Occupancy: a) Rentier Rent: a) 4 000 CPA
b) Rentier b) 12 000 CPA
Plot Area: 450 m²

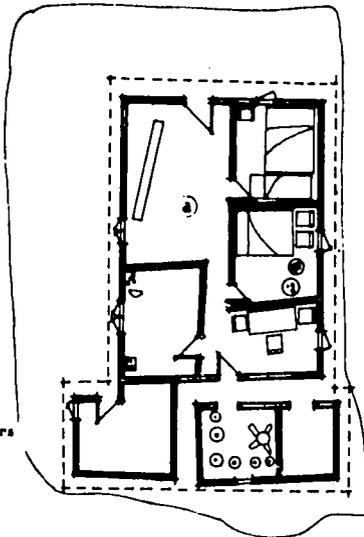
Build-Up Area:
Dwelling Unit - 80 m²
Outbuilding - 21 m²
Per Household - a) 17 m² b) 62 m²

Building Material:
Dwelling Unit - Wattle + daub + cement plaster
Outbuilding - Wattle + daub

Construction Costs (1978 Costs):
Dwelling Unit - 1 800 000 CPA
Outbuilding - 130 000 CPA

CASE STUDY 15: TYPE A

Site plan



HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation: a) Chauffeur Income: a) 15 000 CFA

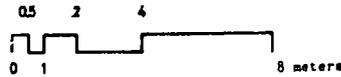
DWELLING UNIT

Type of Occupancy: a) Owner Rent: a) —

Plot Area: 150 m²
 Built-Up Area:
 Dwelling Unit - 54 m²
 Outbuilding - 8.4 m²
 Per Household - 54 + 8.4 m²

Building Material:
 Dwelling Unit - Wattle + daub + rough
 woven planks
 Outbuilding - Wattle + daub + rough
 woven planks

Construction Costs: (1978 Costs)
 Dwelling Unit - 950 000 CFA
 Outbuilding - 50 000 CFA



CASE STUDY 16: TYPE A



Site plan

HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation: a) Accountant Income: a) 100 000 CFA

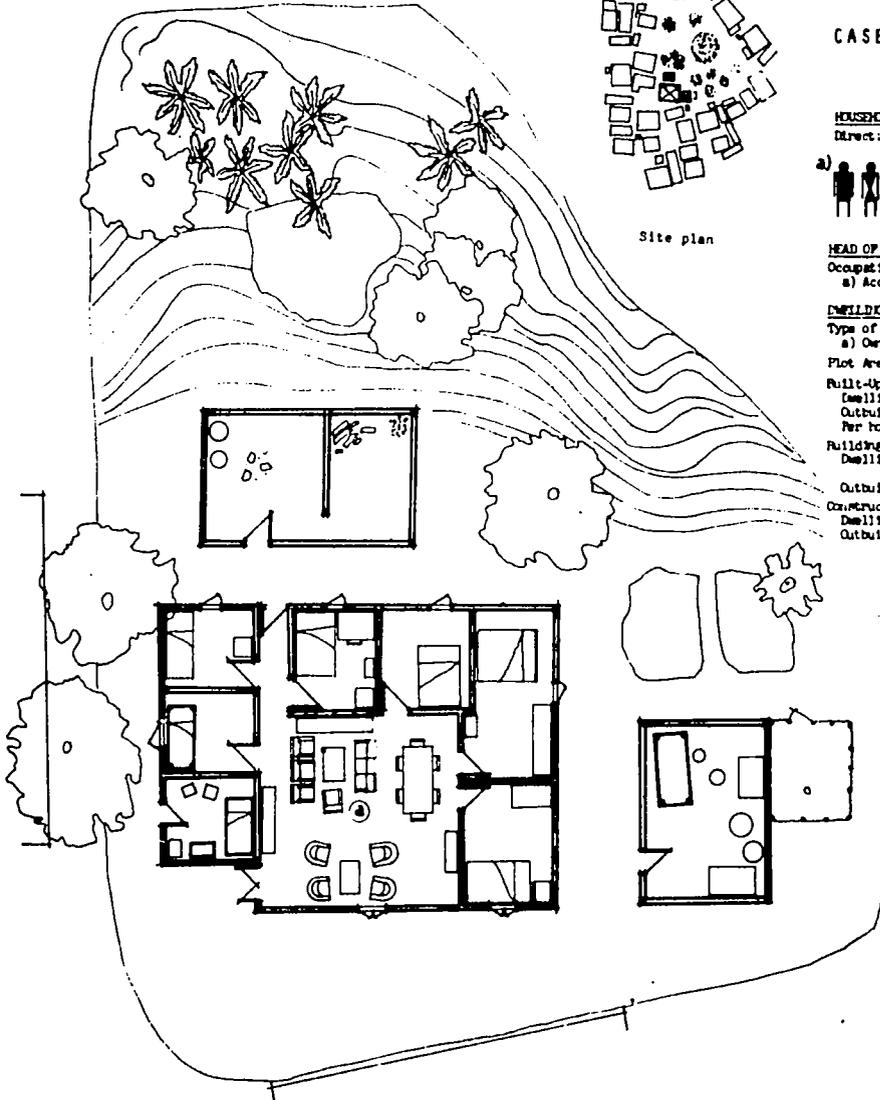
DWELLING UNIT

Type of Occupancy: a) Owner Rent: a) —

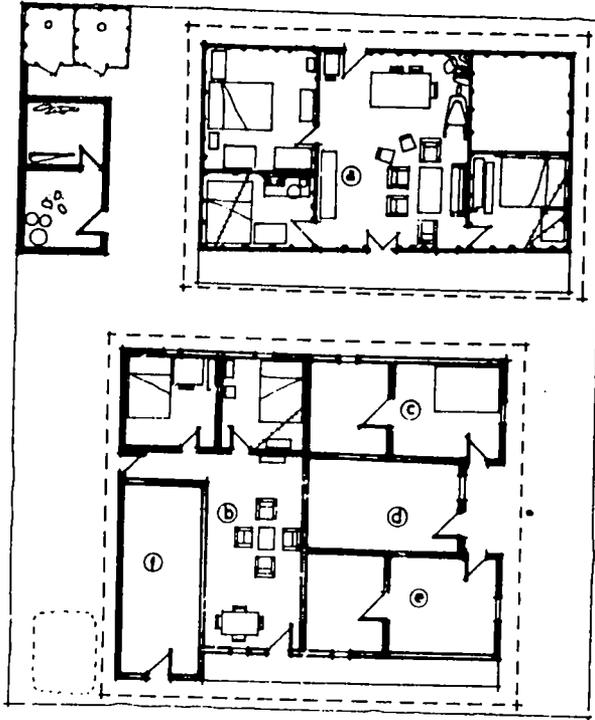
Plot Area: 600 m² (not all usable)
 Built-Up Area:
 Dwelling Unit - 99 m²
 Outbuildings - 21 m² + 19 m²
 Per household - 99 m² + 40 m²

Building Material:
 Dwelling Unit - Wattle + daub + cement
 plaster
 Outbuildings - Wattle + daub

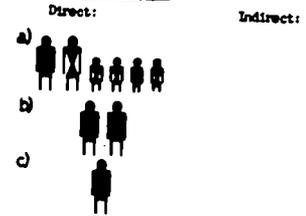
Construction Costs: (1978 Costs)
 Dwelling Unit - 1 275 000 CFA
 Outbuildings - 200 000 CFA



CASE STUDY 19: TYPE A



HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation :
 a) Taxi driver
 b) Student(s)
 c) Student
 d,e,f) Students

Income :
 a) 70 000
 b) 35 000
 c) 25 000
 d,e,f) Unknown

DWELLING UNIT

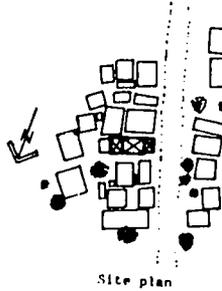
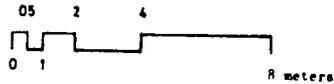
Type of Occupancy :
 a) Owner
 b) Renter
 c) Renter
 d,e,f) Renters

Rent :
 a) --
 b) 10 500
 c) 3 500
 d,e,f) Unknown

Plot Area : 360 m²
 Built-up Area :
 Dwelling Units - 1) 69 m² 2) 106 m²
 Outbuilding - 10.4 m²
 Per Household - a) 61 m² ; c) 14.6 m² ; f) 13.7m²
 b) 35 m² ; d,e) 43 m²

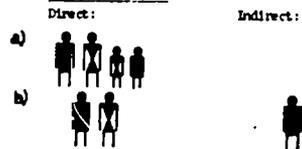
Building Material :
 Dwelling Unit - 1) Wood planks ; 2) Mattle +
 daub + cement plaster
 Outbuilding - Mattle + daub + Sheet metal

Costs of Construction (1978 costs) :
 Dwelling Unit : 1) 500 000
 Outbuilding - 2) 2 100 000



CASE STUDY 20: TYPE A

HOUSEHOLD MEMBERS



HEAD OF HOUSEHOLD

Occupation :
 a) Civil Servant
 b) Student
 c) Shop /Hairdresser
 d,e) Students

Income :
 a) 93 000
 b) 80 000
 c) --
 d,e) Unknown

DWELLING UNIT

Type of Occupancy :
 a) Owner
 b) Renter
 c) Renter/Shop
 d,e) Unknown

Rent :
 a) --
 b) 20 000
 c) Unknown
 d,e) Unknown

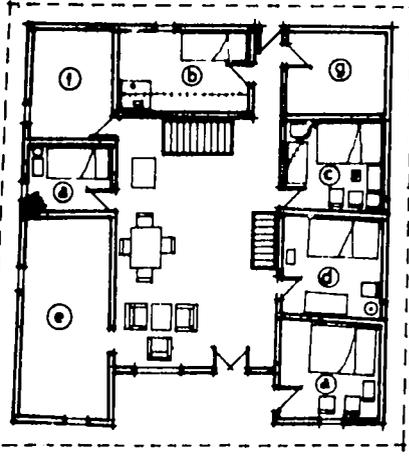
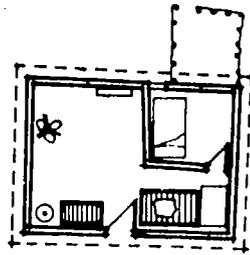
Plot Area : 400 m²
 Built-up Area :
 Dwelling Units - 1) 75.4 m² ; 2) 58 m²
 Outbuilding - 32 m² + 4.4 m²
 Per Household - a) 58 m² ; b) 57 m² ; c) 19 m²
 d) 7.8 m² ; e) 10.4 m²

Building Material :
 Dwelling Unit - 1) Mattle + daub ; 2) Wood
 + cement plaster planks
 Outbuildings - Concrete block, sheet metal

Costs of Construction (1978 costs) :
 Dwelling Unit - 1) 1 575 000 ; 2) 505 000
 Outbuildings - 950 000

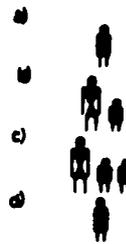
CASE STUDY 21: TYPE A

Site plan



HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation :
 a) Student
 b) House maid
 c) House maid
 d) Student
 e, f, g) Unknown

Income :
 a) 19 000 CPA
 b) 11 500
 c) 8 000
 d) 23 000
 e, f, g) Unknown
 Unknown

DWELLING UNIT

Type of Occupancy :
 a) Owner
 b) Renter
 c) Renter
 d) Renter
 e, f, g) Unknown

Rent :
 a) -
 b) 3 500 CPA
 c) 2 000 CPA
 d) 1 500 CPA
 e, f, g) Unknown

Plot Area :
 300 m²

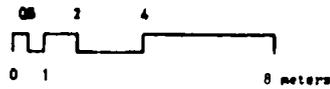
Built-Up Area :
 Dwelling Unit - 118 m²
 Outbuilding - 29 m²
 Per household - a) 50 m² + 29 m²
 b) 10 m²
 c) 8.4 m²
 d) 9 m²
 e) 16.5 m²
 f) 8 m²
 g) 7 m²

Building Material :
 Dwelling Unit - Wattle + daub
 Outbuilding - Wattle + daub

Construction Costs (1978 Costs) :
 Dwelling Unit - 700 000 CPA
 Outbuildings - 145 000 CPA

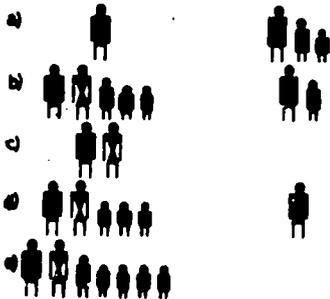
CASE STUDY 22: TYPE A

Site plan



HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation :
 a) Student
 b) Chauffeur
 c) Night Guard
 d) Night Guard
 e) Civil Servant

Income :
 a) 12 000 CPA
 b) 24 000
 c) 20 000
 d) 24 000
 e) 28 000

DWELLING UNIT

Type of Occupancy :
 a) Owner's son
 b) Renter
 c) Renter
 d) Renter
 e) Renter

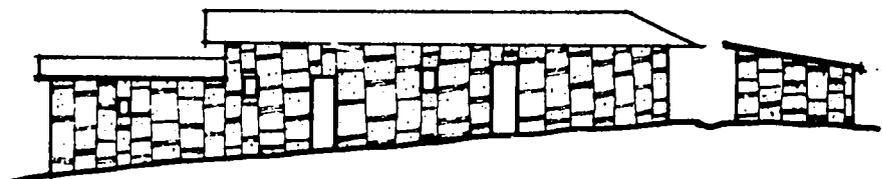
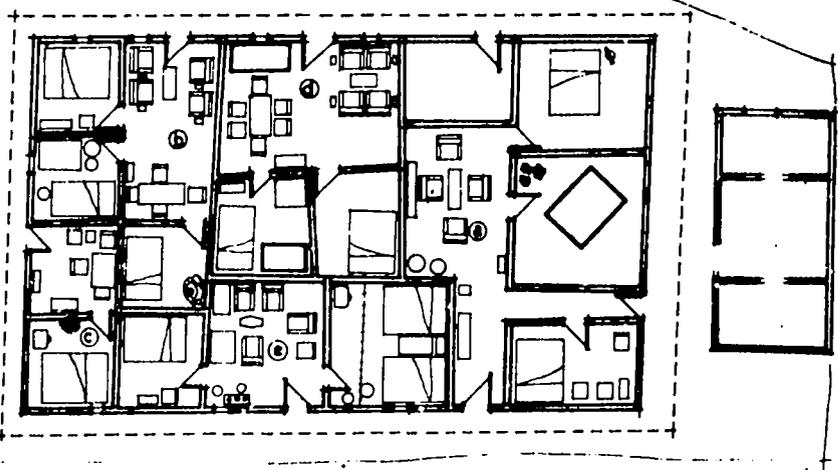
Rent :
 a) -
 b) 5 000 CPA
 c) 3 000
 d) 5 000
 e) 6 000

Plot Area : 560 m²

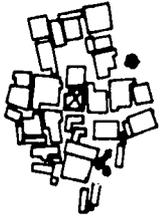
Built-Up Area:
 Dwelling Unit - 1) 193 m²; 2) 114 m²
 Outbuilding - 22 m²
 Per household - a) 69 m²
 b) 55.6 m²
 c) 18.6 m²
 d) 24.0 m²
 e) 35 m²

Building Material :
 Dwelling Unit - 1) Wattle + daub
 Outbuilding - Wattle + daub

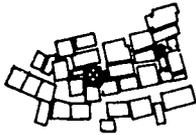
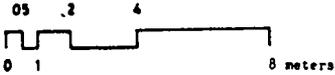
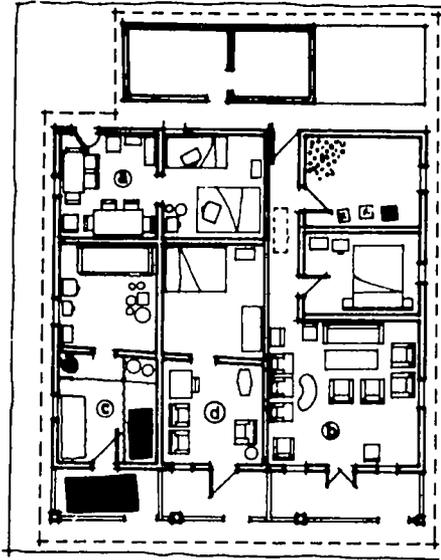
Construction Costs (1978 Costs) :
 Dwelling Unit - 1) 1 100 000 CPA
 2) 650 000
 Outbuilding - 110 000



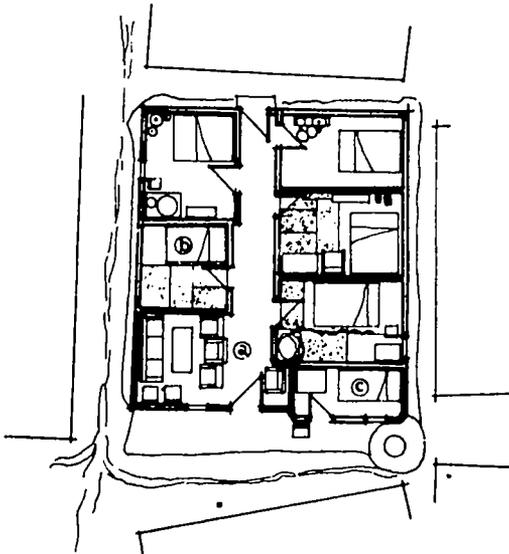
CASE STUDY 23: TYPE A



Site plan



Site plan



- HOUSEHOLD MEMBERS**
- | | |
|---------|-----------|
| Direct: | Indirect: |
| a) | |
| b) | |
| c) | |

- HEAD OF HOUSEHOLD**
- | | |
|----------------|-----------------|
| Occupation : | Income : (PCPA) |
| a) Unemployed | a) 48 000 |
| b) Merchant | b) 40 000 |
| c) Bush doctor | c) 100 000 |
| d) Unknown | d) Unknown |

- DWELLING UNIT**
- | | |
|---------------------|---------------|
| Type of Occupancy : | Rent : (PCPA) |
| a) Owner | a) - |
| b) Renter | b) 18 000 |
| c) Renter | c) 10 000 |
| d) Unknown | d) Unknown |

- Plot Area : 225 m²
- Built-up Area :
- Dwelling Unit - 118 m²
 - Outbuilding - 17 m²
 - Per Household - a) 9.2 m² ; b) 51 m² ; c) 19 m² ; d) 19 m²
- Building Material :
- Dwelling Unit - Concrete block
 - Outbuilding - Concrete block
- Costs of Construction (1978 costs PCPA):
- Dwelling Unit - 3 400 000
 - Outbuilding - 500 000

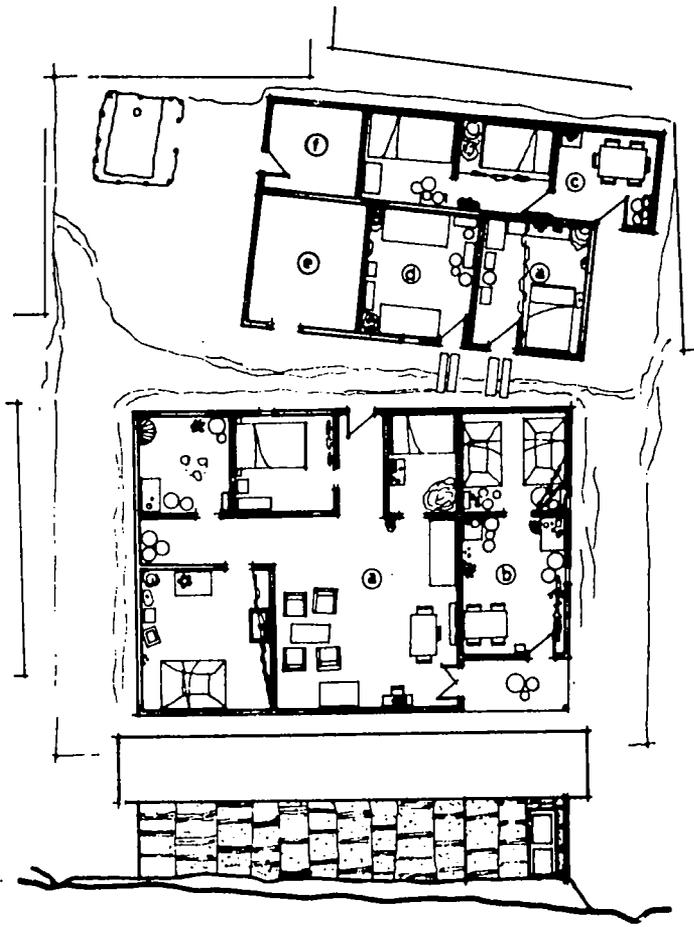
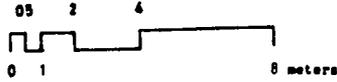
CASE STUDY 25: TYPE A

- HOUSEHOLD MEMBERS**
- | | |
|---------|-----------|
| Direct: | Indirect: |
| a) | |
| b) | |
| c) | |

- HEAD OF HOUSEHOLD**
- | | |
|---------------|-----------------|
| Occupation : | Income : (PCPA) |
| a) House maid | a) 15 000 |
- DWELLING UNIT**
- | | |
|---------------------|---------------|
| Type of Occupancy : | Rent : (PCPA) |
| a) Owner | a) - |

- Plot Area : 110 m²
- Built-up Area :
- Dwelling Unit - 68 m²
 - Per Household - a) 56 m² ; b) 7 m² ; c) 5 m²
- Building Material :
- Dwelling Unit - Wattle + daub + cement plaster
- Costs of Construction (1978 costs PCPA) :
- Dwelling Unit - 1 000 000

CASE STUDY 24: TYPE A



HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

- Occupation :
- a) Retired chauffeur
 - b) Cook
 - c) Nurse
 - d) Unknown
 - e) Unknown
 - f) Unknown

- Income : (PCPA)
- a) 29 000
 - b) 29 000
 - c) 43 000
 - d,e,f) Unknown

DEWELLING UNIT

Type of Occupancy :

- a) Owner
- b) Renter
- c) Renter
- d,e,f) Renters

- Rent : (PCPA)
- a) -
 - b) 5 000
 - c) 7 500
 - d,e,f) Unknown

Plot Area : 350 m²

Built-up Area :

- Dwelling Unit - 1) 112 m² ; 2) 73 m²
- Outbuilding - 6 m²
- Per Household - a) 87 m² ; b) 25 m²
- c) 27 m² ; d) 12 m² ; e) 12 m² ; f) 9 m²

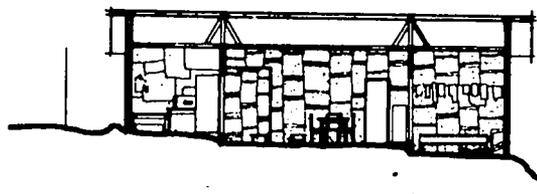
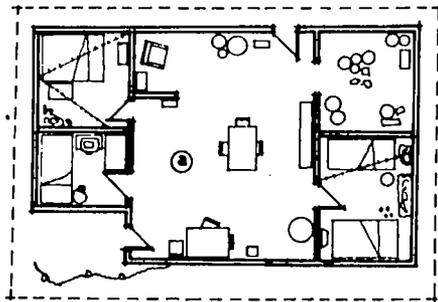
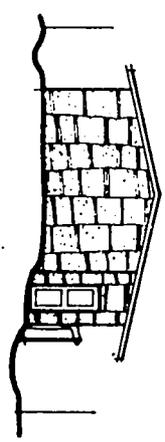
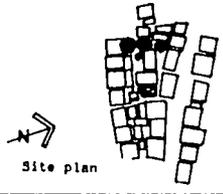
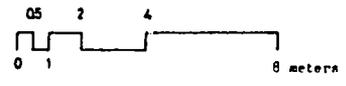
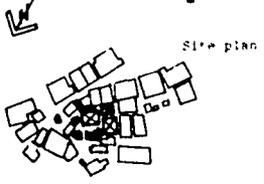
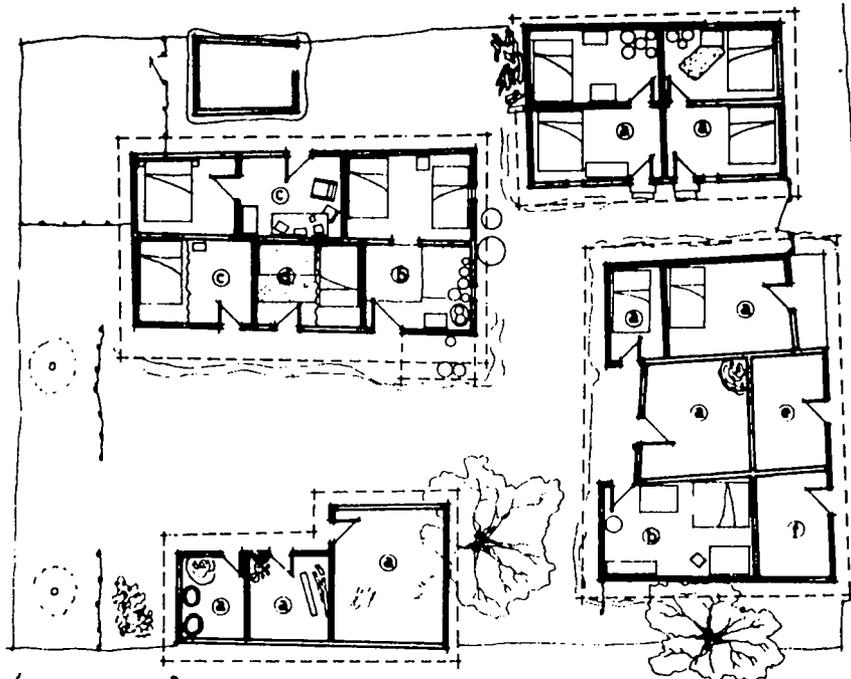
Building Material :

- Dwelling Unit - 1) Wattle + daub
- 2) Wattle + daub
- Outbuilding - Sheet metal (letrine)

Costs of Construction (1978 costs PCPA) :

- Dwelling Unit - 1) 560 000 ; 2) 306 000

CASE STUDY 26: TYPE A



HOUSEHOLD MEMBERS
 Direct: Indirect:

a) b) c)

HEAD OF HOUSEHOLD
 Occupation: a) Neighborhood head b) Night guard c) Mason d) Wife b e) Unknown f) Unknown
 Income: a) 40 000 CPA b) 12 000 c) 10 000 d) — e) Unknown f) Unknown

DWELLING UNIT
 Type of Occupancy: a) Owner b, c, d) Relative e) Renter f) Renter
 Rent: a, b, c, d) None e, f) Unknown

Plot Area: 475 m²
 Built-Up Area: Dwelling Unit - 1) 36 m²; 2) 56 m²; 3) 49 m²
 Outbuilding - 1) 62 m² 2) 32 m² 3) 24 m²
 Per household - a) 8 m² b) 8 m² c) 7 m² d) 8 m² e) 8 m² f) 7 m²

Building Material: Dwelling Unit - 1) Mattle + daub + cement plaster 2, 3) Mattle + daub

Costs of Construction (1978 Costs): Dwelling Unit - 1) 720 000; 2) 340 000 3) 320 000 CPA

CASE STUDY 29: TYPE A

HOUSEHOLD MEMBERS
 Direct: Indirect:

a)

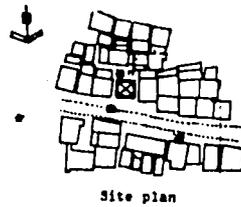
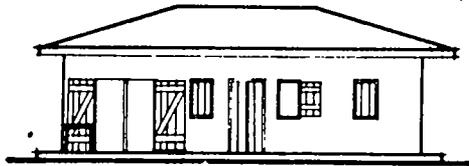
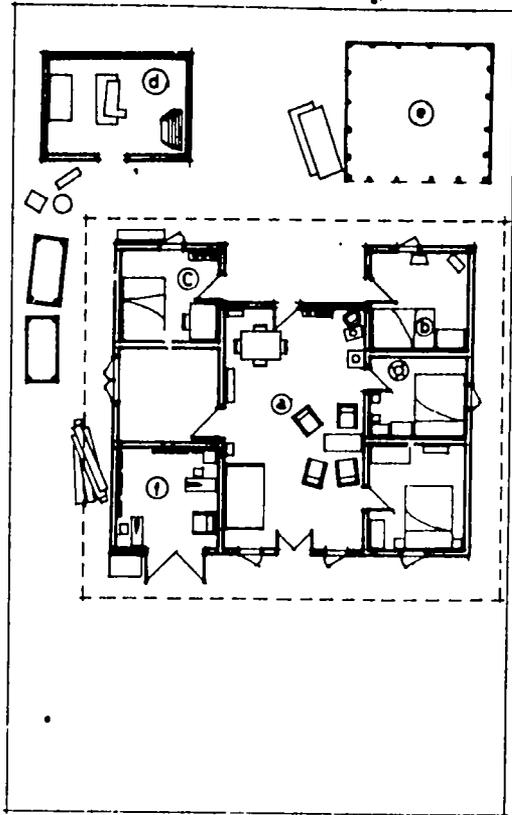
HEAD OF HOUSEHOLD
 Occupation: a) Tailor
 Income: a) 22 500 CPA

DWELLING UNIT
 Type of Occupancy: a) Owner
 Rent: a) --

Plot Area: 140 m²
 Built-Up Area: Dwelling Unit - 75 m²
 Outbuilding - —
 Per household - 75 m²

Building Material: Dwelling Unit - Mattle + daub

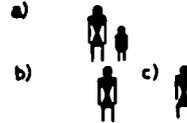
Construction Costs (1978 Costs): 375 000 CPA



CASE STUDY 28: TYPE B

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation :
 a) Merchant
 b) Single Woman
 c) Single Woman
 d,e,f) Unknown

Income :
 a) 45 000 CPA
 b) 10 000 CPA
 c) Unknown
 d,e,f) Unknown

DWELLING UNIT

Type of Occupancy:
 a) Owner
 b) Renter
 c) Renter
 d) Shop renter
 e) Shop renter
 f) Shop renter

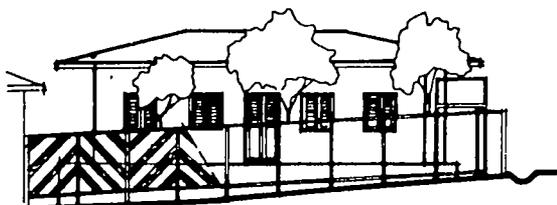
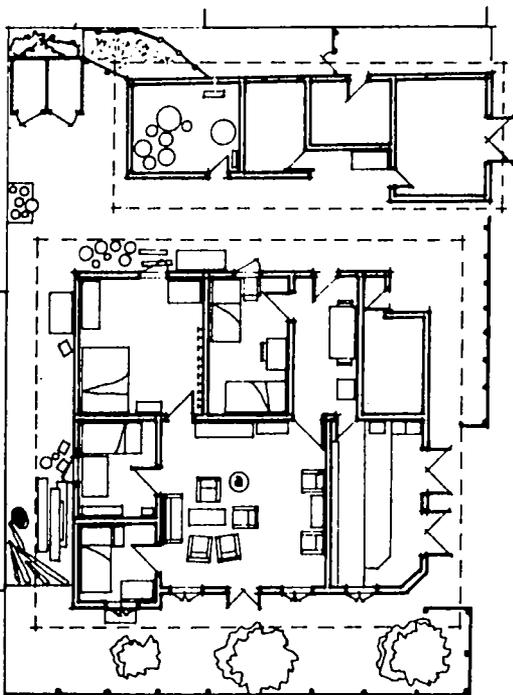
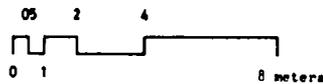
Rent :
 a) --
 b) 2 000 CPA
 c) Unknown
 d,e,f) Unknown

Plot Area: 350 m²

Built-Up Area:
 Dwelling Unit - 82 m²
 Outbuilding - 29 m²
 Per Household - a) 55 m²; b) 10 m²; c) 8 m²;
 d) 12 m²; e) 17 m²; f) 9 m².

Building Material:
 Dwelling Unit - Wattle + daub + cement plaster
 Outbuilding - Wood planks; sheet metal

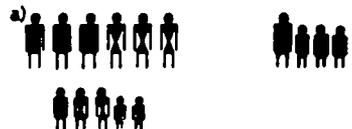
Construction Costs (1978 Costs):
 Dwelling Unit - 1 500 000 CPA
 Outbuilding - --



CASE STUDY 27: TYPE B

HOUSEHOLD MEMBERS

Direct: Indirect:



HEAD OF HOUSEHOLD

Occupation :
 a) Shopkeeper/
 bar owner

Income :
 a) 100 000 CPA

DWELLING UNIT

Type of Occupancy :
 a) Owner

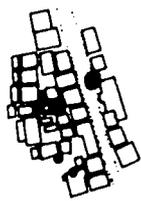
Rent :
 a) --

Plot Area :
 300 m²

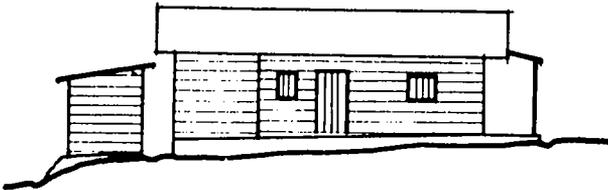
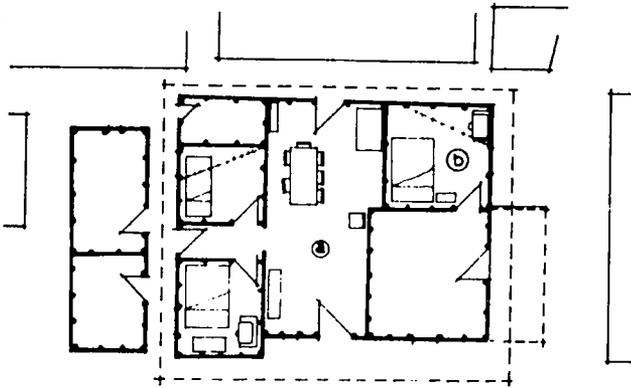
Built-Up Area :
 Dwelling Unit - 94 m² Outbuilding - 30m²
 Per household - a) 94 m² + 30 m²

Building Material:
 Dwelling Unit - Wattle + daub + cement plaster
 Outbuildings - Wattle + daub + cement plaster

Costs of Construction (1978 costs) :
 Dwelling Unit - 2 160 000 CPA
 Outbuildings - 600 000 CPA



Site plan



CASE STUDY 30: TYPE A

HOUSEHOLD MEMBERS

Direct:



Indirect:

HEAD OF HOUSEHOLD

Occupation :
a) Male nurse
b) Student

Income : (PCFA)
a) 40 000
b) -

DWELLING UNIT

Type of Occupancy :
a) Owner
b) Relative

Rent : (PCFA)
a) -
b) Free

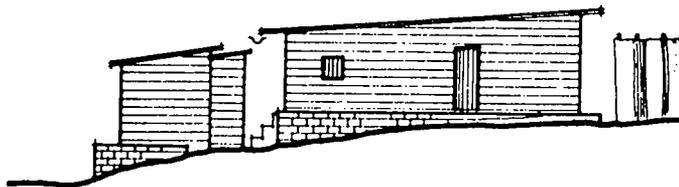
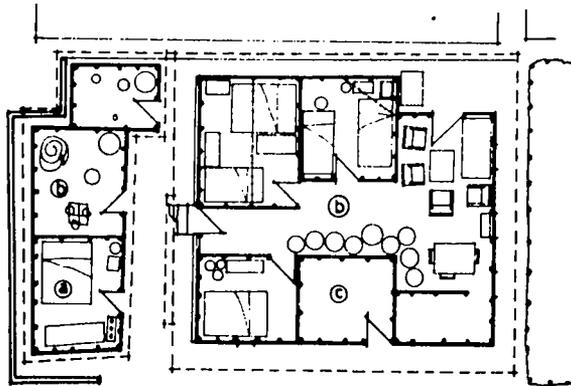
Plot Area :
150 m²

Built-up Area :
Dwelling Unit - 72 m²
Outbuilding - 14 m²
Per Household - a) 62 m² + 14 m² ; b) 10 m²

Building Material :
Dwelling Unit - wood planks
Outbuildings - wood planks

Costs of Construction (1978 costs PCFA) :
Dwelling Unit - 720 000
Outbuilding - 140 000

Site plan



CASE STUDY 31: TYPE A

HOUSEHOLD MEMBERS

Direct:



Indirect:

HEAD OF HOUSEHOLD

Occupation :
a) Taxi driver
b) Vendor
c) Unknown

Income : (PCFA)
a) 45 000
b) 75 000
c) Unknown

DWELLING UNIT

Type of Occupancy :
a) Owner
b) Renter
c) Renter

Rent : (PCFA)
a) -
b) 9 000
c) Unknown

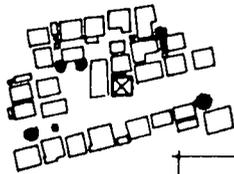
Plot Area :
170 m²

Built-up Area :
Dwelling Unit - 65 m²
Outbuilding - 22 m²
Per Household - a) 9 m² ; b) 58 m² ; c) 7 m²

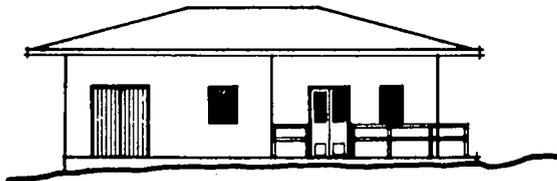
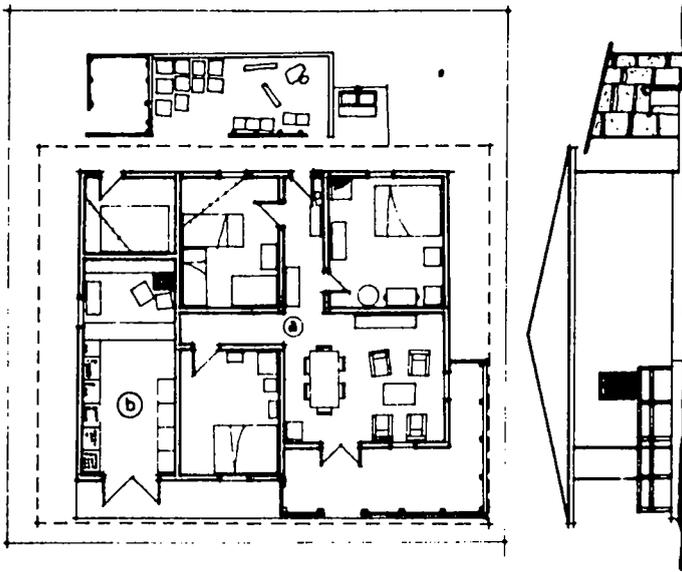
Building Material :
Dwelling Unit - Block foundation, wood plank structure
Outbuilding - Block foundation, wood plank structure

Costs of Construction (1978 costs PCFA) :
Dwelling Unit - 780 000
Outbuildings - 265 000

CASE STUDY 32: TYPE D



Site pla..



HOUSEHOLD MEMBERS
 Direct: a) Indirect:

HEAD OF HOUSEHOLD
 Occupation : a) Civil Servant (Neighborhood Chief) b) Shopkeeper
 Income : (PCPA) a) 50 000 b) Unknown

DEWELLING UNIT
 Type of Occupancy : a) Owner b) Renter/Shop
 Rent : (PCPA) a) - b) Unknown

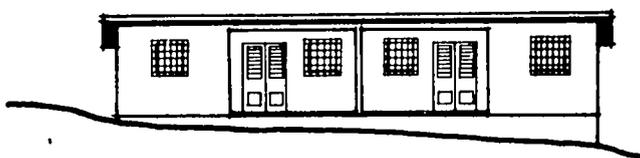
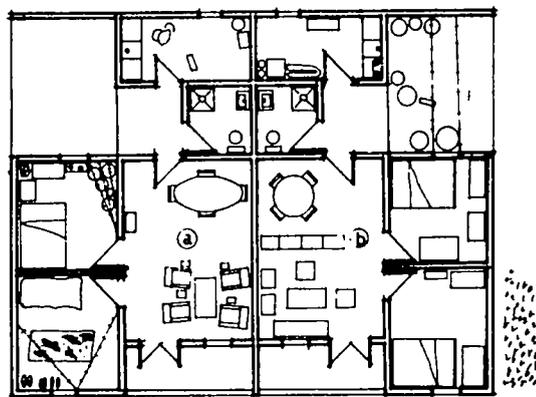
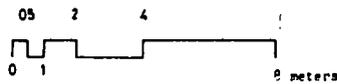
Plot Area : 225 m²
 Built-up Area :
 Dwelling Unit - 107 m²
 Outbuilding - 18 m²
 Per Household - a) 89 m² + 18 m² b) 18 m²

Building Material :
 Dwelling Unit - Wattle + daub + cement plaster
 Outbuilding - Wattle + daub

Costs of Construction (1978 costs PCPA) :
 Dwelling Unit - 2 500 000
 Outbuildings - 90 000



Site plan



CASE STUDY 33: TYPE A

HOUSEHOLD MEMBERS
 Direct: a) b) Indirect:

HEAD OF HOUSEHOLD
 Occupation : a) Teacher b) Mistress
 Income : (PCPA) a) 99 000 b) 100 000

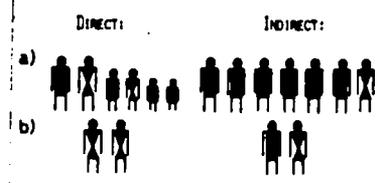
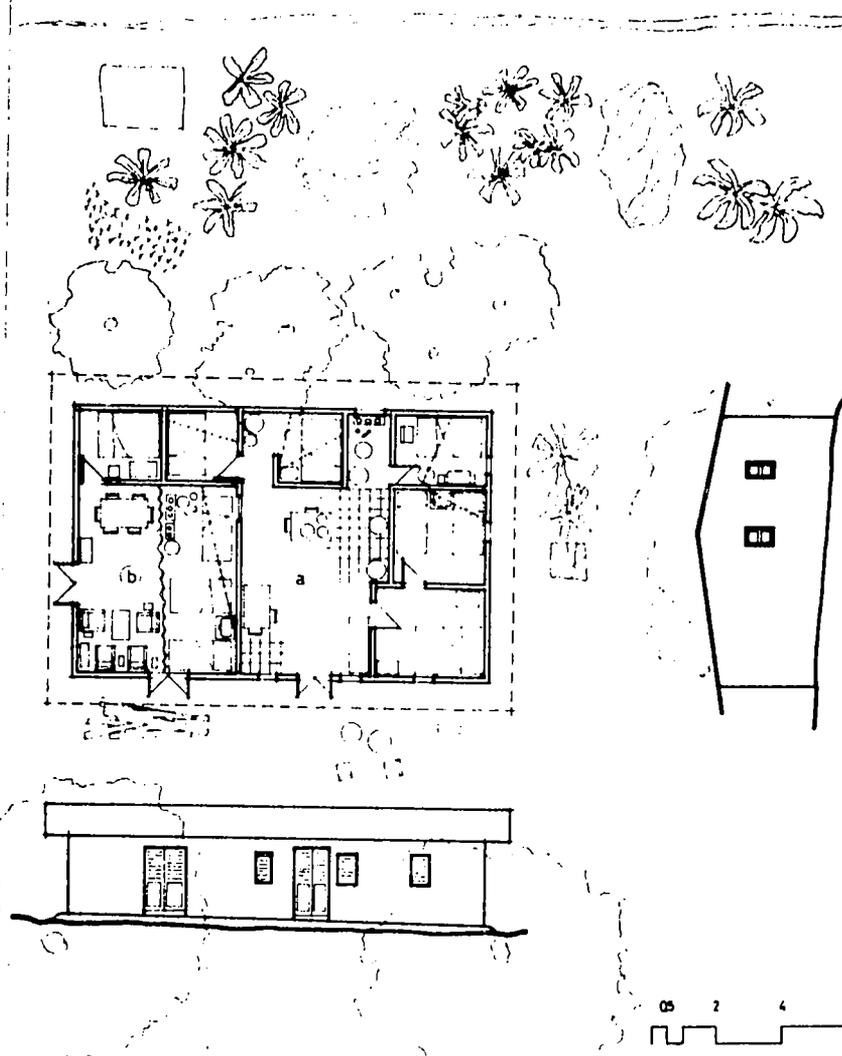
DEWELLING UNIT
 Type of Occupancy : a) Renter b) Renter
 Rent : (PCPA) a) 20 000 b) 18 000

Plot Area : 250 m²
 Built-up Area :
 Dwelling Unit - 124 m²
 Per Household - a) 62 m² ; b) 62 m²

Building Material :
 Dwelling Unit : Concrete block

Costs of Construction (1978 costs PCPA) :
 Dwelling Unit - 3 750 000

CASE STUDY 34: TYPE C



HEAD OF HOUSEHOLD

Occupation:
 a) Postal Worker
 b) Maid

Income (PCPA):
 a) 50,000
 b) 4,000 + gifts

BUILDING UNIT

Type of Occupancy:
 a) Owner
 b) Renter

Rent (PCPA):
 a) --
 b) 4,000

Plot Area:
 600 m²

Build-Up Area:
 Dwelling Unit - 93 m²
 For Household - a) 60 b) 32

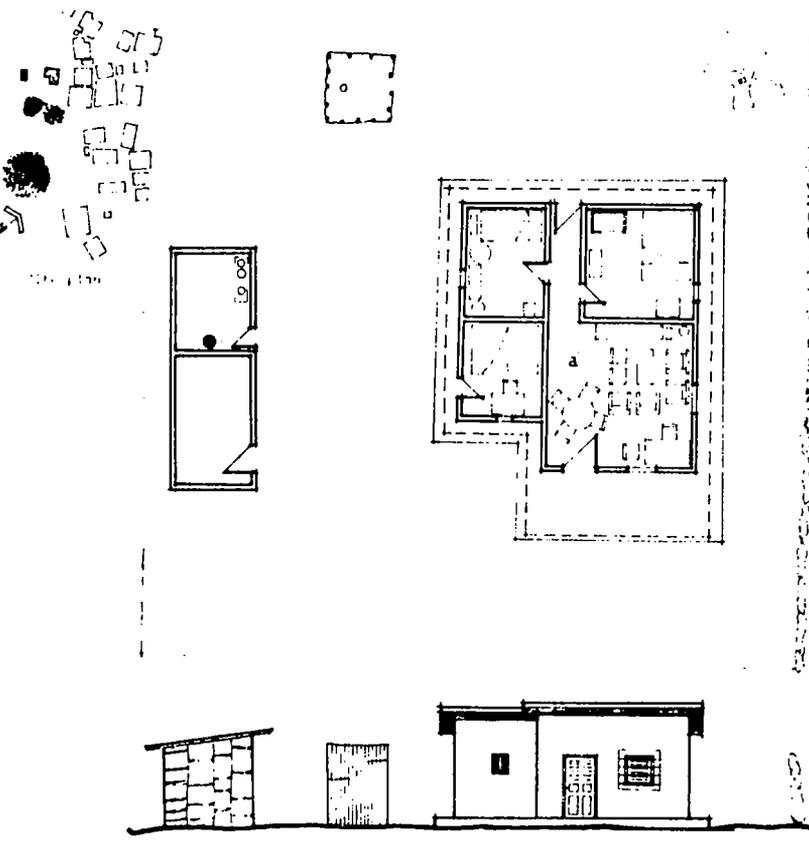
Building Material:
 Dwelling Unit - wattle + daub + cement plaster
 Outbuildings - --

Construction Costs (1974 Costs in PCPA):
 Dwelling Unit - 1,350,000

Plan de situation



CASE STUDY 35: TYPE C



HEAD OF HOUSEHOLD

Occupation:
 a) Tailor

Income (PCPA):
 a) 100,000

BUILDING UNIT

Type of Occupancy:
 a) Owner

Rent (PCPA):
 a) --

Plot Area:
 480 m²

Build-Up Area:
 Dwelling Unit - 117.6 m²; Outbuilding - 15.6
 For Household - 37.4 m² + 15.7 m²

Building Material:
 Dwelling Unit - wattle + daub + cement plaster
 Outbuildings - wattle + daub

Construction Costs (1974 Costs in PCPA):
 Dwelling Unit - 1,050,000
 Outbuildings - 70,000

CASE STUDY 36: TYPE D

HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

Occupation:
 a) Shopkeeper (unemployed)
 b) Unknown

Income:
 a) 15 000 CPA
 b) Unknown

DWELLING UNIT

Type of Occupancy:
 a) Owner
 b) Relative

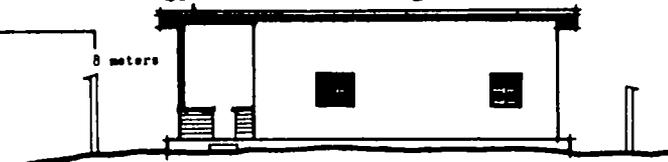
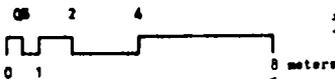
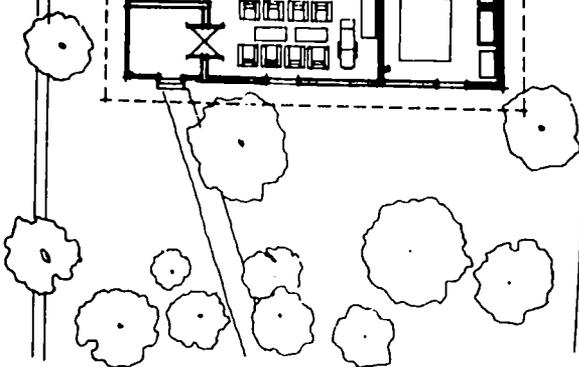
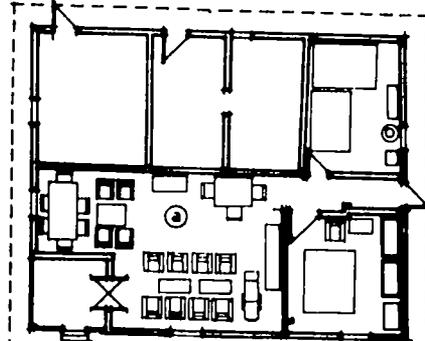
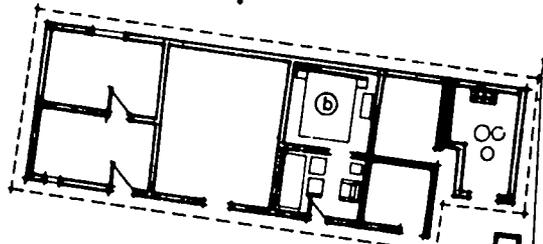
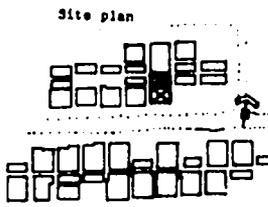
Rent:
 a) --
 b) --

Plot Area: 420 m²

Built-Up Area:
 Dwelling Unit - 100 m²
 Outbuilding - 52.8 m²
 Per Household - a) 64.7 m²
 b) 9.5 m²

Building Material:
 Dwelling Unit - Wattle + daub + cement plaster
 Outbuilding - Wattle + daub + cement plaster

Construction Costs:
 Dwelling Unit - 2 300 000 CPA
 Outbuilding - 1 200 000 CPA

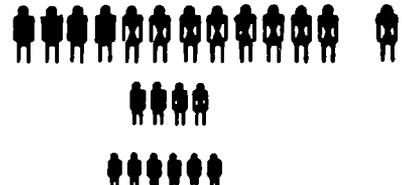


CASE STUDY 37: TYPE D

HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

Occupation:
 a) Civil Servant

Income:
 a) 38 000 CPA

DWELLING UNIT

Type of Occupancy:
 a) Owner

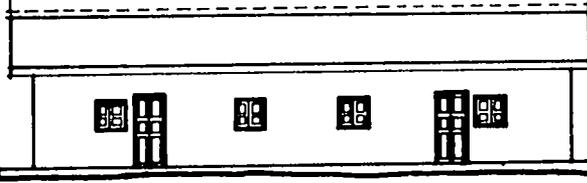
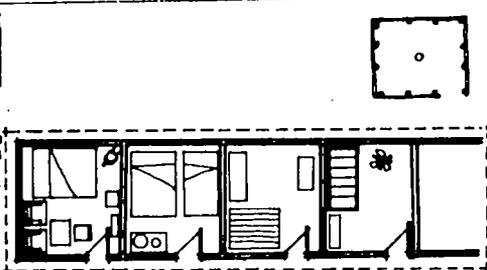
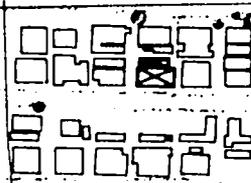
Rent:
 a) --

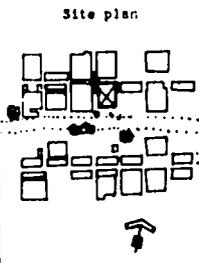
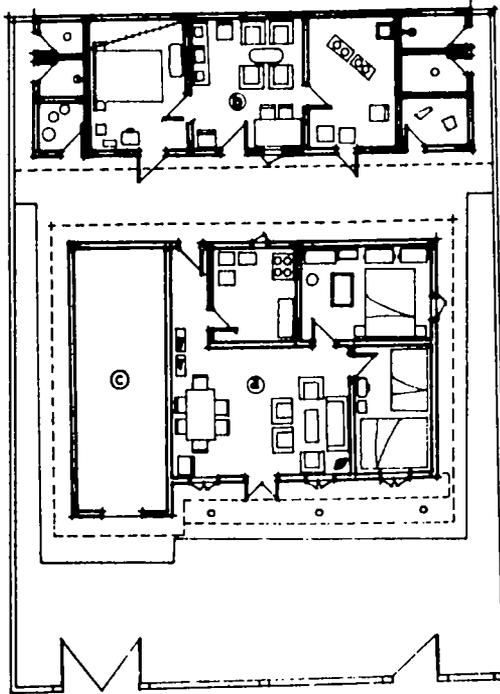
Plot Area: 400 m²

Built-Up Area:
 Dwelling Unit - 132 m²
 Outbuilding - 44 m²
 Per household - a) 132 + 44 m²

Building Material:
 Dwelling Unit - Wattle + daub + cement plaster
 Outbuilding - Wattle + daub + cement plaster

Construction Costs (1978 Costs):
 Dwelling Unit - 2 900 000 CPA
 Outbuilding - 925 000 CPA



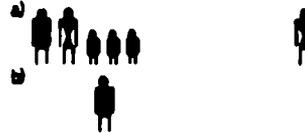


CASE STUDY 39: TYPE D

HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

Occupation :

- a) Storekeeper
- b) Taxi driver
- c) Unknown

Income : (PCPA)

- a) 60 000
- b) 80 000
- c) Unknown

DWELLING UNIT

Type of Occupancy :

- a) Renter
- b) Renter
- c) Unknown

Rent : (PCPA)

- a) 20 000
- b) 10 000
- c) Unknown

Plot Area : 300 m²

Built-up Area :

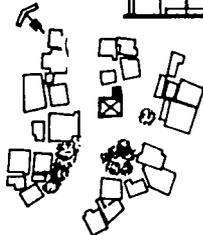
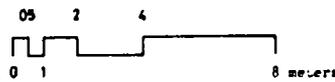
- Dwelling Unit - 78.3 m²
- Outbuilding - 47 m²
- Per Household - a) 57 m² ; b) 35 m² ; c) 21 m²

Building Material :

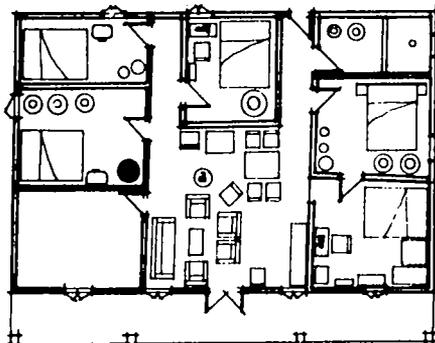
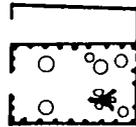
- Dwelling Unit - Mattle + daub + cement plaster
- Outbuilding - Mattle + daub + cement plaster

Costs of Construction (1978 costs PCPA) :

- Dwelling Unit - 1 560 000
- Outbuilding - 850 000



Site plan

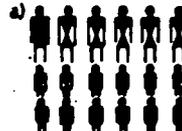


CASE STUDY 40: TYPE D

HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD

Occupation :

- a) Teacher

Income : (PCPA)

- a) 200 000

DWELLING UNIT

Type of Occupancy :

- a) Renter

Rent : (PCPA)

- a) 23 000

Plot Area : 300 m²

Built-up Area :

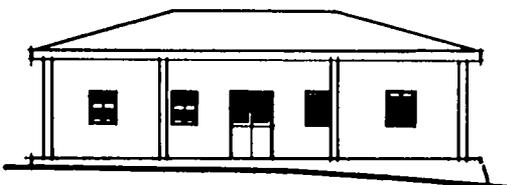
- Dwelling Unit - 105 m²
- Outbuilding - 11 m²
- Per Household - a) 105 m² + 11 m²

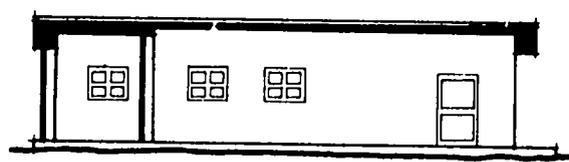
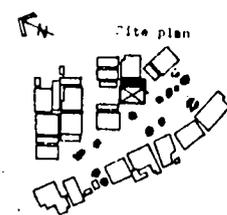
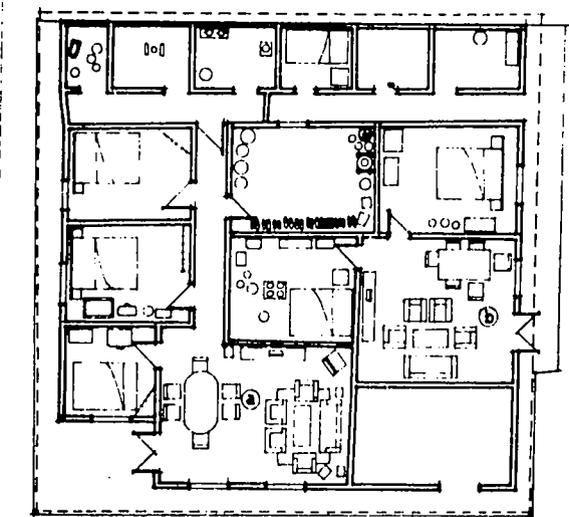
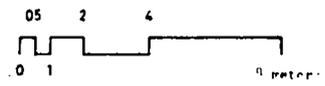
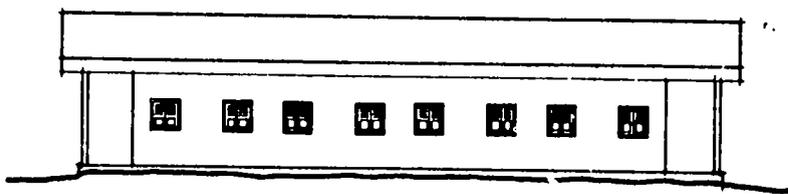
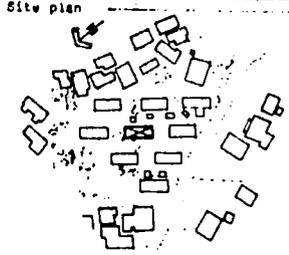
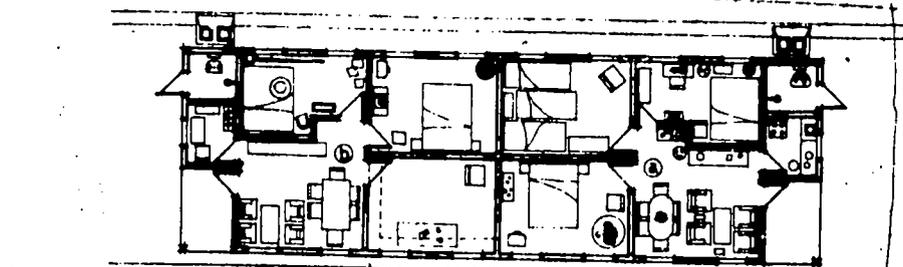
Building Material :

- Dwelling Unit - Mattle + daub + cement plaster
- Outbuilding - Wood planks

Costs of Construction (1978 costs PCPA) :

- Dwelling Unit - 1 900 000
- Outbuilding - 88 000





CASE STUDY 42: TYPE F

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation:
 a) Teacher
 b) Engineering Assistant

Income: (PCPA)
 a) 21 000
 b) 45 000

DWELLING UNIT

Type of Occupancy:
 a) Renter
 b) Owner

Rent: (PCPA)
 a) 8 000
 b) 5 000

Plot Area: 300 m²

Built-up Area:

Dwelling Unit - 91 m²

Outbuilding -

Per Household - a) 47.5 - b) 47.5 m²

Building Material:

Dwelling Unit - Concrete block

Costs of Construction (1978 costs PCPA):

Dwelling Unit - 3 950 000 PCPA

CASE STUDY 43: TYPE D

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation:
 a) Writer
 b) Radio Technician

Income: (PCPA)
 a) 30 000
 b) 110 000

DWELLING UNIT

Type of Occupancy:

a) Renter

b) "

Rent: (PCPA)

a) 21 000

b) 15 000

Plot Area: 530 m²

Built-up Area:

Dwelling Unit - 150 m²

Outbuilding - 22 m²

Per Household - a) 71 m² + 11 m²;

b) 98 m² + 11 m²

Building Material:

Dwelling Unit - white + dark + cement plaster

Outbuilding - white + dark + cement plaster

Costs of Construction (1978 costs PCPA)

Dwelling Unit - 2 500 000

Outbuilding - 400 000

CASE STUDY 44 : TYPE E

HOUSEHOLD MEMBERS

Direct:

Indirect:



HEAD OF HOUSEHOLD:

Occupation:

Income:

a) Treasury Inspector

a) 210 000 CFA

DWELLING UNIT:

Type of Occupancy:

Rent:

a) Government provided house

a) 100 000 CFA

Plot Area: 735 m²

Built-Up Area:

Dwelling Unit - 181 m² (interior space)

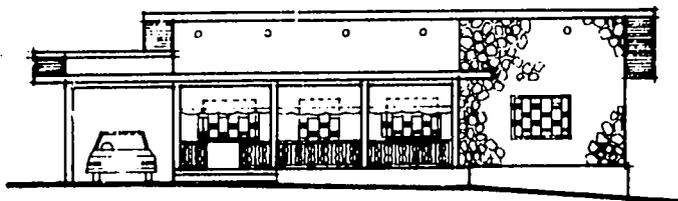
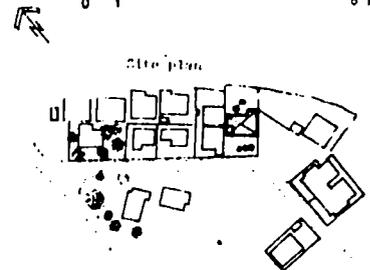
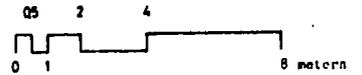
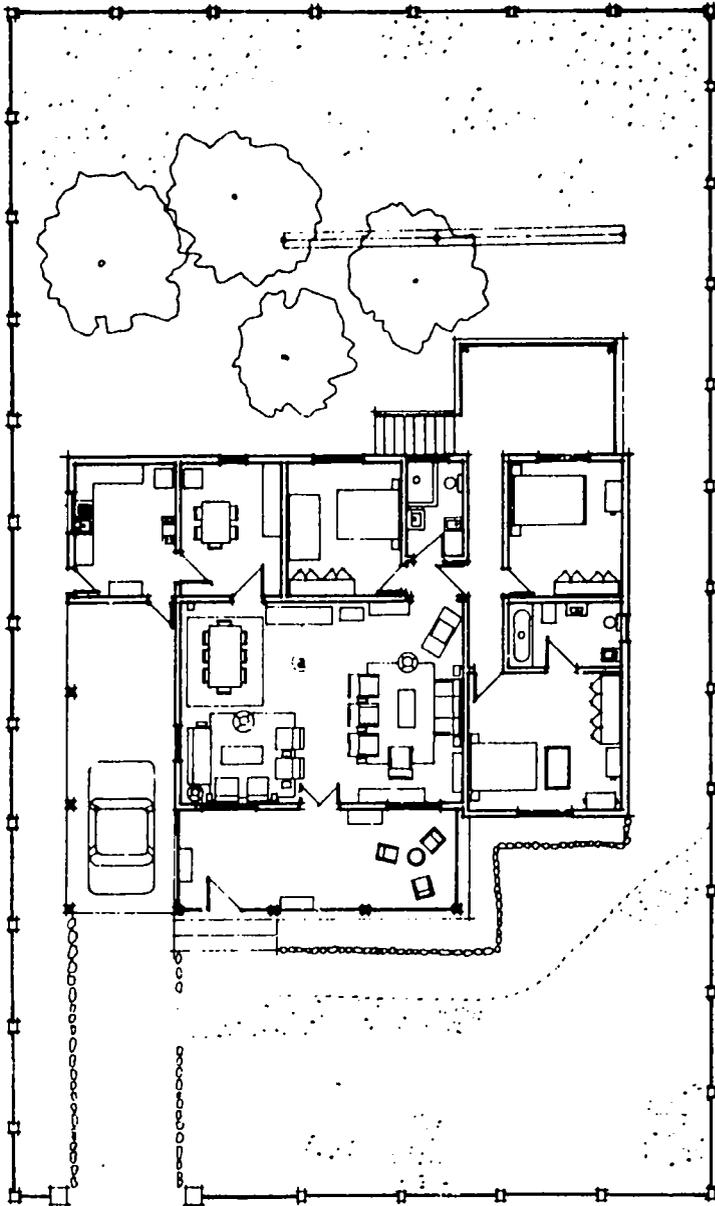
Per Household - 181 m² + verandas 40 m² + garage 27 m²

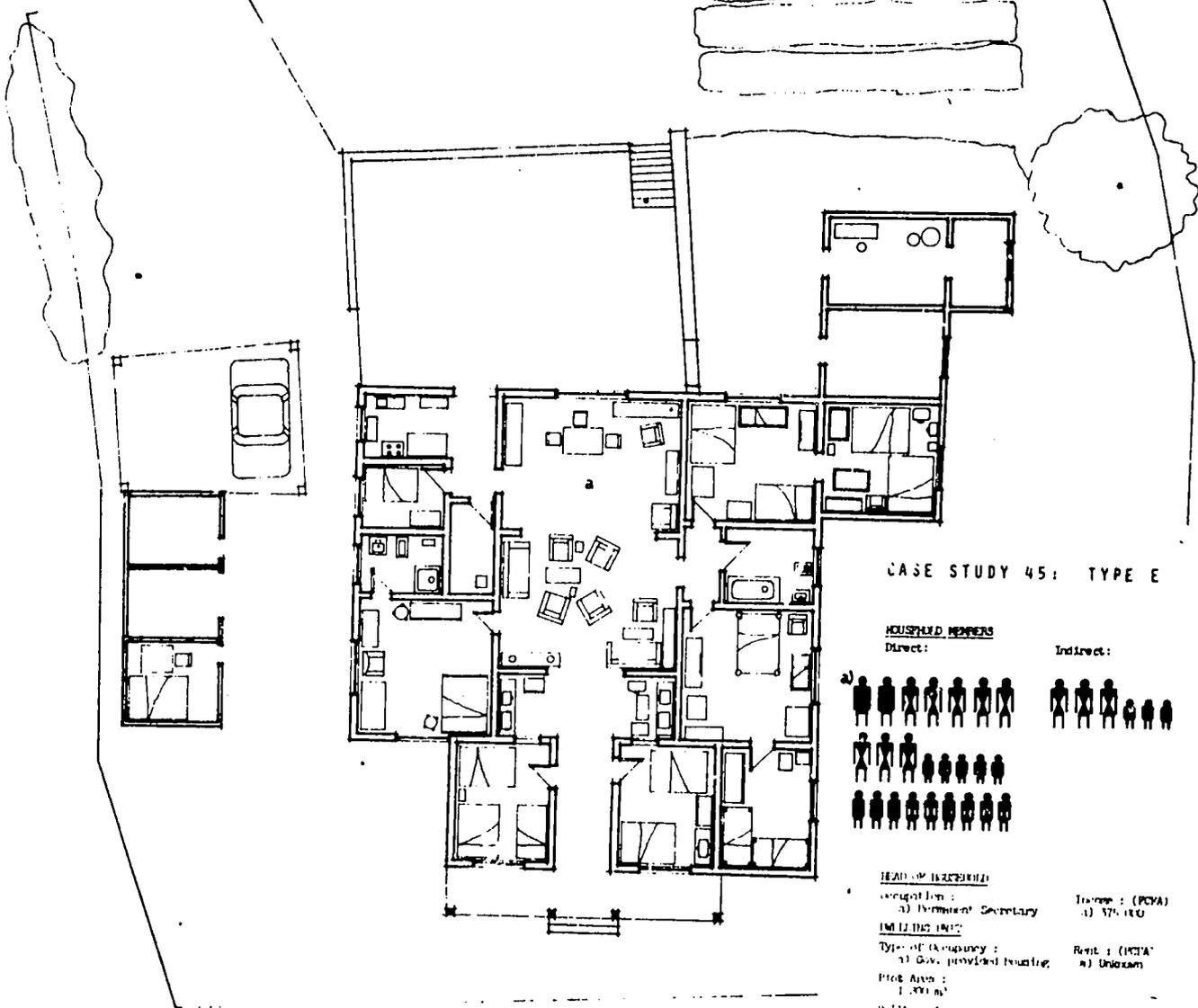
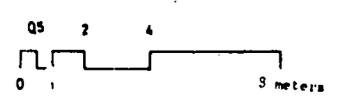
Building Material:

Dwelling Unit - Concrete block

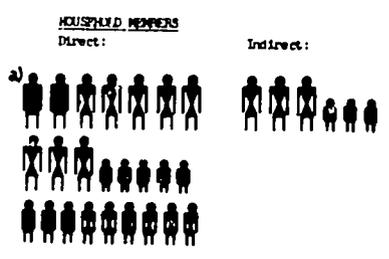
Construction Cost: (1978 Costs)

Dwelling Unit - 6 000 000 CFA





CASE STUDY 45: TYPE E



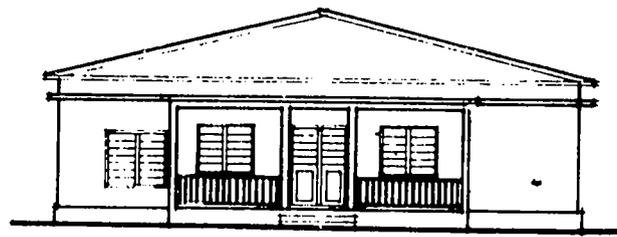
HEAD OF HOUSEHOLD:
 Occupation: a) Permanent Secretary Income: (PCVA) a) 375,000

BUILDING INFO:
 Type of Housing: a) Gov. provided housing Rent: (PCVA) a) Unknown
 Plot Area: 1,300 m²

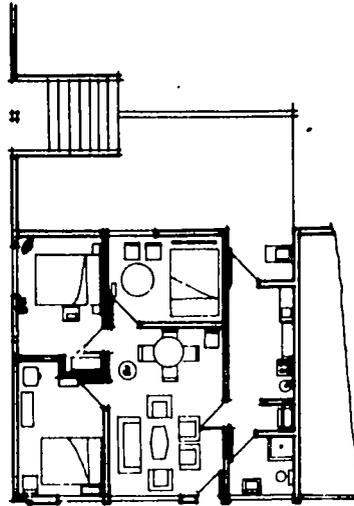
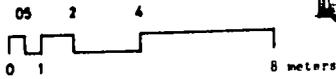
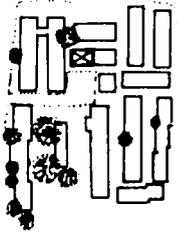
Building Area:
 Building Unit = 20 m²
 Outbuilding = 33 m² + Garage 10 m²
 Porch/Veranda = a) 20 m² + 1.5 m²

Building Material:
 Building Unit = Concrete block
 Outbuilding =

Year of Construction (1978 south BSA):
 Building Unit = 5 Oct 1978
 Outbuilding = 1 Feb 1978



Site plan



CASE STUDY 46 : TYPE F

HOUSEHOLD MEMBERS

Direct:

Indirect:

a)



HEAD OF HOUSEHOLD

Occupation:

Income:

a) Mechanic

a) 130 000 CPA

DWELLING UNIT

Type of Occupancy:

Rent:

a) Renter

a) 17 500 CPA

Plot Area: 100 m² (approximately)

Built-Up Area:

Dwelling Unit - 61 m²

Per Household - 61 m²

Building Material:

Dwelling Unit - Concrete block

Construction Costs (1978 Costs):

Dwelling Unit - 2 100 000 CPA

CASE STUDY 47: TYPE F

HOUSEHOLD MEMBERS

Direct:

Indirect:

a)



HEAD OF HOUSEHOLD

Occupation:

Income:

a) Technician

a) 200 000 CPA

DWELLING UNIT

Type of Occupancy:

Rent:

a) Renter

a) 53 000 CPA

Plot Area: 110 m²

Built-Up Area:

Dwelling Unit - 64 m²

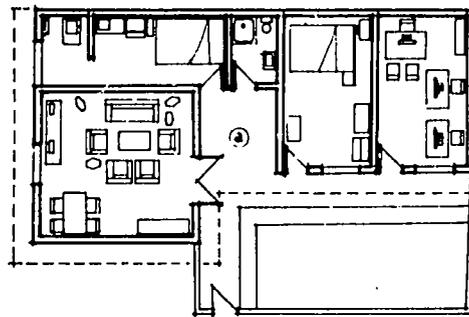
Per Household - 64 m²

Building Material:

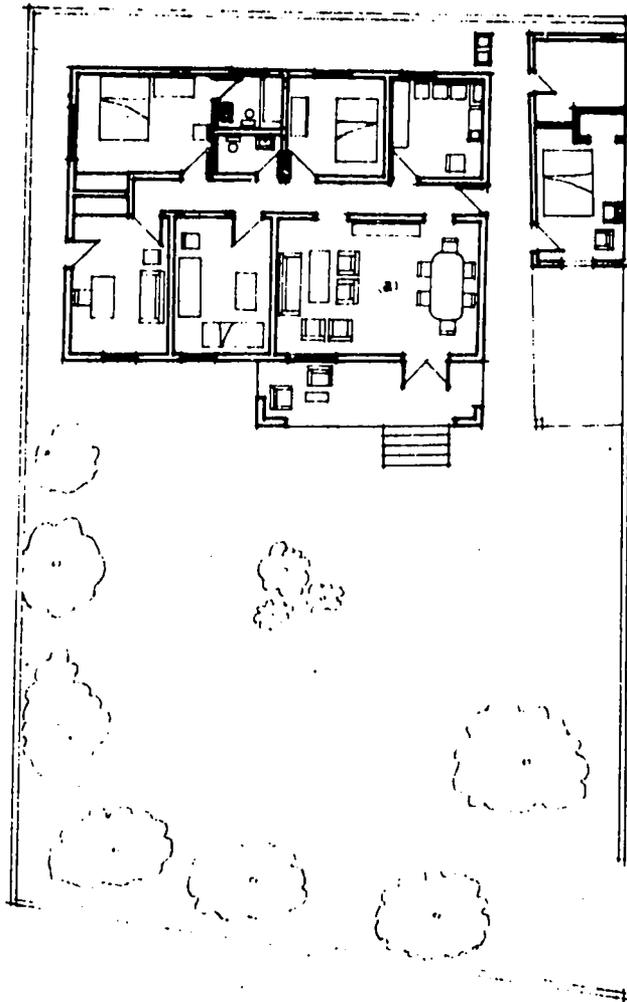
Dwelling Unit - Concrete block

Construction Costs:

Dwelling Unit - 2 130 000 CPA



CASE STUDY 48: TYPE D



HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation:
a) Teacher

Income:
a) 200 000 CPA

DEWELLING UNIT

Type of Occupancy:
a) Renter

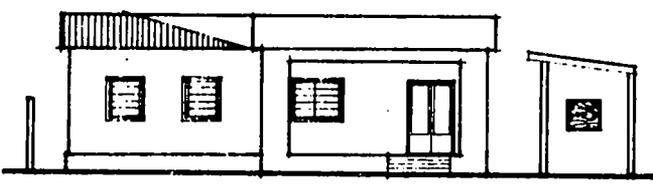
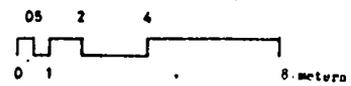
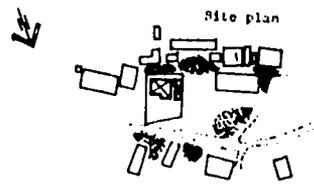
Rent:
a) Unknown

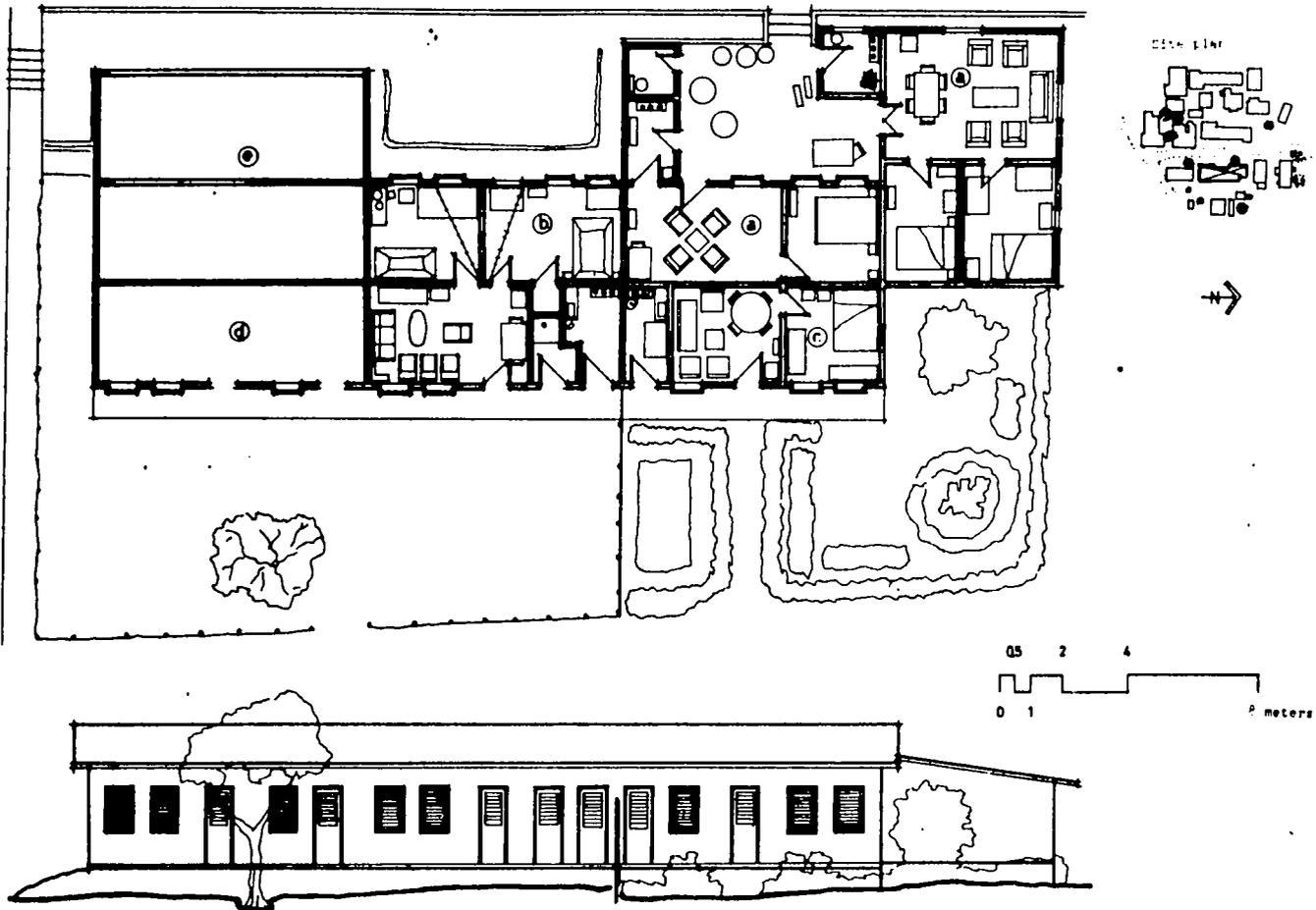
Plot Area: 900 m²

Build-Up Area:
Dwelling Unit - 96 m² ; veranda 13 m²
Outbuilding - 17.4 m²
Per Household - 96 m² + 17.4 m²

Building Material:
Dwelling Unit - Concrete block
Outbuilding - Wattle + daub + cement plaster

Construction Costs (1978 Costs):
Dwelling Unit - 3 000 000 CPA
Outbuilding - 380 000 CPA





CASE STUDY 50: TYPE G

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation:
a) Professional
Downer/Military

Income: (PCPA)
a) 42 000 + earnings

DWELLING UNIT

Type of Occupancy:
a) Government provided housing

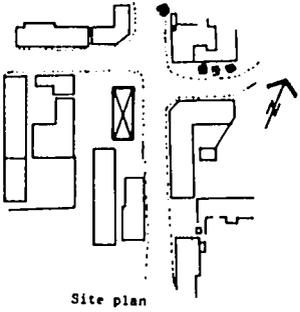
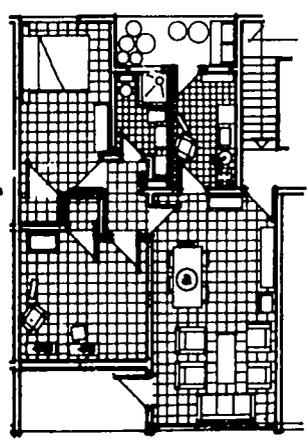
Rent: (PCPA)
a) 60 000

Plot Area:

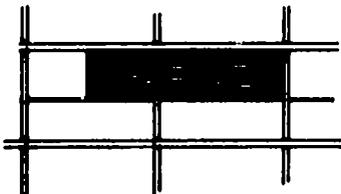
Built-up Area:
Dwelling Unit - 72 m² + porches 12.6 m²
Per Household - 72 m² + 12.6 m²

Building Material:
Dwelling unit - Concrete block

Costs of Construction (1978 costs PCPA):
Dwelling Unit - 2 900 000



Site plan



CASE STUDY 49: TYPE F

HOUSEHOLD MEMBERS

Direct:



Indirect:



HEAD OF HOUSEHOLD

Occupation:
a) Primary School Teacher
b) Accountant
c) Secretary
d,e) Unknown

Income: (PCPA)
a) 59 000
b) 86 700
c) 45 000
d,e) Unknown

DWELLING UNIT

Type of Occupancy:
a) Renter d,e) Renters
b) " c) "

Rent: (PCPA)
a) 25 000
b) 15 000
c) 10 000
d,e) Unknown

Plot Area:
575 m²

Built-up Area:
Dwelling Unit - 208 m²
Per Household - a) 68 m²; b) 44 m²; c) 22 m²; d) 24 m²; e) 50 m²

Building Material:
Dwelling Unit - Concrete block

Costs of Construction (1978 costs PCPA):
Dwelling Unit - 6 250 000

ANNEX I

FUNCTIONAL ANALYSIS: TYPICAL LOW INCOME DWELLING UNIT

<u>ITEM</u>	<u>ACTIVITIES OR FUNCTIONS</u>	<u>OBSERVATIONS FOR FUTURE HOUSING</u>
1. <u>PLOT</u>		
Activities in un-built up areas:		
a. Behind dwelling unit		
-common activities	-preparation of food -washing of clothes -dishwashing -children's games -women's gatherings	-courtyard of 9m ² behind dwelling very close to kitchen -water supply point desirable -covered area of 6m ²
-less common activities	-fruit or vegetable garden -flower garden	-unnecessary -unnecessary
b. In front of dwelling unit		
-common activities	-pedestrian traffic -children's games -gatherings	-dwelling opening onto courtyard or pedestrian walkway
-less common activities	-fruit garden -flower bed -traffic -rain water drainage -aeration and lighting of dwelling	-garden unnecessary -assure traffic flow, rainwater drainage and aeration and lighting of dwelling
2. <u>CONSTRUCTED SPACE</u>		
a. Main house :		
-general observations	-house of about 70m ² -80m ² of traditional material	-same
Rooms :		

<u>ITEM</u>	<u>ACTIVITIES OR FUNCTIONS</u>	<u>OBSERVATIONS FOR FUTURE HOUSING</u>
-Living/dining room	-room of 20-30m ² cement floor (desired) -ceiling (desired) -access to front and back open spaces -furniture: table + 6-8 chairs; sofa + 4 armchairs, end tables, sideboard, refrigerator	-same -provide doors opening onto front and back -facilitate furnishing -avoid number of bedroom doors opening onto living room
-Parent's room	-rooms of 10-12m ² w/1-2 windows. Furnished one double bed and child's bed, space for storing suitcases and trunks, cords for hanging clothes.	-provide 12-16m ² for furniture and space for storing personal belongings and furniture
-Children's rooms	-2 rooms of 8-12m ² with two beds each and a window, spacing for storing suitcases, trunks and personal belongings	-provide minimum of 2 rooms of about 12m ² for furniture and personal effects + 1 window
-Extra room or bedroom	-room of 8-12m ² with outside door for commerce or adult's room + 1 window	-provide room of about 12m ² with outside door (preferably in front) + one window
-Storage/passage-way or kitchen	-room of 7-9m ² for food-stuffs, water buckets, kitchen equipment and bed for occasional visitors (could eventually become indoor kitchen)	-provide extra room of about 9m ² near back courtyard

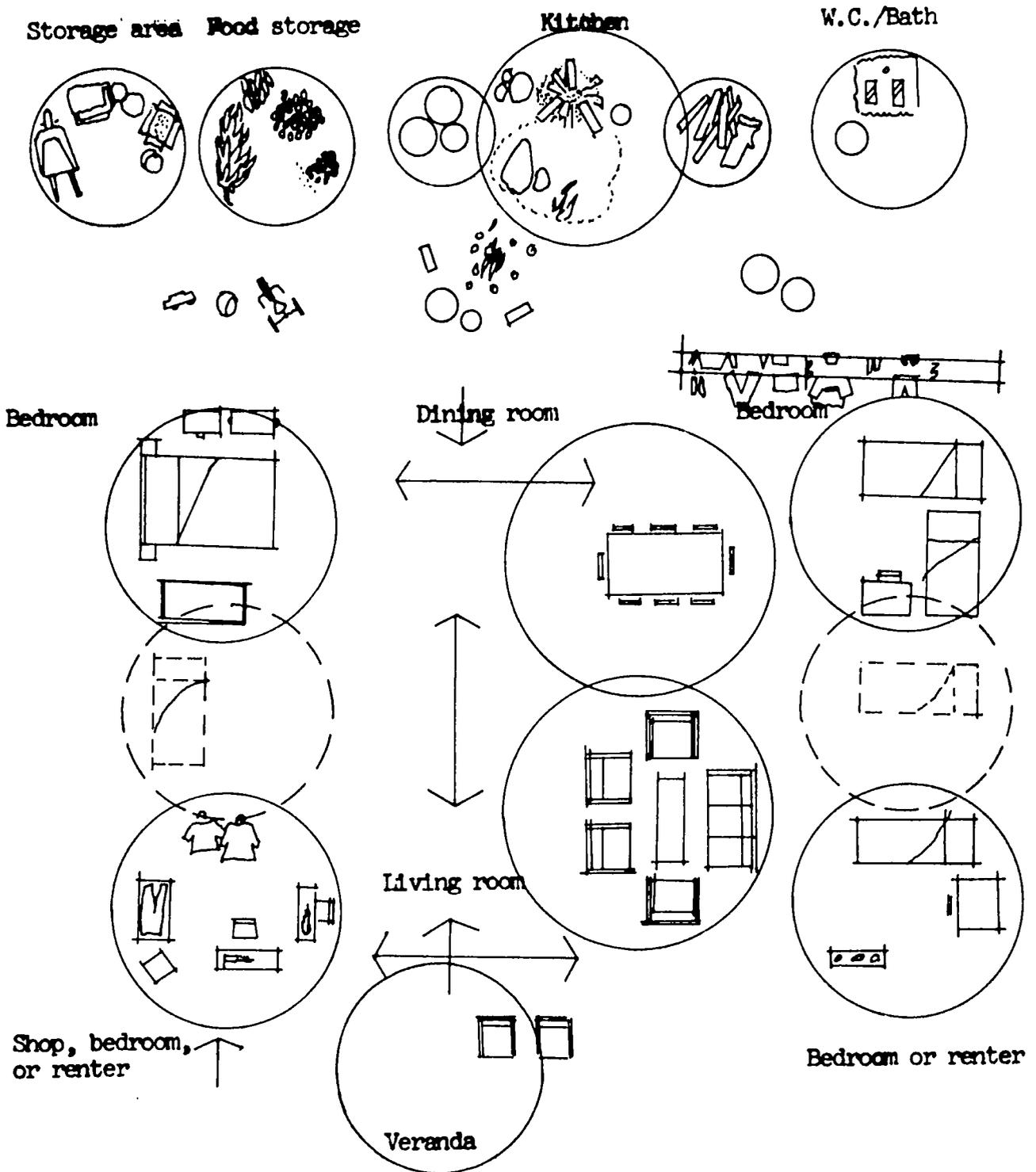
b. Outbuildings:

-Kitchen	-back courtyard wood-burning kitchen of 6-9m ² of traditional materials with lock and key; cooking done on the ground	-in back courtyard: provide surface of 6-9m ² fenced-in and covered for wood-fire cooking; counters and sinks unnecessary; water supply nearby, cement floor is desirable, good aeration
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<u>ITEM</u>	<u>ACTIVITIES OR FUNCTIONS</u>	<u>OBSERVATIONS FOR FUTURE HOUSING</u>
-Storage/food-stuffs (if non-existent inside)	-room of 7-9m ² for foodstuffs and bed for occasional visitors	-room inside house desirable
-Storage: tools, construction materials	-construction of a room of minimum 6-10m ² . Part of outbuilding	-provide room attached to outdoor kitchen of 6-10m ² traditional, unaltered materials.
-Latrine	-enclosure of 4m ² of temporary material over pit latrine in back courtyard	-provide latrine of 4m ² (approximately) annexed to kitchen if possible of traditional material, cement floor. Access for emptying.
c. Secondary dwelling (renter) depends on dimensions of plots	-50m ² and includes individual studios, rooms or living room and bedrooms	-on plots of over 200m ² provide possibility of building attached dwelling or one at back of lot.

Fig. 3

Functional Layout of Typical Low Income Dwelling Unit



A N N E X I I
R O O M A R E A S B Y H O U S I N G T Y P E

TABLE 3
AVERAGE ROOM SIZE PER HOUSING TYPE

ROOMS	AVERAGE ROOM AREA IN M2 BY HOUSING TYPE								
	A	B	C	D	E	F	G	Average	
Outside bedroom Individual	8.3	8.1	9.2	7.8	8.4	-	-	8.3	
Living/dining room	21.5	20.6	19.6	23.6	44.7	16.2	26.6	19.9	
Dining room	-	-	-	-	9.0	-	-	9.0	
Master bedroom	9.9	11.2	10.6	12.6	19.6	10.0	16.4	10.3	
Other bedrooms	7.5	7.9	7.4	9.9	12.2	9.0	14.7	8.2	
Indoor bathroom	3.8	-	3.9	2.9	7.7	2.1	4.0	3.2	
Indoor kitchen	7.4	-	2.9	7.7	10.3	6.3	7.2	6.7	
Outdoor kitchen	8.3	8.6	5.8	5.8	11.6	3.4	-	7.3	
Indoor W.C.	1.9	-	-	3.1	4.6	2.7	-	2.4	
Outdoor W.C.	4.2	4.4	4.6	3.8	-	2.1	-	4.0	
Veranda	5.9	5.5	7.3	10.4	19.1	4.1	7.0	6.8	
Circulation	3.9	5.4	3.4	3.8	-	8.6	2.5	4.3	
Studio	bedroom	8.6	5.4	6.2	7.0	-	8.4	-	8.1
	living room	9.6	-	17.8	8.4	-	9.6	-	10.2
Storage area	6.2	7.6	9.6	9.8	7.1	-	-	7.9	
Food storage	7.6	-	7.9	8.7	5.0	-	6.5	7.6	
Garage	-	-	-	11.5	28.4	-	-	14.9	
Shop	11.2	13.2	-	12.5	-	-	-	11.6	
Workshop	17.6	13.8	7.0	17.9	-	12.2	-	17.2	

N.B. : Average room size is calculated on the basis of available data.

TABLE 4
ROOM AREAS BY HOUSEHOLD CATEGORY AND BY HOUSING TYPE

HOUSING TYPE	ROOMS	BEDROOMS		LIVING/ DINING ROOM		KITCHEN		W.C + BATH		CIRCULA- TION SPACE		FOOD + OTHER STORAGE		TOTAL	
	HOUSEHOLD/CATEGORY	AVERAGE HABITABLE AREA													
		PER HH INHAB		PER HH INHAB		PER HH INHA.		PER HH INHA.		PER HH INHA.		PER HH INHA		PER HH INHA	
A	Owner/family	8.4	6.6	20.9	2.8	7.6	1.0	4.4	0.6	3.2	0.6	8.7	1	53.2	12.6
	Owner/unmarried	8.5	22.9	22.9	22.8	6.2	6.2	-	-	-	-	-	-	37.6	51.9
	Renter - family	8.7	4.1	18.7	3.2	7.9	1.1	2.9	0.5	3.6	0.6	6.4	0.7	48.2	10.2
	Renter - unmarried	9.5	12.6	9.1	9.1	-	-	-	-	-	-	-	-	18.0	21.7
	Average	8.7	6.9	18.8	4.7	7.7	1.4	3.5	0.5	3.4	0.6	7.4	0.8	46.6	14.5
B	Owner/family	8.6	5.6	19.1	2.2	8.0	0.6	3.4	0.2	-	-	-	-	39.1	8.6
	Rent. family	10.2	8.0	20.5	4.7	-	-	-	-	5.4	1.1	7.6	1.5	43.7	15.3
	Rent. unmarried	10.9	10.9	-	-	-	-	-	-	-	-	-	-	10.9	10.9
	Average	9.9	8.2	19.9	3.6	8.0	0.6	3.4	0.2	5.4	1.1	7.6	1.5	38.5	12.0
C	Own. family	8.6	4.8	25.9	3.8	5.3	2.7	3.9	0.7	3.3	0.7	8.7	0.8	55.7	8.5
	Own. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rent. family	8.4	3.9	19.0	4.0	3.8	0.8	-	-	5.2	0.9	7.5	1.9	43.9	11.5
	Rent. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average	8.5	4.3	21.8	3.9	4.4	1.6	3.9	0.7	4.4	0.8	8.0	1.5	48.6	12.3
D	Own. family	9.5	4.2	29.2	12.8	6.8	0.5	5.7	0.6	5.0	0.5	13.8	0.6	70.0	19.2
	Own. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rent. family	10.7	6.1	24.0	3.6	6.2	1.0	4.2	0.4	5.6	0.7	7.5	2.1	58.2	13.9
	Rent. unmarried	10.5	8.4	13.3	13.3	2.8	2.8	2.1	2.1	-	-	-	-	28.7	26.6
	Average	10.3	5.9	24.0	7.6	5.9	1.1	4.3	0.7	5.4	0.6	9.6	1.6	57.4	17.2
E	Own. family	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Own. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rent. family	14.0	4.7	63.0	3.2	10.3	0.5	14.0	0.7	9.4	0.5	17.0	0.6	127.7	10.2
	Rent. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average	7.0	2.4	31.5	1.6	5.1	0.3	7.0	0.4	4.7	0.3	8.5	0.3	63.9	5.2
F	Own. family	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Own. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rent. family	10.0	4.0	15.4	3.5	5.2	1.0	2.5	0.5	7.2	1.3	-	-	40.3	10.3
	Rent. unmarried	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average	10.0	4.0	15.4	3.5	5.2	1.0	2.5	0.5	7.2	1.3	-	-	40.3	10.3
G	Rent family	15.6	4.4	26.6	7.6	7.2	1.0	4.0	0.6	2.9	0.4	5.6	0.8	51.9	14.8
	Average	15.6	4.4	26.6	7.6	7.2	1.0	4.0	0.6	2.9	0.4	5.6	0.8	61.9	14.8