ABSTRACT

DYNAMICS AND STRATEGIES FOR URBAN HOUSING AND INFRASTRUCTURE IN DEVELOPING COUNTRIES: A CASE STUDY--LAGOS METROPOLITAN AREA, NIGERIA

By

Obi Basil Achunine

Methods of assessing housing requirements have undergone substantial changes over the last two decades. Yet the precise extent, nature and place of housing need and demand in the light of the evolution process of urbanization have become apparent rather slowly over the years, especially in developing countries. Total housing requirements of any country or city should be estimated periodically as bases for establishing targets and goals.

The true importance of housing lies in the fact that it is a package of services: land, basic facilities, access to jobs, as well as the shelter itself. For housing to fulfill its potential of confering a wide range of benefits to its dwellers, its costs should be within reach of low-income households.

For much of the developing world, processes of housing allocation and investment strategy become more critical due to rapid urbanization, excessive migration and rather hasty development plans. In the Lagos Metropolitan Area, Nigeria, these processes have been creating enormous problems since the past three decades. Yet, less

than two percent of gross city product has been devoted to residential housing providing with other private sources about two dwelling units per year per 1000 population. This situation, with few variations, is typical of similar metropolises in developing countries.

Field surveys revealed extreme overcrowding, acute shortage of dwelling units, exorbitant rents, land speculation and hazardous deterioration of the environment existing in the LMA. More than 70 percent of households occupy one room and there is an average of five persons per room. Above 75 percent of residential houses are without internal running water, while nearly 60 percent of the units are without flush toilets. Domestic electricity though widely used, is very intermittent. Collection and removal of human wastes--sewage, garbage, and natural storm run-off are very rudimentary and inefficient.

Fortunately, the government has of late come to recognize above problems but without proper perspectives. The private sector and market forces dominate the complicated housing system in Lagos: a lot of filtering (down) or "raiding" takes place which affect the low-income groups adversely.

The present study has therefore:

(a) Made comprehensive and critical analysis and evaluation of the demographic dynamics, existing housing and infrastructure situation, policies and programs in the LMA.

(b) Estimated and projected the residential housing and infrastructure requirements for next ten years.

(c) An optimal allocation technique for the redistribution of the estimated units among various socio-economic classes is

proposed and tested. The basic tool for this exercise is the "Stock-User Matrix"--a type of programming model which analyzes housing investment and provision.

(d) Based on the procedure above, policy options have been recommended involving diversifying and creation of more financial institutions and intermediaries providing more opportunities for the disadvantaged households.

Finally, housing goals for the LMA applicable to other Nigerian cities proposed along these lines:

(1) providing equal access to decent housing for the majority living in congested urban conditions;

(2) controlling housing price inflation;

(3) improving substantially environmental quality of all residential housing and neighbourhoods;

(4) conserving and upgrading existing stock through rehabilitation and repairs;

(5) maximizing the freedom of choice of tenants.

If housing requirements are estimated and allocated as suggested here, a lot of progress will be made in providing housing to a great number of households in the LMA. This purpose could also be achieved through income redistribution, shelter allowances, land banking; and by encouraging homeownership and better structuring and administration of residential financing procedures through more direct and meaningful government intervention. As with most scholarly research efforts, this study has raised some unanswered questions towards which future research might profitably be directed.

DYNAMICS AND STRATEGIES FOR URBAN HOUSING AND INFRASTRUCTURE IN DEVELOPING COUNTRIES: A CASE STUDY--LAGOS METROPOLITAN AREA, NIGERIA

By

Obi Basil Achunine

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Social Science

1977

To Ngozi, Chikanele and Chikaodinaka

with Love and Gratitude.

ACKNOWLEDGMENTS

I owe special gratitude to a number of people who aided me in the endeavor to accomplish this study. To Professor Myles Boylan, the chairman of my committee, I owe a special intellectual obligation for the valuable advice, prodding, and stimulation he provided throughout my doctoral studies.

Gratitude is also due to the other members of my guidance and dissertation committee: Professors R. N. Thomas (Geography), W. P. Strassmann (Economics) and Roger Hamlin (UP). Many of the underlying issues and ideas which were developed and tested at length here were outcomes of useful suggestions from the discussions with them. Although they bear no responsibility for the interpretation and conclusions of the materials here, all have contributed in various ways to the production of this work.

Among the many agencies and individuals in Nigeria who provided generous assistance, I have a special note of thanks for the staff of the LSDPC. A research grant by the Federal Government of Nigeria enabled me to travel to Lagos for a few months to do field research. Dr. Carl Goldschmidt, the Director of the School of Urban Planning and Landscape Architecture was responsible for initiating and obtaining this partial financial support for me. The UPLA community has been of immense inspiration. My parents, uncle and entire family circle have made the attainment of this goal a reality.

Finally, I owe my greatest debt of gratitude to my wife and twin daughters without whose constant moral support, needed delightful distractions, unceasing drive as well as unrepayable loans of courage and patience, this work would probably never have been completed. My wife laboriously served as my dutiful typist as well as sharpest critic in opinions and issues which to me seemed too obvious about my study area where she spent most of her adolescent life.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

Housing represents one of the most basic human needs and has a profound impact on the health, welfare, social attitudes, and productivity of the individual. It is also one of the best indications of a person's standard of living and of his place in society. Despite the essentiallity of housing as a basic need, an adequate supply of minimal housing has been lacking in virtually all societies through history and is certainly a universal need today. The situation is particularly serious in the developing countries where population growth and urbanization are proceeding more rapidly and where the gap between need and supply is greatest. This condition obtains because housing has typically been regarded as an unwanted stepchild, a frustrating nuisance in the family of projects that constitute economic programs. Nigeria belongs to this category of countries.

Present Housing Situation in Nigeria

The subject of housing has generated much discussion in Nigeria in the past two years which has resulted in a call on the component governments of the country to give greater priority to the problem of housing and to allocate not less than 10 percent of their annual budget to housing.[1] Unfortunately, the provision of housing has been viewed

---

[1]National Council on Housing: Communique of a Special Meeting held in Lagos on 11th-12th May, 1972.

by policy makers in Nigeria as something to be tolerated rather than desired. This attitude has resulted in housing being given low priority (until last year) in Nigerian development planning. For example, specific output targets are always set for agriculture, manufacturing industries, roads, harbours, railroads, water etc., but housing has been treated as a "social overhead." Relatively little continues to be done in improving housing supply in comparison with overall needs. Therefore, housing remains one of Nigeria's most pressing problems, one which is continually getting worse as the rapid urbanization goes on unabated.

In Nigeria, the planners of the Second National Development Plan (1970-74) recognized that housing deficiency is a universal problem in the country. Yet it could be seen from Table 1 that the percentage of planned investment devoted to housing is far from being sufficient to initiating resolution of the problem as vigorously as it should be.[2] Of greater significance is what actual amount was disbursed or spent for housing under this Second Plan. For example, in the 1962-68 Development Plan, Housing was classified as "Social Overhead." Out of a total sum of ₦42 million (6.2 percent of total planned expenditure) allocated to Town and Country Planning (which includes housing) only ₦19.6 million or about 47 percent of the allocation was actually spent.[3]

---

[2]See also Figure 2: Public Spending Priorities under 1975-80 Development Plan.

[3]The naira (₦) the basic Nigerian currency is worth about US $1.60.

Table 1.--Planned Investment on Housing and Allied Services by the Nigerian Government's 1970/74 Development Plan.

State	Total Amount	% of Planned Investment	Outlay for Housing in Naira
			(million)
Federal	₦2634,000	0.3	
Benue-Plateau	600,000	1.1	Nil
East Central	1300,000	1.3	0.300
Kano	3600,000	2.6	Nil
Kwara	1000,000	2.2	0.600
Lagos	2000,000	1.9	1.000
Mid-West	1240,000	1.7	1.040
North Central	4200,000	5.6	1.200
North-East	700,000	1.0	0.700
North-West	400,000	0.7	Nil
Rivers	1000,000	1.5	0.500
South Eastern	2800,000	4.7	1.400
West	1878,000	0.9	1.478
TOTAL		1.03	

Source: Second National Development Plan 1970-74.

Nigeria's housing problem has not yet been comprehensively studied. However, from scanty information available it is easy to conclude that the magnitude of the problem is quite serious. Although housing conditions are generally inadequate in the rural areas, Nigeria's housing problem, like those of other developing countries, is essentially an urban problem. Rapid urban growth associated with accelerated tempo of socio-economic development has seriously aggravated the shortage of dwelling units in Nigeria resulting in over-crowding, high rents, slum and squatter settlements which are visible features of the urban scene throughout the country.

Table 2, extracted from the report of a recent survey of urban housing conditions by the Federal Office of Statistics, illustrates the quantitative and qualitative deficiencies of residential accommodation in some of the major towns and cities. As an indication of overcrowding it can be seen that about 72.5 percent of households live in one room in Lagos as at the period of the survey (1970-71), and the average number of persons per room was 3.8. For the city of Kano the corresponding magnitudes were 69.1 percent and 2.4. As a further indication of the low quality of a large proportion of existing dwelling units, about 30.7 percent of households in Ilorin were served by tap water while only 10.3 percent had a water-system toilet. Conditions were even worse in Benin City where the corresponding percentages were only 24.9 and 4.0 respectively (see Figure 1 for the location of these cities).

As a result of the acute shortage of suitable rental accommodation, especially for the low-income groups in our major cities, rents are extremely high and the average urban worker often has to pay as much as 40 percent of his monthly income in rent. This is a major factor in the distortion of income distribution in favour of the property-owning class and constitutes an obstacle in the realisation of one of the long-term goals of Nigeria's development effort--the attainment of a just and egalitarian society. There is no area of social service where the urban worker in Nigeria now needs relief more desperately than in housing.

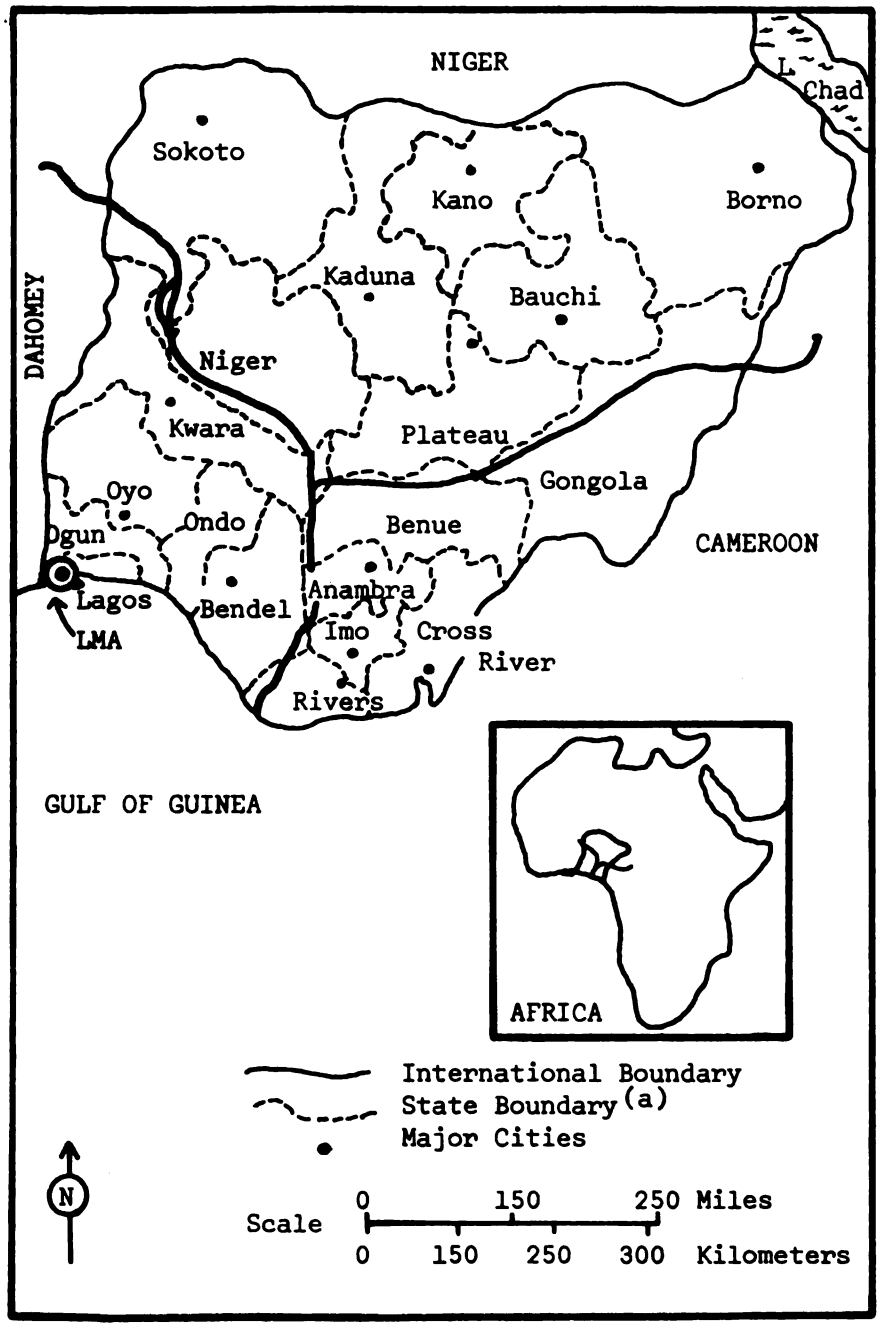
Table 2.--Housing Conditions in Selected Nigerian Towns (1975).

Town	% of Households Occupying One Room	Average No. of Persons Per Room	% of Houses With Tap Water	% of Houses With Flush Toilet	% of Houses With Electricity
Lagos	72.5	3.8	71.7	43.5	93.2
Port Harct.	51.5	2.4	75.0	18.6	81.4
Benin	48.0	2.2	24.9	4.0	59.3
Warri	59.9	2.6	62.4	10.9	89.7
Kaduna	63.9	2.1	40.3	14.1	53.3
Kano	69.1	2.4	26.1	1.8	69.1
Ilorin	23.9	1.6	30.7	10.3	28.4
Ibadan	47.3	2.1	33.4	25.2	56.1

Source: Third National Development Plan 1975-80, Volume I, page 307.

Despite the seriousness of the Nation's housing problem, it is evident that the combined effort of the public and the private sectors over successive development plans has continued to fall far short of need. The Government has traditionally tended to leave the field almost wholly to private efforts, restricting itself to the provision of a limited number of residential quarters for its officers. The late 1950's and early 1960's saw increased, but still rather limited intervention by the government by the provision of housing in the form of the development of a few middle class housing estates.

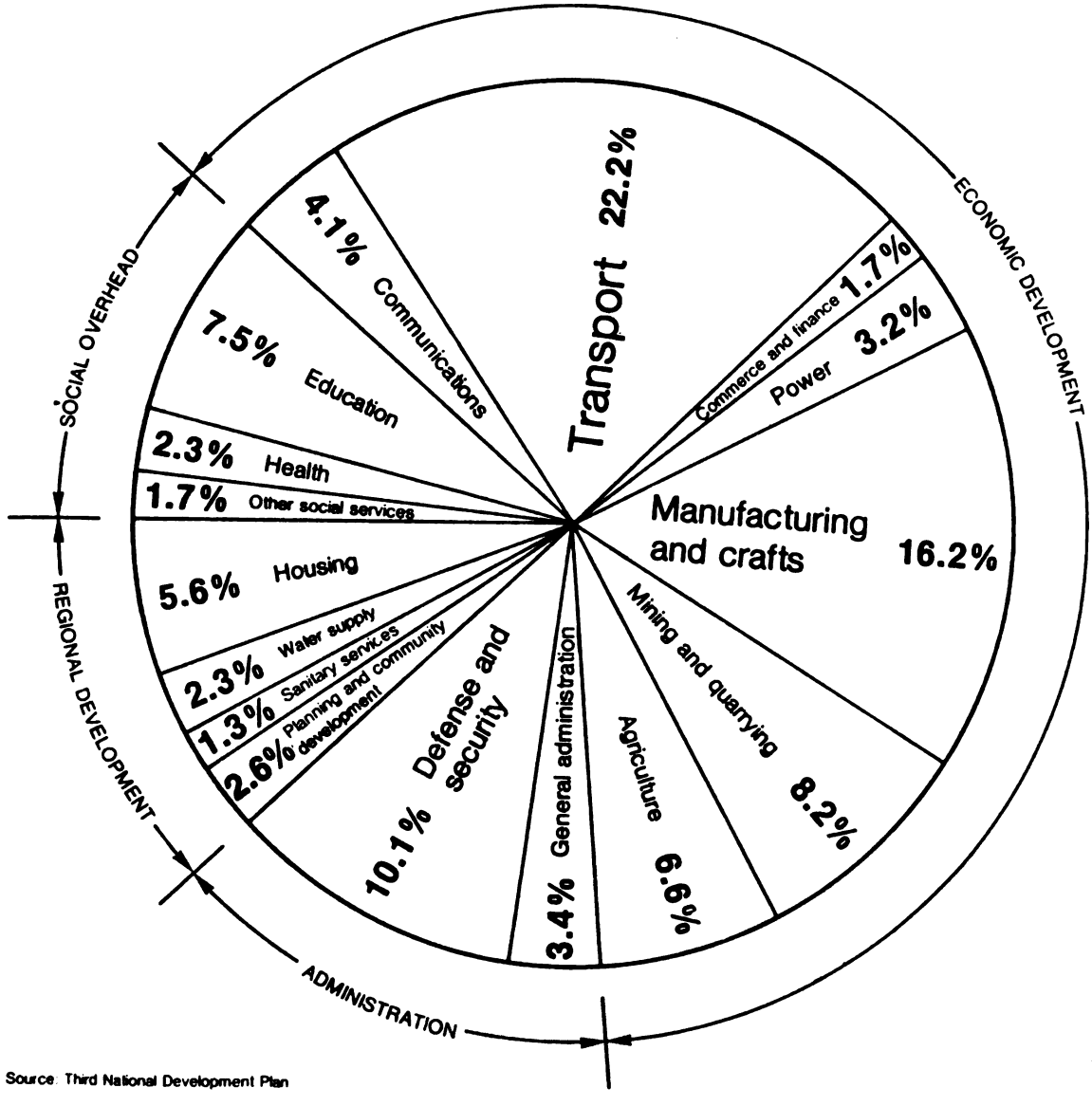
To do this, Housing Corporations were created, mortgage lending was introduced through the establishment of the Nigerian Building Society and the Staff Housing Loan Schemes were specifically designed to promote owner occupation by the privileged civil servants. Until very recently the government did not deem it necessary to participate



(a) Minor State boundaries adjustments made in November 1976 are not incorporated in this map.

Figure 1.--Map of Nigeria showing States and Main Cities.

FIGURE 2 —Public spending priorities under Third National Development Plan



Source: Third National Development Plan

actively in mass housing programmes, apart from rehousing schemes necessitated by occasional slum clearance activities.

Private investment on the other hand has been growing too slowly to be able to meet demand because of well-known problems and bottlenecks, such as insufficiency of private savings, inadequate availability of credit, the high cost and difficulties of obtaining land in some urban areas, deliberate or connived official racketeering in the housing market system and the recent sharp increases in cost of building materials. In fact, what Berry Fred said of his country in 1974: "Housing is the great British failure"[4] could similarly be said of Nigeria.

Housing Problems In Lagos Metropolitan Area

There is no city in Nigeria, where the "housing failure" is more manifested as it is in Lagos . . . the primate and Capital City. Here, traditional forms of dwelling are often not acceptable. The legal acquisition of land is far beyond the means of most people as buildable land is in short supply; opportunities for employment are very limited and population is rising at an astronomical rate.

Added to the above, it is common knowledge that prospective renters have to queue up for more than a year on "the waiting list" before they can even be considered eligible. To aspire to own a house is a dream realized by only the upper top five percent of the income

---

[4]Berry Fred, Housing: the Great British Failure (London: C. Knight, 1974), p. 281.

groups in Lagos. Sometimes, prospective renters in Lagos are "persuaded" to help landlords to finance construction of a residential house by paying one or two year's rent in advance, in order to rent a room/rooms or flat whenever it is completed. Many other practices of this nature go on in the housing market in Lagos. Evidences abound, but unfortunately are never documented, because there are no competent, scientific studies done on the problem.

In Metropolitan Lagos, it is obvious that housing demand outpaces the supply, but by what ratio? This situation has led not only to exhorbitant and uncontrollable rent structure, but also to extensive squatting and slum conditions. These factors result from the excessive high rate of population growth and the unprecedented mass migration of people from the rural areas to Lagos attracted by the concentration of industrial, political, cultural and educational establishments.

There are more migrants moving into Metropolitan Lagos (mainly in search of jobs) than all other cities put together. For example, between 1952 and 1963 the population of municipal Lagos rose from 267,407 to 665,246--an annual increase of 8.6 percent. Outside the municipality massed since 1963 a further 424,622 persons, making a metropolitan total of 1,089,868. The metropolitan population therefore grew by 19.2 percent per annum. The 1973 census figures for Lagos are not yet available but it is generally believed that it will be no less than 1.5 million.

In order to cope with the fast rising population in Lagos, it has been estimated that about 6,000 additional residential units are

required each year;[5] but there is evidence that nothing near this target is being built each year either by government and its housing agencies or by private individuals in the Lagos area (see Table 41, Appendix D, on projections of demographic factors, housing stock and infrastructure column, column 6--completed buildings per annum).

There is probably not a single major city in the world without some form of "housing problem." In Los Angeles and Tokyo, in New York and Moscow, in Hong Kong and Paris, in Calcutta and in Brazilia housing is a serious public issue. Although the problems of housing are persistent and well-nigh universal, those of Lagos are critical and compounded. Yet they are not as acute as those of South-East Asian cities of similar size. In those cities, estimates of the number of homeless living on the pavements, especially in Calcutta alone, vary between 30,000 and 600,000. However, the total number of people in Lagos in need of dwelling units is rising. But what is the rate of demand? How do you arrive at tenable requirement figures in a situation like Lagos?

In Lagos, congestion, very high densities and high occupancy ratios create insanitary conditions. The overall infrastructure is likewise not adequate for the increasing demands being placed on it . . . . resulting from high rate of population growth which has been increasing steadily. Provision of water, power and transportation facilities is woefully inadequate. Methods of solid and liquid wastes

---

[5]Otto Koenigsberger, et al., Metropolitan Lagos, UN Program of Technical Assistance Report, 1964, p. 133.

removal are anything but rudimentary. There are open gutters which serve as havens for malaria-carrying mosquitoes and flies. Such inadequacies in the provision of infrastructure has led to existing units being lost through obsolescence, demolitions, inaccessibility and other like features. Residential houses become substandard after a short period of being erected and many are outright uninhabitable.

Government Objectives and Policies

The government now accepts it as part of its social responsibility to participate actively in the provision of housing for all income groups and will therefore intervene on a large scale in this sector during the third Plan period (1975-80). The aim is to achieve a significant increase in the supply of dwellings and bring relief especially to the low-income groups who are the worst affected by the current acute shortage.

It is, therefore, the objective of government policy in the third Plan to employ a combination of measures to achieve within the next decade a housing situation in which the average urban worker would not be required to pay more than 20 percent of his monthly income in rent. These measures include direct construction of housing units by both the Federal and Lagos governments for residents of Lagos. These will be let at subsidized rates. There will also be increased construction of quarters for government officials and an expansion of credit facilities to enhance private homeownership. In order to ensure that the above housing program succeeds, it is necessary to determine as accurately as possible the housing requirement within the next decade.

Research Objectives

Of the many purposes this research effort serves, the first is to investigate and determine the actual nature and magnitude of the housing problem in Lagos. The problem may be seen not only as insufficient supply, but also as one of misallocation of investment and existing housing stock. It may also be seen in the lack of effective public institutional framework under which the housing market can successfully operate. One needs to examine the existing housing situation--in terms of its market dynamics, including the supply and demand systems; also examine the existing overall urban infrastructure deficiencies and their relationship with housing.

A second objective of this study is to estimate the immediate and future requirements for residential housing units in the light of the demographic factors for Lagos. To do this there is need to set up minimum requirement standards and apply some methods to arrive at acceptable needs and tenable demand.

The existing, as well as the future, housing requirements in Lagos have always been under-estimated. It is essential to improve the traditional techniques and assumptions on which the estimates have been based in order to minimize the uncertainties and inaccuracies. An analysis of the causes of this shortcoming shows that underestimation of requirements is caused partly by a static conception of the norms and criteria forming the starting point of the estimates and partly by inadequate methods. Because housing in this study is regarded as "a package" consisting of the structure and related services, a general estimation of accompanying infrastructure is also made.

Yet even if the most accurate estimations are made, and even if accurate and modern methods are introduced, there always remains the problem of investment strategy and the proper allocation of the housing stock either by government policy or through a better market mechanism. Therefore one needs to decide whether: (a) to build the maximum number of new dwellings to meet the shortage existing in the housing sector; or (b) to improve housing quality by building at least average quality dwellings and reducing uncontrolled settlements, slums and the number of overcrowded households or even the homeless; or (c) to develop a workable combination of the above or formulate fresh alternatives.

A sound housing investment strategy is not only concerned with allocating newly-built dwellings. Some of the households vacate dwellings that will be occupied by others who, in turn may leave vacancies. This chain of movement ends when a newly formed or migrant household or a doubled-up one avails itself of a dwelling coming into the market or a dwelling is lost to the market.

The disappearance of a household through death, emigration or transfer, like a new construction, creates a vacancy and starts the "chain." Rising income also makes families wish to move from cheaper to better housing. These economic and demographic processes go on continually, and a housing investment strategy must be analyzed in terms of its effect on total housing supply and use. Which strategy or combinations of strategies should policy makers use in order to achieve the objectives of quantity and quality is a significant question to answer here.

Finally, it is intended to relate the above findings to propose alternative programs and strategies that can improve in the next decade the housing conditions of the low-income people, especially.

Sources of Data and Data Limitations

This study was carried out without adequate quantitative information. This lack of data is incidental to housing, especially in countries of Black Africa. Such information shortcomings were basic deterents and tended to de-emphasize the quality of discussion and analysis on matters relevant to this study.

It was extremely difficult to get transported to the source of records because of the chaotic, choked transportation system in Lagos. Some of the organizations like the Nigerian Building Society (N.B.S.), and the Lagos State Ministry of Works and Planning (L.S.M.W.P.) simply had no appropriate records at all. If they had, they were most unwilling to make them available. The political situation at the time the research was conducted made the use of formal sample surveys suspicious, impracticable or even risky.[6]

The gaps which seem to exist in the available information have meant that conclusions not supportable by empirical evidence have to be drawn from theoretical arguments. Where available, the data have been used to explain the trends noted in the housing dynamics in Lagos.

---

[6]There was "an attempted coup d, etat" on Feb. 3, 1976 in which the Head of State was killed. A curfew was clamped on Lagos for more than a month, transportation was almost impossible in the city and government offices operated without much confidence for more than two months.

Deductive analysis has been used in combination with the interpretation of available data and the opinions gathered from experts and officials interviewed in London and Nigeria. What has emerged is a set of conclusions and proposals backed by that primary data as was available during the period of field research.

Scope and Method of the Study

Areal Coverage

In this study, Metropolitan Lagos is intended to include: (a) the City proper or what is known usually as the Municipality. This will include the islands of Lagos, Ikoyi, Victoria and Maroko, and the mainland areas of Apapa, Ebutte-Metta, Yaba and Surulere, (b) the dormitory suburbs of Mushin District, Ikeja District and Awori/Ajeromi District (see Figure 3 Comprehensive Map of Lagos Metropolitan Area).

The recent political re-organization of the country into "more states and special areas," whereby portions of Lagos are no longer part of Lagos State is ignored in this study. The Lagos Metropolitan Area (LMA) will for sometime remain an identifiable economic, and social entity. The area involved here is about 940 square kilometers. Only 70 square kilometers of this, or 7.4 percent, is made up of dry or buildable (developable) land. Much of the total area is made up of swamps, Lagoons and marshes.

Subject Matter

The explanation of the difficulties of carrying out the research and of writing an adequate treatment of housing dynamics in the LMA

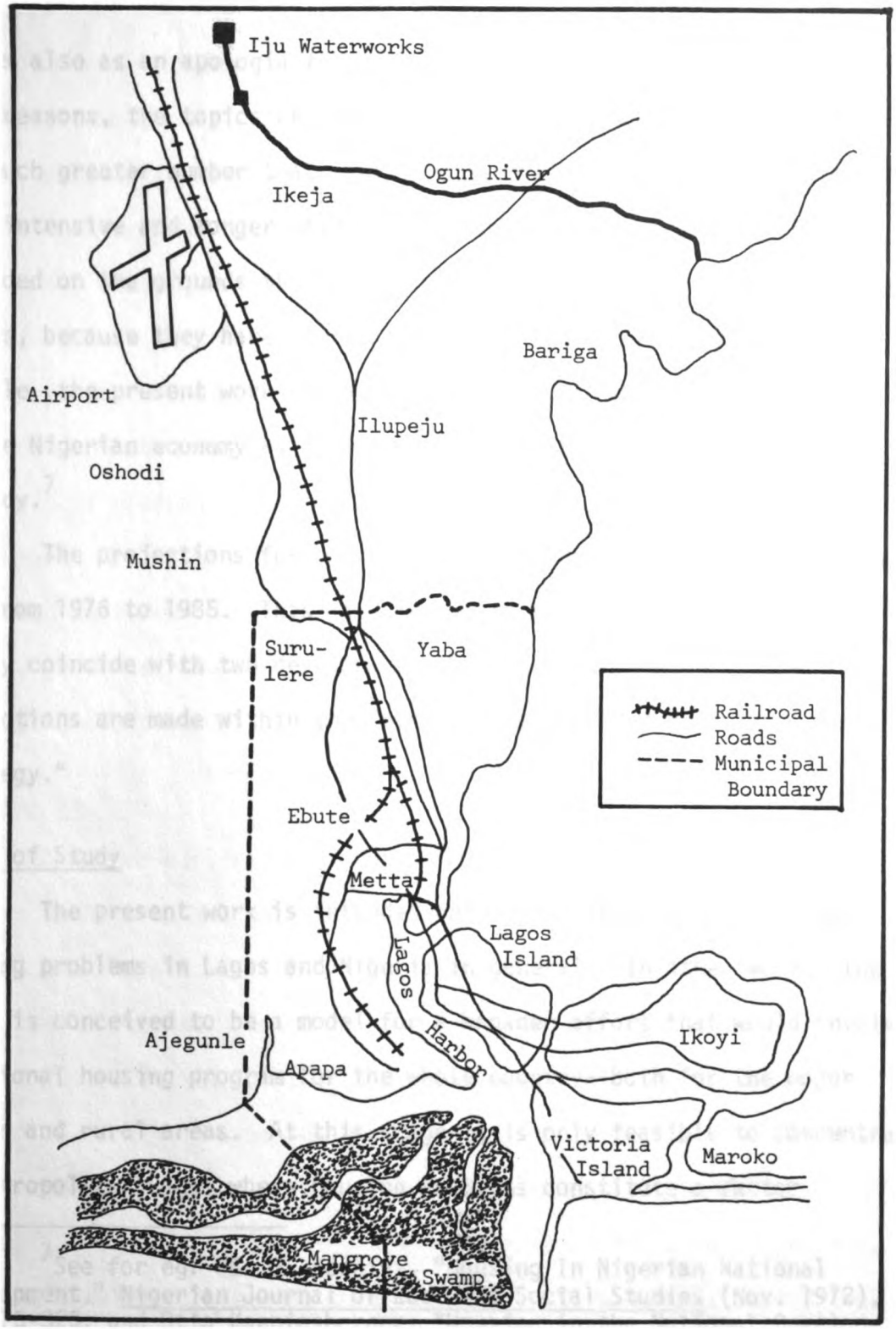


Figure 3.--Comprehensive Map of LMA--Districts

serves also as an apologia for the shortcomings of this study. For these same reasons, the topics chosen for discussion have been selected from the much greater number that could profitably have been examined in a more intensive and longer study. Some topics of interest have been excluded on the grounds that they are not of major importance presently; others, because they have been satisfactorily treated elsewhere. For example, the present work contains no account of the place of housing in the Nigerian economy as there are several such studies available already.[7]

The projections for housing needs and demands made in this study are from 1976 to 1985. This is a ten-year period which will approximately coincide with two development plan periods in Nigeria. All projections are made within the "National Development Priorities and Strategy."

Focus of Study

The present work is intended only as an introduction to the housing problems in Lagos and Nigeria in general. In other words, the study is conceived to be a model for a broader effort that would involve a national housing program for the whole country--both for the major cities and rural areas. At this stage it is only feasible to concentrate on Metropolitan Lagos where housing problems constitute a factor

---

[7]See for eg: E. O. Adeniyi, "Housing In Nigerian National Development," Nigerian Journal of Eco. and Social Studies (Nov. 1972), pp. 315-325; and Otto Koenigsberger, "Housing in the National Development Plan; an example from Nigeria," Ekistics 180 (Nov. 1970), pp. 393-396.

crippling to development and a major challenge to public officials. The study ranges fairly wide in subject-matter, and as a result, some of the topics discussed are not in great detail.

The focus of this work is on the provision of adequate residential housing as part of the urbanization process and development of Lagos. The answers sought here are neither purely economic nor demographic. But a blend of economic and demographic factors and constructs are used to arrive at a physical planning diagnosis and prognosis of residential housing in a fast growing metropolitan area like Lagos. It is hoped that some of the findings, analytical methods, tools and policy proposals found here can be applied to other Nigerian cities, or comparable cities of Black Africa--or even those of other developing countries elsewhere in Asia or Latin America.

Previous Study

As noted earlier, much of the previous research pertaining to housing in Nigeria has been primarily concerned with the relationship and place of housing in the national development plan. There have been a few scattered housing surveys conducted in the LMA.[8] Most of the efforts have been focused at the national level and are always advertised with glamorous announcements in the press.

There are practically no scientific studies that have dealt with residential housing at the city level, especially in Lagos. The United Nations Technical Assistance Team Study in 1962, which includes a

---

[8]See for example: Federal Office of Statistics, Report on Lagos Housing Enquiry, 1961; and Housing Survey 1970-71.

chapter on housing is now dated and obsolete (see footnote, number 5). The City's population has more than trebbled while the housing stock has remained virtually static. Therefore, the housing problem persists because no rigorous inventory or analysis has ever been carried out in the light of the recent demographic, economic, political and other social changes that have taken place. These dynamics have had multiplier effects and have become quite fluid. UN Studies are very generalized especially for Africa.[9]

The Analytical Treatment of Housing Problem in Lagos

It may seem unnecessary for a researcher to stress the importance of his subject. But as Needleman said, "in the case of housing, there are grounds for doing so, if only to point the paradox that there can be few subjects of comparable importance that have been discussed so much and analyzed so little." Unfortunately, although a considerable amount is known on this subject all over the world, relatively little continues to be done in comparison with overall needs, and housing remains one of the most pressing problems throughout the world; and is particularly so in Nigeria. For example, little or no concern has been shown in Nigeria for the distribution of either the newly produced or existing stock of housing; for the price of that stock and the ability of consumers, and low income consumers in particular, to afford

---

[9]Examples: Housing In Africa, UN Report on Housing Statistics and Programs in Africa (E/CN/14 HOU/7/Rev); and Report of the Seminar on Housing Statistics and Programs for Africa, Copenhangen 31 (Aug.-Sept. 15, 1966) E/CN/14/Cas. 5/16/RI.c.I).

a tolerable housing standard. The same could be said of the environmental quality of new housing produced; the condition of the existing stock and even the right to free and dignified use of his home by the consumer. Instead, reliance is placed on the market to allocate the stock, set the price, and determine the level of quality. The welfare of the low income housing tenant is left to the landlords. The only minor shift which has occurred to date has been the recent commitment in the last three years about a low rental housing programs, with a lesser attempt at encouraging homeownership. Units produced under these programs already constitute a minute portion of the total housing stock and come nowhere to meeting the need. The vast majority of low income households are left to the vagaries of an inadequate market.

It is hardly surprising that polemical writings on housing should proliferate: housing is a topic in which everyone has an interest, and about which many feel deeply. But it is much less obvious why there should be such a dearth of more analytical studies, particularly of the allocative process. Part of the reason may be that housing straddles the boundaries of many other differing interests and disciplines. It is scarcely possible to examine, for example, the scope for reducing the cost of dwellings in relation to incomes without being involved in building technology, economic and social history, statistical methods and sources, and the mathematics of finance as well as economics.

A study of housing needs, for example, involves excursions into sociology, scientific method and demography. Few people in Nigeria have been sufficiently familiar with the specialist knowledge required

for an adequate treatment of the major housing problems, and of those who have been equipped to explore some of the fields, fewer still have wished to concentrate their talents upon the types of issues raised here. A possible explanation of their reluctance is that a large expenditure of effort is required before even quiet minor general relationships can be established.[10] Moreover, governments in Nigeria have given low priority to research, particularly in housing and related social services.

The purpose of analysis in the social sciences is to attempt to explain, and ultimately to predict, human behavior. For housing we would like to know the economic behavior of housing consumers--their characteristics, who owns or rents; historical trends in housing expenditures and what the consumer wants. The method used is to devise a theory about behavior and then to test the theory by seeing how well it fits the facts. The process of testing the theory empirically, in a place like Lagos, may suggest modifications of the theory, which in turn can be tested, and so the theory can be improved so as to provide more accurate explanation and prediction.

Unfortunately, the complexity of the theories that can be tested is limited by the amount and quality of the data available, as noted earlier. Where the data are plentiful and the behavior to be explained fairly simple, then very accurate predictions can be made

---

[10]Quoted by Needleman, a good example of the great amount of work that may be required to explore a fairly narrow topic; the effect of changes in income on the demand for housing is given in M. G. Reid, Housing and Income, 1962.

and the subject can develop like one of the physical sciences. But in attempting to explain housing demand and supply in Lagos or Nigeria and the inter-relationships between different housing markets, it soon becomes clear both that complicated theories are involved and that the information available is unlikely to be sufficient for the theories to be adequately tested.

Subject Matter Organization

The substantive part of the study begins with Chapter I, which gives a background to the physical, economic and social dimensions of the LMA. It analyzes in depth the demographic input that would enable to project the housing needs and demand. In Chapter II the existing housing and infrastructure situation in Lagos is described, whereby the present housing stock and its characteristics and other dynamics like rent, overcrowding etc. are portrayed. In a way, this chapter examines the housing market--shortages, imperfections or failures of the market process. It also looks at the supply system briefly, that is, the owners and consumers of the existing stock of dwellings and the way they react to the market.

Chapter III provides distinctions between housing need and housing demand and then offers consideration of methods of determining future needs and demand in terms of numbers and standards or sizes of dwellings required for adding to the existing housing stock as well as for replacing worn-out dwellings. Much of the chapter consists of an introduction to general need and demand analysis and practical application of alternative methods. This chapter is not, of course,

a presentation of a "finished practical manual" on how to forecast need and demand; it merely attempts to explain some of the concepts and to outline the crucial problems encountered in studies of this nature. Furthermore, Chapter III goes on to show how housing from the perspective of a problem issue is concerned with matching people or households and dwellings to each other based on certain assumptions and investment strategies and constraints. Chapter IV examines and projects the needs and demand for housing related infrastructure. The infrastructure includes water, power, sewers and transportation facilities.

The above analysis leads on, in Chapter V, to a scrutiny of the policy problem. The role of government institutions of the past in supplying needed housing is examined critically. The impact of rising production costs, the effect of land costs and the demand pull and cost push factors are discussed and analyzed. On the basis of the failures or successes of the housing dynamics in Lagos, alternative comprehensive policies, strategies and programs are recommended. In the closing chapter, VI, the main results of the study are summarized and evaluated. Some significant conclusions are drawn and recommendations are made as to pursuing unresolved issues and identifying areas for continued research.

CHAPTER I

DIMENSIONS OF LAGOS METROPOLITAN AREA

The Federal Republic of Nigeria, with Lagos as its primate city, is the largest single national unit along the west coast of Africa. Though the concept of Nigeria had been nurtured before 1914, it was that year that administrative unity was achieved in the amalgamation of Southern and Northern protectorates. By 1951, Nigeria had grown to adolescence; and in 1960 maturity was attained through political independence. The initial contact with Europeans and eventual British rule for about fifty years was initiated and maintained from the Island of Lagos which later grew to be the administrative capital, major port, principal commercial, industrial, educational and cultural center. Over several decades, these functions led to very serious problems arising from or exacerbated by rapid growth and urbanization. The principal problems are: competition for land; shortage of residential housing and phenomenal population growth; long and inconvenient journeys to work including extremely bad traffic and parking conditions; scarcity of housing finance; growth of slums; health hazards, particularly due to the absence of a sewage system and inadequate infrastructure and environmental neglect. It is against such a back-drop that this study is cast dealing with perhaps the most serious problem:shortage of adequate quality housing for prices households can afford. The text which follows in this opening chapter presents a comprehensive exposition of

the present physical, political, economic and demographic dimensions of the metropolitan area.

The Lagos Metropolitan Area, otherwise known as Greater Lagos, is an urban complex that embodies tremendous contrasts. As the Capital and major port of the largest nation in Black Africa, it is a powerful magnet for migrants from all the states of the Federation of Nigeria.[11] On to a nucleus of traditional African urban settlements are grafted modern industrial, commercial and administrative establishments, as well as mushrooming settlements of new entries into the labor force. These settlements sometimes are about 24 kilometers from the original city center.

Elements of widely-spaced cultures coexist and intermingle. There are suburban subdivisions of modern, single-family homes alongside closely packed extended-family neighborhoods without water or paved streets. Air-conditioned department stores and market stalls compete with thousands of street hawkers and tradeswomen carrying trays of cloth, oranges, and toothbrushes on their heads. Trade unions and professional associations, kinship meetings and ethnic associations, elected councilmen and inherited chieftaincies are some of the contrasting institutions. Factories and subsistence agriculture, office skyscrapers, luxury hotels and open sewers--all coexist.

The City of Lagos has become the largest metropolis in Nigeria. The rapid urban growth which the country has been experiencing is well manifested by Lagos, the major parts of which are the product of

[11] In 1976, the Federal Military Government announced a plan to transfer the "administrative capital" to Abuja--300 miles inland.

modern economic, social, and political forces in interaction with traditional culture. While the "heart" of Lagos is several hundred years old, the metropolitan complex and modern sectors are products of the past seventy years--and particularly of rapid growth since Nigeria attained independence in 1960.

Like many young metropolises in developing nations, Lagos does not have the basic supporting framework of urban infrastructure. It has no closed sewerage systems; extremely limited number of dwelling units, rudimentary road network; the bare beginnings of a public school system and severely restricted capital resources for which many productive investment projects compete. Thus Lagos is squalid, vibrant and congested. With its squalor it invites comparison with Calcutta; with its vibrancy it could be likened to New Orleans--it has a vibrant squalor and the vogue word is "congestion."

The Land and the People

The Lagos urban area as has been defined includes, first, the City and Federal Territory of Lagos, the boundaries of which coincide. Second, the urban area includes the suburban districts which were parts of the mainland formerly under the jurisdiction of Western Region (see page 13 for a fuller description of the areal extent of LMA).

The boundaries of this metropolitan complex are discernible on the basis of both population density and economic patterns, although there is no formal administrative jurisdiction corresponding to it. The metropolitan area is contiguous and its entire expanse is traversable in a few hours if the traffic congestion were to be eliminated. Persons

living in Agege or Ikeja, at the northern extremity, often work in Apapa (20 kilometers away), at the southern extremity. Population density falls off radically outside the perimeter of the settlements defined as part of metropolitan Lagos.

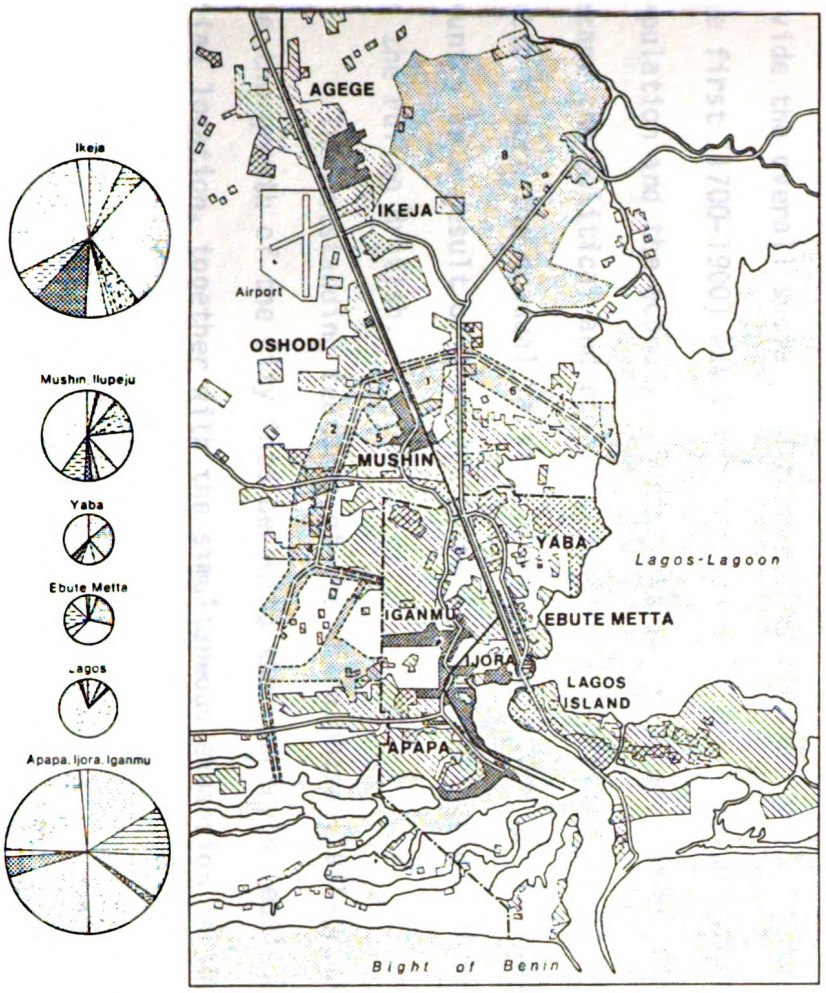
A very small proportion, less than five percent, of the urban area is now devoted to agricultural uses. The City of Lagos itself has only about six square kilometers of undeveloped land; the rest is either built up or reserved public open spaces which are gradually being converted into ceremonial edifices. By contrast, however, there is a good deal of undeveloped land in outer mainland portions of the urban area--at the fringes.

The present configuration of land use in the metropolitan area reflects stages in its growth.[12] The City center is the densely populated Lagos Island, which is a natural port on a lagoon protected from the Atlantic Ocean by a sand bar and two marshy islands to the South. The City itself consists, in addition, of Victoria Island to the South, Ikoyi Island to the East, Iddo-Ijora Island to the North, and a north-south strip of mainland from Suru-lere to Apapa. Mainland settlements comprising the rest of the urban area include: Mushin, Shomolu, Bariga, Iwaya, Oshodi, Isolo, Sogunle, Maryland Estate, Ikeja and Agege; and a few fingers of development running west from Apapa to Ajegunle, Amukoko, Ajeromi, and even Aiyetoro (see Figure 3).

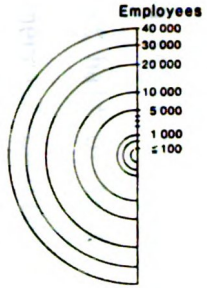
Lagos Island was the site of a traditional city that was swelled by refugees fleeing from wars in the north of Nigeria and by conquerors from Benin. Vestiges of traditional settlement patterns

[12]For this, see Figure 4: Land Use Map of LMA, 1969.

Fig. 4 Land Use Map of Greater Lagos, 1969



Key to Fig.



I. S. I. C.	Branches of Industry
311, 312	Food manufacturing industries
313	Beverage industries
314	Tobacco manufactures
321, 322	Textiles, wearing apparel
323, 324	Leather, footwear
33	Furniture and fixtures
34	Paper, printing, publishing
351 - 354	Chemicals, petroleum products
355, 356	Rubber, plastics
36	Ceramics, glass, cement
37	Basic metal industries
38	Metalware, machinery
39	Other manufacturing industries

Predominate Land Use

- Residential area
- Government, administration, commerce, finance, traffic facilities
- Industrial area
- Railway
- Major road
- City border

Development Areas
(in construction, planned)

- 2 000 hectare government development area
- 3 000 hectare government development area

	Planned Land Use:
1 Ilupeju	Industrial residential
2 Oshodi	Industrial residential
3 Isolo	Industrial residential
4 Ilasamaja	Industrial residential
5 Matori	Industrial
6 Gbagada	Industrial residential
7 Oworonshoki	Recreation
8 Ikeja-Ogun-River	Industrial residential

Planned highway

0 1 2 3 Kilometers
1 2 Miles

Drafted from:

FEDERAL SURVEY: Lagos, 1965, Sheet 279, 279-NW, 1:100,000.
LAGOS EXECUTIVE DEVELOPMENT BOARD: Metropolitan Lagos, 1966, Town Planning Department, 1:100,000.
IKEJA AREA PLANNING AUTHORITY: op. cit., map supplement.

are found in the northwestern end of Lagos Island, which consists of single-storey extended-family compounds and market stalls. Average density is more than 500 persons per acre (which when extended, would equal 340,000 persons per kilometer) and 36 persons per house. This density is comparable with New York's Manhattan Island.

The Economy

The economic development of Lagos can be seen from the nucleus of a small fishing village to Nigeria's leading metropolis. In the first half of this century Lagos grew into the most important and commercial center of the colony, and, during the last two decades, into the most important industrial location in the country. If we divide the overall social and economic development period into three, the first (1700-1900) was characterized by a low level of growth in population and the economy. During the second phase (1900-1945) Lagos became the political and economic center of Nigeria. Growth stimulating factors were the gradual raising of Lagos to become the Capital of the country as a result of a series of political-territorial annexations by the ruling British.

The outstanding features of the third phase (1945-present) are the growth of the City into becoming the country's leading industrial location, together with the simultaneous expansion in the service and administrative sectors and the metropolitan population explosion. In short, the dominance of Lagos in administration, export and manufacturing is considerable (see Figures 5, 6 and 7 and Table 3). Lagos has been the headquarters for major federal government agencies, public

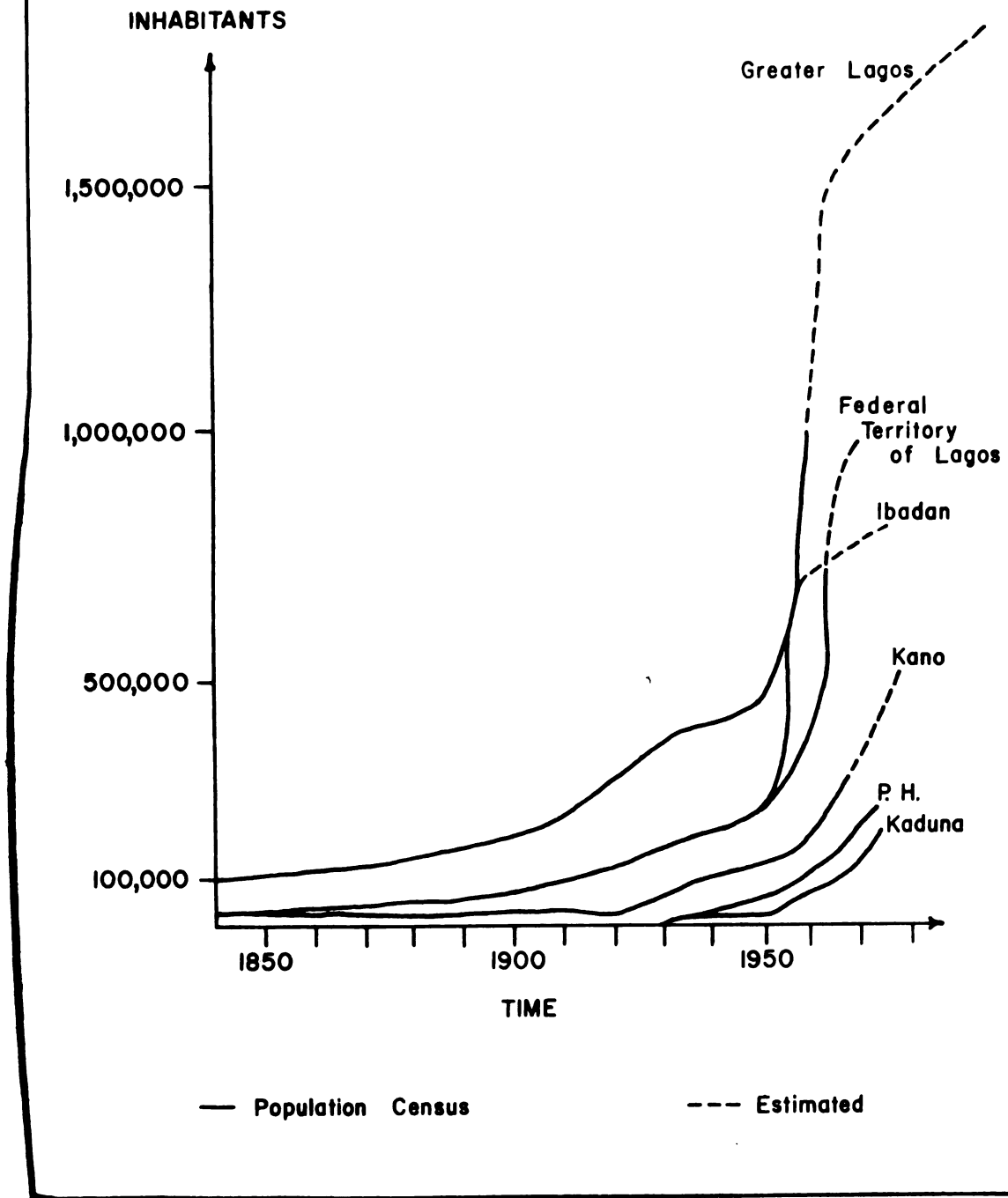


Figure 5a: Development of Population in Selected Nigerian Cities

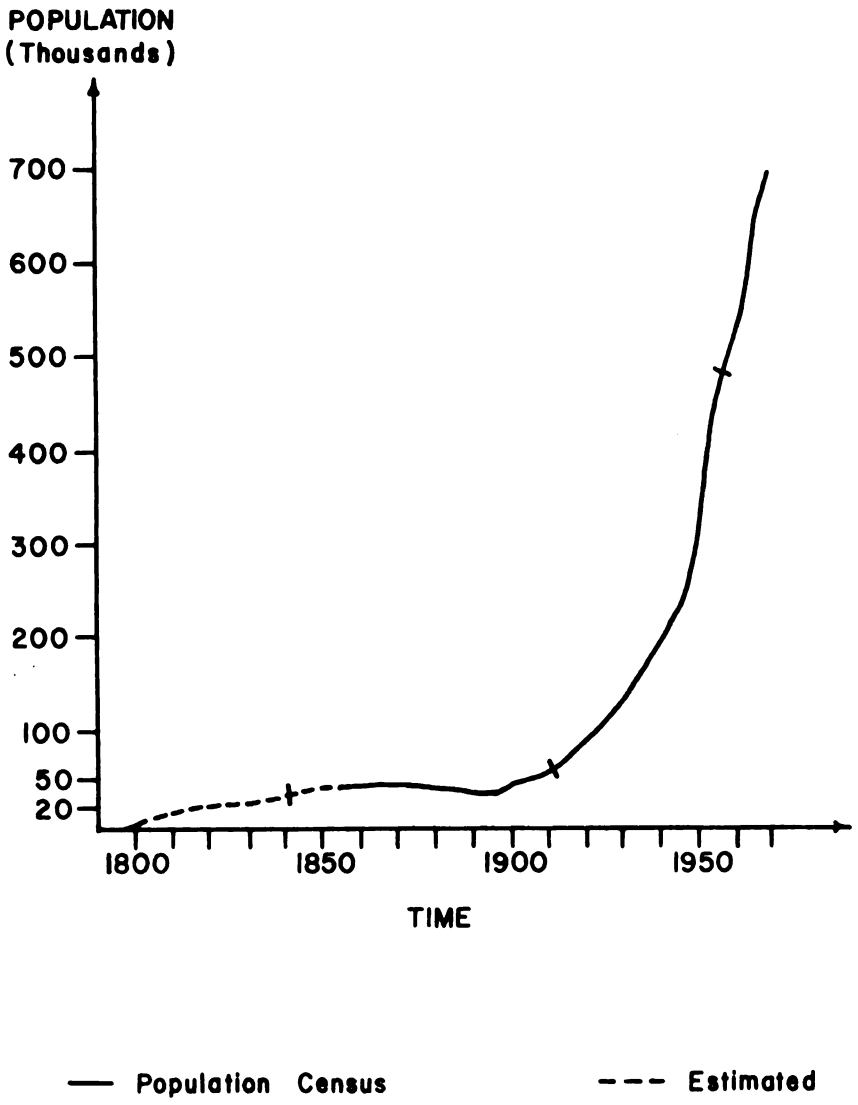


Figure 5b: Growth of Population in Lagos

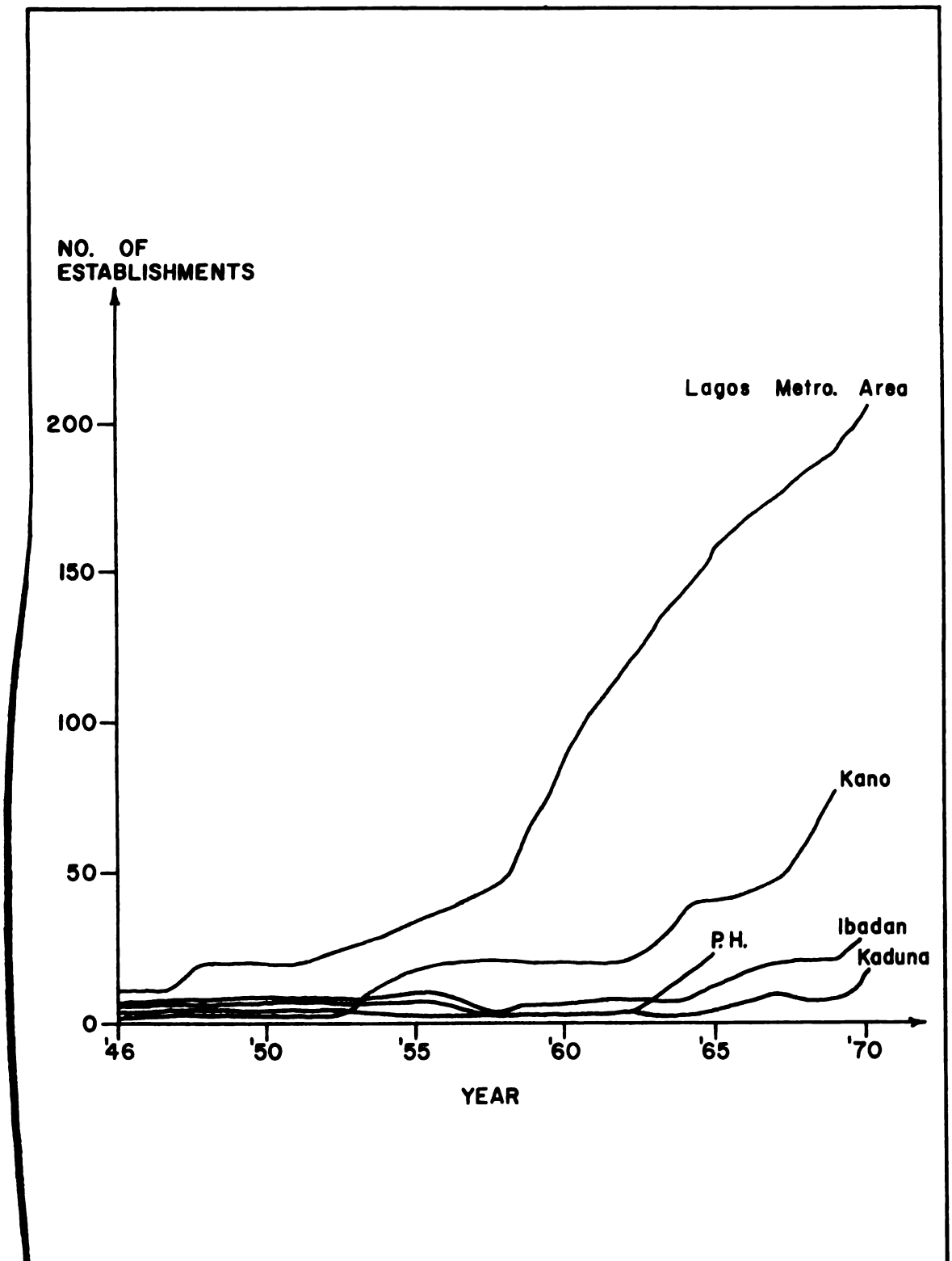


Figure 6: Number of Industrial Establishments – Growth

Table 3.--Number of Establishments and Employees of the Manufacturing Industry in Greater Lagos by Districts, 1964-1969.

Districts	1964		1965		1966		1967		1968		1969	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Lagos Is.	19	2325	16	2056	16	2235	14	2136	16	2201	16	1993
Apapa/Ijora Iganmu	57	9813	64	10795	65	11580	73	12082	81	14294	82	16400
Yaba	15	1319	15	1432	16	1458	16	1335	18	1471	17	1582
Ebute Metta	12	1013	13	1357	13	1343	12	958	14	1410	19	1532
Mushin	17	2123	18	2299	22	2767	25	2997	31	3903	35	5197
Ikeja	31	5862	38	8073	40	9115	48	10610	57	14099	61	15480
LM Area	151	22455	164	26012	172	28498	188	28498	214	37378	230	42184

Note: (a) Number of establishments.

(b) Number of employees.

corporations, and related institutions. In addition, Lagos as the country's leading industrial center has more than 230 registered factories each employing more than ten persons. Therefore, with slightly over one percent of the national population, the City of Lagos accounts for roughly 30 percent of factory employment throughout the country. The fact that the modern sector of the Nigeria economy is highly concentrated in Lagos and a few other large urban areas underscores the close relationship between improvement of urban infrastructure and the pace of economic development. The result of these waves of development in Lagos is separate clusters of land uses as shown in Table 4. Lagos has now more than 43 percent of Nigeria's industries.

Currently, the Lagos urban area is growing at a phenomenal rate. While it is the richest area in Nigeria in terms of both private wealth and public services, unemployment and service deficiencies are severe and are growing worse. The United Nations' team that studied Lagos in 1962 identified serious problems arising from, or exacerbated by rapid growth. These include: competition for land; long and inconvenient journeys to work; extremely congested traffic and lack of parking conditions; shortage of housing; scarcity of housing finance; growth of slums; developing health hazards (particularly due to the absence of a sewerage system); underdeveloped human resources and community neglect. It is sad to say that instead of improvements, these problems have grown worse, more than ten years later. Above all, the basis of the economic development of Lagos is its port. Congestion of port

Table 4.--Lans Use in Selected Settlements, LMA (percentages).

	Residential			Commercial Service and Government Industry			Recreation
	High Density	Medium Density	Low Density				
Lagos Is.	45	--	--	27	--	27	--
Ikoyi	--	--	98	2	--	--	--
Victoria Is.	--	--	85	--	--	12	3
Iddo-Ijora Iganmu	--	3	--	--	97 mainly serv.	--	--
Ebute-Metta	98	--	--	--	--	--	--
Apapa	15	25	--	--	60	--	--
Yaba	75	--	--	10	10	5	--
Ajegunle Ajeromi	98	--	--	--	--	--	--
Mushin	90	--	--	--	10	--	--
Ikeja	20	40	--	--	--	40	--
Shomolu	98	--	--	--	--	--	--
Maryland Estate	--	98	--	--	--	--	--
Surulere	98	--	--	--	--	--	--

Source: Lagos Executive Development Board 1965. Compare above data with pattern shown on Figure 3 i.e. the situation in 1969.

facilities and the harbor and inadequate transportation services linking it to the interior of Nigeria threaten the City's future.

As different parts of Lagos are highly specialized in relation to land use, economic functions, income groups, social values, and political affiliations, they are at once highly interdependent in terms of development needs. These are for housing, transportation, water and sewerage, industrial expansion etc. But the needs become highly fragmented in terms of the capacity to develop and for officials to agree on complementary and consistent policies. All of these factors present government with difficult tasks of planning and implementing urban development efficiently while allowing for diversity; of modernizing while nurturing the best aspects of traditional culture; and of resolving conflicts without eliminating individual choice.

Therefore, this metropolis is an elaborate mix of people, uses of land, levels of income, economic activities, social values, private and public decisions. The new and the old, the rich and the poor, the homogeneous and the heterogeneous meet and coexist here with skills, activities, and values that are specialized and general, complementary and competitive. Because of the smallness of the traditional town, the island situation of the initial settlements separated into blocks by lagoons and swamps, availability of land for further development has always been a great problem. With sizeable increases in population and government establishments, the demand for land increased considerably. The rapid development of residential land and its scarcity became a major housing problem right from the beginning.

The basic relationship of land to housing is at times not obvious. A house is fixed to land and involves a package of related goods and services. Therefore, the house is helpless in escaping development shifts and changing environmental conditions as land uses are not readily interchanged. But the main problem in the LMA is that of insufficient supply of land classed as suitable and available for housing. This may be a debatable subject from the quantitative point of view; statistically it may be demonstrated that land for housing in Lagos, whether inlying or at the fringes, is still plentiful. However, much remains to be desired from the qualitative point of view. For residential use, an area should be integrated within itself as well as with the larger community with adequate accessible facilities and other urban services.

The impact of the extreme concentration of industries, political and social establishments in Lagos (relative to other cities in Nigeria) was that it led to rapid growth of population as migrants streamed into the City in search of employment (see Figure 7). The population grew at such a fast rate that available urban services, especially housing, became very scarce. The detailed relationships of these generative forces will be discussed in greater detail under the later section on "demographic dynamics" of Lagos.

Demographic Data Required for Estimation of Housing Requirements and Formulation of Housing Programs

The UN Seminar on Housing Statistics and Programs for Africa, which met in Copenhagen Denmark in 1966, stressed the importance of

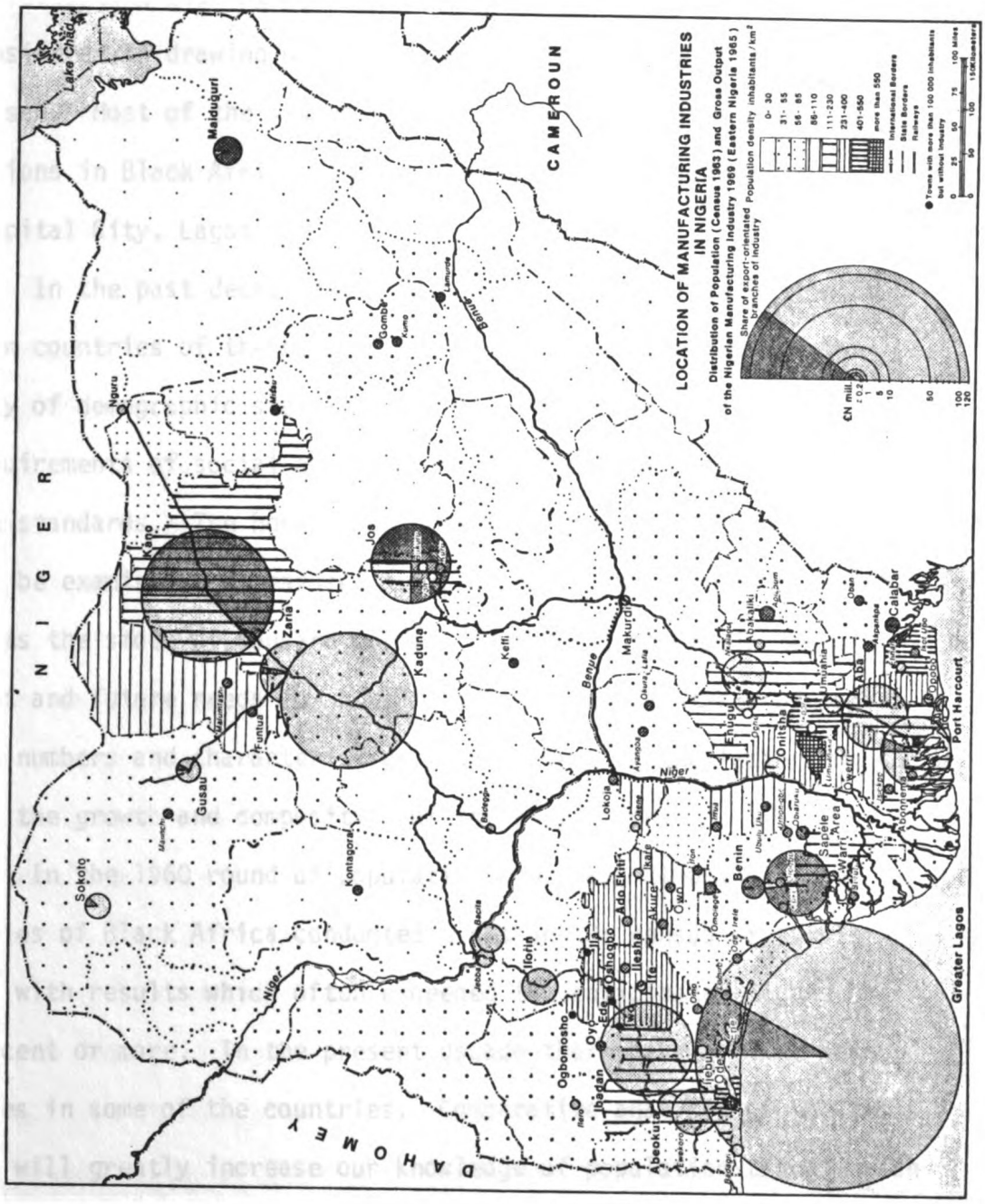


Fig. 7 Location of Manufacturing Industries in Nigeria, Distribution of Population (Census 1963) and Gross Output of the Nigerian Manufacturing Industry 1969 (Eastern Nigeria 1965)

having reliable quantitative data available as a basis for formulating and effectuating housing programs. The essential aspects which need to be considered in drawing out a housing program were distinguished and discussed. Most of the issues raised are quite pertinent to housing situations in Black Africa, and even more appropriate to Nigeria and its Capital City, Lagos.

In the past decade there has been a growing recognition in African countries of the need to extend the scope and improve the quality of demographic statistics. This recognition has been fostered by requirements of social and economic planning for the raising of living standards. The housing component of these levels must necessarily be examined and measured in relation to the population which inhabits the stock of housing units. Therefore, the estimates of present and future needs for housing must be made in terms of population numbers and characteristics and in terms of the factors which affect the growth and composition of the population.

In the 1960 round of population censuses, almost all the countries of Black Africa conducted a nationwide census or sample survey with results which often exceeded the anticipated figure by 20 percent or more. In the present decade there have already been consuses in some of the countries. Comparative analysis of the two rounds will greatly increase our knowledge of population trends which will provide a firmer basis for the demographic projections on which all planning must rely. Unfortunately, Nigeria has not been able to conduct a widely acceptable or successful census for sometime. The

1963 census was suspect in many quarters while the 1973 census was cancelled by the government before it could be officially published.

African Governments are becoming increasingly aware of the problem of high rate of population increase and appreciate the need to assess the demographic factors at work and the prospects for future growth. Already population increase is causing a deterioration in housing conditions while the shift of population from rural to urban areas is intensifying the decline in housing standards by swelling the number of sub-standard shacks on the urban periphery. A classical example of the above situation is the metropolitan area of Lagos. Here also, social and economic changes have begun to affect household composition in a way which may have very far-reaching consequences. It is indispensable that the population numbers, characteristics composition and distribution be accurately inventoried as soon as is possible, so that population projections can be made on assumptions which are backed by reliable evidence. It is only then that the magnitude of housing requirements can be assessed in a realistic fashion.

It is very difficult to obtain complete records of current births and deaths in Nigeria. The difficulties are greater in Lagos because of migration trends. Unfortunately, it will be many years before needed census programs can be implemented and successfully administered from which reliable demographic data can be derived. Meanwhile, there is widewpread dependence on the 1963 census and independent sample surveys as the source of statistical data on current

population as well as on the size and structure of the population. Whatever the method of obtaining data, the possibilities of errors must be taken into account. There may be under or over-reporting of population and of vital statistics, mis-statement of age and marital status, lack of comparability and verifications between the various samples, concepts, assumptions, and classifications adopted for population and housing censuses--any or all of these may impair the value of the resulting data. Careful coordination is necessary to minimize the errors; and techniques of evaluation should be included both in the field operations and at the analysis stage.

The population of a country or city, as determined by a population survey or by some process of estimation, can provide the current dimension of the housing problems in terms of the total number of persons and or households who must be housed. In practice, planning is usually restricted to the needs of private households. When data exist from successive population inquiries, the average annual rate of population increase computed from the inquiries provides a convenient measure of population trends. In the absence of other data, this method may be used in the preparation of projections into the future; but such a method is very faulty since it usually consists of arbitrarily projecting past counts, as a continuing trend line ("straight line" projections), into the future.

In considering housing requirements one needs to make an important distinction between urban and rural areas. But when an urban area is concerned, as in the Lagos case, the migration component becomes

dominant. Migration is an important factor in the size and distribution of population within a country, the most notable example being the rural-urban drift. The effect is that areas of out-migration may be left with an excess of housing units while receiving areas, for example Lagos, are faced with the problem of trying to house the inflow of new residents.

Indications of the volume of migration in and out of each part of the country within a selected time period as well as indications of origins and destination of migrants can be derived from an analysis of data provided by a tabulation of population by present and previous residence. The value of data can be improved considerably by formulating the census question on the place of residence "X" years ago in such a way that persons residing in any one of the principal cities could be classified as living x--years ago: (a) in the same city, (b) elsewhere in the same major civil division, or (c) in one of the other major civil divisions of the country. A very rough indication of the size of migratory movements can be derived from a tabulation of population by place of birth. Although these data may give no idea of when the move took place, they can give some idea of the massive movements, especially if cross-tabulated by age; and thus they serve to estimate the magnitude of in and out-migration over an indefinite timespan in the past.

The composition of the population by age and sex is basic for current demographic analysis and for projections both of population and households. For housing estimates, the number and size of

households are all-important, and future trends can be estimated only if consideration can be given to the household-forming sector of the population that is, the group now aged 5-20 years, in the next 15 or 20 years, when they will be setting up households. Thus the distribution of the population by age and sex provides the starting point for population projections and must be used also for estimating the number of households into which the projected population will be divided by the processes of marriages, births, and deaths, and the factors which influence these vital events. This is exactly what the author did to derive parts of Table D-1.

In most parts of Africa it is usually impossible to obtain accurate statements of age and sex composition and accurate records of vital statistics. It then becomes necessary to estimate the distribution of reported ages as carefully as is possible. Estimates of fertility and mortality can also be derived, on certain limiting assumptions and by the application of population models, from the composition of population by age, sex and marital status they provide the number of married couples in the population, and this can be considered a minimum estimate of the current number of households requiring housing units. It gives also the number of single, widowed, and divorced persons who might be considered as potential householders according to certain standards.

In conjunction with the corresponding data for heads of households, this distribution may be used to compute headships rates, separately for each marital status/age/sex group in order to obtain a more refined estimate of the future number of households. It also provides

the base for computation of age-specific marriage and divorce rates and of mortality rates by marital status which are factors in the determination of the life cycle of families and households. Investigation of marital status in Nigeria is, however, complicated by the existence of a number of different types of marriage, including marriages conducted by civil and religious authorities, marriages according to native law and custom, and consensual unions, some of which involve special problems for the identification of marital status of persons whose union has been dissolved.

Information on the number of persons who have regular jobs or self-employed and those who are unemployed is important for all aspects of planning. In regard to housing, especially in Lagos, we are likely to find that the need for housing will change as the labor force becomes larger and or as its occupational and industrial structure is modified by the processes of economic and social development. Therefore the rate of unemployment becomes a vital determinant for housing needs. Moreover, the possibilities of meeting housing needs will depend on the availability of skilled labor for construction and related industries, and the building materials industries.

A household may be composed of one or more family nuclei (one or both parents and their unmarried children), with or without other relatives and non-relatives. By the standards of the developed countries like the US, a nuclear family is the basic consumer unit for housing and usually corresponds to a household.

But for many purposes, in Africa, information on gross households rather than family nuclei will be more relevant, and data for family nulei must be regarded as supplementary information which may be useful where a very detailed analysis is envisaged.

The number and size of households are necessarily affected by the definition of the household and the data may not be directly comparable without adjustment. In Nigeria, the grouping of persons in households ranges from the simple nuclear family to the "collectives" and "concession" (compounds) supporting a number of separate nuclear families. The system of polygamy and the laws of family descent introduce further complicating factors. The tabulation of population by class and size of households would classify separately the population living in private and collective households. It would also divide the former by size of households into single- and multi-person households. These results are necessary to estimate the consumer units for housing including the rate at which the numbers are changing, as also the requirements of living space.

The total number of households and the number in each class can be obtained and used for the computation of the rate of growth of the number of households of different size. The distinct features of the size distribution of households in Nigeria, and even Lagos, will also be revealed in this type of tabulation. Data on average size of household are sometimes available when there is no distribution of the population by the number of households of each size class; average size of household can be used, and is currently being used in a number of countries, to make estimates of the need for housing, but the results

are, of course, only approximate. It should be especially noted that it is not sufficient merely to tabulate households by numbers in each size class. A distribution must also be provided, where possible, to show the number of households which are sharing the same housing unit, and this can be most conveniently done by cross-classifying households by type of housing unit and number of households occupying the housing unit.

Using information collected on "relationship to head of household," a tabulation may be made which shows the sex and age of the person recognized as the "head of the household." These data, in conjunction with total population by age and sex, may be used to compute headship rates for the projection of the number of households. This distribution also, of course, provides an estimate of the number of households in the present population, and corresponding information from two or more consuses allows the calculation of the rate of change in this paremeter.

This distribution represents a further refinement of the preceding tabulation, which in conjunction with the corresponding classification of population by age, sex, and marital status provides material for calculating headship rates. These rates, or projections of them based on past trends, are then applied to the projected population figures by sex, age and marital status to obtain the projected number of households. The tabulation can be substantially simplified by limiting the marital status classification to two categories, namely, married and all other. In either the full or simplified form, the

distribution could also be used to compare the potential number of household heads (married couples in the population) with the reported number of married heads of households. The difference consists of married couples who are not maintaining a separate household and who might therefore be considered as potential candidates for housing. The population characteristics of LMA follows.

> Note: A household is one or a group of persons that is domestically autonomous. It has also been defined as a group of persons who habitually both eat at the same table and sleep under the same roof. For this study a household will be such a group that occupies a housing unit. It differs from family which consists of members with blood relations. But a family could be a household whereas a household is not always a family.

Demographic Dynamics of Lagos Metro Area

Total Population

According to the 1963 census the total population of Lagos Metropolitan Area stood at 963,750. Since then there have been various estimates as to what the total population has been and the rate at which it has been growing. These estimates have differed widely. It is therefore the aim of this section to survey and discuss the various estimates in order to arrive at an acceptable figure which will be used in the following chapter for estimating housing needs and demands.

From 1967-1968, the staff of the Lagos Family Health Project and the Department of Community Health, College of Medicine, University of Lagos carried out a population dynamics survey in Lagos. The findings are reported in Table 5.

Table 5.--Estimates End--1968 Population; Lagos Metro Area.

Year	Former Western Region Areas			Former Federal Territory Area			Total Lagos Metro Area		
	Est. Popu.	% Change	% of Total Metro. Popu.	Est. Popu.	% Change	% of Total Metro. Popu.	Est. Popu.	% Change	% of Total Popu.
End-1963	388,713	-	40.3	575,037	--	59.7	963,750	--	100.0
End-1964	483,385	+24.0	44.0	615,290	+7.0	56.0	1098,675	+14.0	100.0
End-1965	594,130	+23.0	47.0	658,360	+7.0	52.0	1252,490	+14.0	100.0
End-1966	573,335	- 3.5		632,026	-4.0	52.4	1205,361	- 3.8	100.0
End-1967	553,842	- 3.4	47.7	607,377	- 3.9	52.3	1161,219	- 3.7	100.0
End-1968	589,288	+ 6.4	48.7	621,349	+ 2.3	51.3	1210,635	+ 4.0	100.0

Figures for 1963 are derived from the Federal census of that year and formed the basis for the random sample selection used in the university survey referred to here. Because the census was conducted during November 5-8, end of year estimates are given throughout.

The annual rate of growth for the Lagos Metropolitan Area in that decade 1952-1962 has been estimated at close to 14 percent per year, with a growth rate of close to seven percent in the former Federal Territory and 66 percent in the former Western Region areas. The fringe areas of the city grew from farmland with a population of more than 300,000 in 1963, and (one must assume that the growth rate must have declined from year to year). In the above table, the estimator started with the end--1963 figures as derived from the census, slightly amended by the Department of Community Health to introduce a correction factor for certain of the census areas. A continuing overall Metropolitan growth rate of 14 percent in the years 1964 and 1965 was assumed.

During 1966 and 1967, the political crises in the country developed and a large number of Eastern Nigerians left the city of Lagos. The survey staff developed growth rate figures for later 1967 and early 1968 of -3.7 and +4.0 percent respectively, together with individual figures for the Federal Territory and Western Region areas and it was also decided to use these figures for the early 1967 and 1968 projections. It remained necessary to develop growth figures for 1966, and these were derived from the presumed number of Easterners who must have left Lagos in order to yield the proportion of remaining

Easterners in the survey, balanced against the presumed increase from births during this period.

The survey indicated that the Metropolitan Area population was declining during 1967 and resumed its pattern of increase in 1968, and that the pattern of a more rapid increase in the former Western Region Areas also was resumed. At end-1963, the figures derived from the census indicate about 60 percent of the urban population to be living in the former Federal Territory and about 40 percent in the former Western Region areas. Carrying through the projections, we get an end-1968 population of about 590,000 persons in the former Western Region areas and about 620,000 in the former Federal Territory. This gives an estimated Lagos Metropolitan Area population of about 1.2 million. Further if these projections are correct, this population is balanced much more equally between the former Western Region and Federal Territory areas, with about 47.7 percent in the former and 51.3 percent in the latter. But how reliable are these projections? Other independent projections will clarify the assertions made here.

Estimate of Population--1972

During the period, July-September, 1972, the Human Resources Research Unit of the University of Lagos, carried out a household survey in Lagos updating a previous one carried out in 1966 by Professor T. M. Yesufu. The objective of the survey was to provide an insight into the social and economic problems associated with the rapid population growth rate that has characterized Lagos, such as employment and unemployment, transportation, housing and social

facilities including water and electricity supply, sanitation problems etc. It was hoped in this way to supply reliable data for effective planning by the State and Federal Governments and public corporations, etc. with a view to alleviating the social and other associated miseries that have become the lot of Lagosians.

The 1972 survey is claimed to be the most comprehensive social study of its kind ever taken in Lagos. Some of the population data in this section will be quoted from it. Originally designed to cover a sample of between 0.5 and 1.0 percent, there was such a tremendous and positive response on the part of the population, it is claimed, contrary to previous experiences, that it was decided to increase the sample to 1.5 percent. This was achieved without much additional cost.

The survey found that there was an estimated total population of between 1.2 million and 1.5 million in the Lagos metropolis. Thus the survey covered a total of 2,515 households with a population of 19,709 persons. Questionnaires were administered separately also to 2,188 employed and 1,271 unemployed persons in order to provide basis for indepth analysis of population characteristics and of the problems peculiar to various groups;(there is no basis for feeling that it is more reliable than other estimates).

Estimate by Federal Office of Statistics

The Demographic Division of the Federal Office of Statistics has computed population projections by states from 1963 to year 2000. The projections were based on four percent growth rate in Lagos and two and one-half percent for other parts of the country. Constant

rate of growth were used for the whole period 1965-2000 because of the inflation of about 10 to 12 percent of the 1963 census data. Using these rates of growth, the annual population of Lagos Metropolitan Area and Lagos State is as shown in the table below.

Table 6.--Lagos State Population Projection.

	1963	1970	1971	1972	1973	1974
Lagos Metro. Area	963,750	1,405,701	1,461,928	1,520,967	1,581,412	1,644,669
Other Parts of the State	375,405	446,356	445,754	469,120	480,725	492,777
Lagos State	1,443,567	1,852,057	1,919,442	1,990,087	2,062,137	2,137,446

From the above table it could be seen that the population increase in the Metropolitan region between 1970 and 1974 is 238,968 (say 239,000) or 17 percent in four years.

The Lagos State Ministry of Works and Planning has made its own forecast. Table 7 shows what they were able to come up with.

The projections in themselves are not very reliable, but they are significant for one thing. The table portrays the proportion of the population of the whole state living in the metropolitan area. By 1963 it was 79 percent, by 1968 it has risen to 84 percent while by 1975

Table 7.--Population Forecast by LSMWP.

	1963	1968	1975
Lagos Division	665,246	933,042	1,402,950
Mushin Town Council	335,454	--	--
Ikeja Division	45,909	--	--
Ikeja Division	378,363	770,807	1,502,084
Awori/Ajeromi D.C.	52,245	96,258	187,580
LAGOS METRO AREA	(1,135,854)	1,800,107	3,092,614
Ikorodu Division	94,952	110,075	140,050
Epe Division	130,395	147,530	181,443
Egun Awori D.C.	69,914	78,762	96,867
LAGOS STATE	1,431,115	2,136,474	3,510,974

was supposed to be 88 percent. However, it is very astonishing that there could be a difference of 1,382,169 between the projections of total population for the Metropolitan Area by the Federal Office of Statistics and that of the LSMWP.

Estimation by Green

In his population models for national and regional planning, Leslie Green in 1969 gave the following figures. In 1962 according to him, the population of Greater Lagos (Greater Lagos is the same as Metropolitan Lagos) was 409,959. In 1963, the estimated population stood at 843,625.

From Table 8 there is evidence of very high growth rate for Greater Lagos, which is estimated to average as much as 6.39 percent

Table 8.--Population Forecast by Green.

	Lagos Federal Terit.	Ikeja	Ajeromi	Total
1952	271,539	124,069	14,351	409,959
1963	496,575	287,858	50,192	834,625
Growth 1952-1963	82.87%	132.01%	249.75%	103.59%
% per annum	5.64	7.2	11.25	6.39

per annum between 1952 and 1963. The population rose by 103.59 percent and it appears that the areas of Greater Lagos falling within the former Western region grew faster than the Federal territory. The annual growth rates range from 5.64 percent for the Federal Territory to 7.12 percent for Ikeja division and 11.25 percent for Ajeromi district. In all probability, this high peripheral growth is a direct result of congestion in Lagos Island and the development of industry and commerce on the main-land. However, he did point out that like other demographic models, these estimates of the population of Greater Lagos were no more than first approximations, which stand to be modified whenever good evidence for doing so becomes desirable. It is probable that any such modification will tend to adjust the growth rates upwards. On the above assumptions therefore, Green estimated the total population of Greater Lagos to have grown from 834,625 in 1963 to 1,044,246 in 1967 in spite of a severe reduction in the rate of in-migration of the Eastern group during the civil war.

In his discussion of the metropolitan explosion in Lagos during the post-1951 period, Mabogunje attributed it to the rapid industrial development which took place after 1950. This not only resulted in an unprecendented rate of growth but also in the spectacular spatial expansion of the continuous built-up area beyond the legal confines of the municipality. Within the municipal boundary itself the population rose from 230,256 in 1950 to over 650,000 in 1963. This gave an enormous rate of annual growth of over 9 percent per annum (compound rate). This remarkable growth in the population of Lagos was the combined result of an increased rate both of natural increase and of immigration. Growth by natural increase, however, probably accounted for no more than a third of the growth of population in Lagos since 1951. In the diagrams which follow Lagos is compared with other Nigerian cities--Ibadan, Kano, Kaduna and Port Harcourt. It could be seen that after the early fifties Lagos outstripped all of them by a very big margin.

Characteristics of the Lagos Population

This section is intended to deal with the sex structure of the population, age characteristics, ethnic distribution, size of households, education, religion and other vital statistics. It is not intended to be very exhaustive in any sense, but to highlight only some of the significant points that are considered to be of immediate significance to the purposes of this study. Much of the information will be derived from household surveys conducted by the Human Resources

Unit of the University of Lagos and by R. W. Morgan working together with Vaino Kannisto.

(a) Sex Structure of the Population.--Perhaps the most significant finding of the analysis is that for the first time in a hundred years (i.e. since 1871) the female population in Lagos now exceeds the male population. Of the 19,709 persons covered in one of the surveys, 9,767 were males as against 9,942, giving females approximate ratios of 49.5 percent and 50.5 percent. The nature of the dramatic change can be grasped from Table 9.

Table 9.--Population of Lagos by Sex 1871-1972.

Year	Male %	Female %	No. of Males per 100 Females
1871	47.4	52.6	90.1
1921	57.5	42.5	135.3
1931	55.6	44.4	125.2
1951	54.2	45.8	118.3
1963	56.7	43.3	131.0
1966	57.3	42.7	134.2
1972	49.5	50.5	98.0

While the ratio of women to men differs between residential districts in the metropolis, the majority of the areas conform with the average trend. In Ajengule and Ikeja the proportions are almost equal at 50 percent. But Victoria Island, Ikoyi, Obalende, Lagos Island, Yaba, Ajeromi, Surulere, and Igbobi all record ratios in favor of

females ranging from 50.8 percent on Lagos Island to 53.2 percent in Ikoyi. Ebute-Metta recorded the lowest female ratios at 46.8 percent followed by Apapa with 48.2 percent.

Further studies need be undertaken to determine the reasons for this new phenomenon of the preponderance of females over males. But an examination of the sex distribution of the population by age group is revealing. Males exceed females in all age groups of 30 years until the age of 60 years. The next table illustrates the position.

Table 10.--Population by Age Groups and Sex Ratio, 1972.

Age Group	Male %	Female %	Total %
Below 6 years	24.2	23.7	23.9
6 - 15 years	26.4	25.8	26.1
15 - 21 years	14.0	13.0	13.6
21 - 30 years	11.1	17.7	14.4
20 - 45 years	15.7	12.9	14.3
45 - 55 years	5.1	3.1	4.1
55 - 60 years	1.7	1.7	1.7
60 years & over	1.7	2.0	1.9
All age groups	49.5	50.5	1000

While the excess of females over males at ages 60 years and over is significant, it is the concentration and predominance of females among the young adults in the age group of 21 years thru 29 years which is critical for our purposes here--household formation and housing.

Preliminary interviews suggest that many of the women claim to be civil war victims from the war affected areas of the country. While some of them lost husbands during the war, others clearly migrated to Lagos, deserting their husbands and homes in the wake of penurious conditions that followed the end of the crisis in 1970. Women ostensibly "unemployed," clearly find it easier to make a living in Lagos by "trading." In contrast, the initial reluctance, after the war, to migrate back to Lagos for jobs, seems to have been stronger on the part of males. Moreover, there had, in the war interim, been the creation of more states in Nigeria, which was accompanied by administrative decentralization and a much greater regional and geographical diffusion of economic activity.

Therefore, possessing better education, training and other advantages in the local labor market, males now tend, increasingly, to seek jobs first in their home states before migrating to Lagos and other places. On the other hand, trading, which is traditionally dominated by women, as well as prostitution, has tended to continue to thrive best in Lagos.

(b) Age Characteristics.--The high proportion of young persons in the total population, which is characteristic of most developing countries, is very pronounced in Lagos. The surveys show that persons below 15 years of age constitute almost exactly 50 percent of the population of the metropolis. This is considerably higher than the national average of about 43 to 44 percent. It is suggestive of a much higher dependency burden for the Lagos adult population than the

national average. Also it will mean that in the 1980s more houses will be needed to accommodate this youthful population and the type and size of dwelling units will eventually be determined by this important characteristic. It seems to be accounted for, partly by the fact of better medical facilities in Lagos than the rest of the country resulting, probably in a lower degree of infant mortality. But it is also the case that many children especially in the age group 6-15 years are sent to relatives in Lagos to attend school or to be otherwise trained.

In the table that follows the age structure of Lagos in the last twenty years is analyzed. It shows a rapid upward increase in the population of the young population below 21 years of age. The growth of the age group below 15 years, from 31.5 percent in 1951 to 50 percent in 1972 is equivalent to a compound rate of increase of 21.1 percent per annum. It has immediate implications for housing, educational and health planning, as well as long term implications for employment policy.

As much as 3.6 percent of the population of Lagos is 55 years of age or over, 1.9 percent being 60 years of age and above. This is less than 4.7 percent recorded in the 1951 census, but higher than the 1963 figure. Clearly, the 1.1 percent for this age group shown for 1966 does not seem to be representative.

The age structure differs significantly, however, between districts. For example, the proportion of old people who are 60 years or over in Lagos Island (2.8 percent), is very much higher than in any

Table 11.--Age Structure of Lagos Population 1951-1972 (percent).

Age Group Below 6 yrs.	1951 Census	1963 Census	1966 Survey	1972 Survey
6-15	31.5	36.49(43.1)[a]	18.0 26.8 (44.8)	23.9 26.1(50.0)
15-21	10.5	9.21(9.4)	12.9	13.6
21-30	25.3	29.31(22.4)	37.5	14.4
30-45	20.5	17.37(16.6)	--	14.3(28.7)
45-55	5.8	4.52(4.3)	3.7	4.1
55-60	1.3	0.93(0.8)	--	1.7
60 yrs. and over	3.4	2.17(3.4)	1.1	1.9

[a]The corresponding proportions for the whole country are shown in brackets for purposes of comparison.

other district. In contrast, the proportion for Mushin is 2.2 percent, Agege 1.8 percent and 1.7 percent for Yaba and Ajengunle. Oshodi, Palmgrove and Ikeja recorded virtually no persons of over 60 years of age. Obalende had a low 0.3 percent of this category, followed by Igbobi--Shomolu area with 0.6 percent, Victoria Island 0.8 percent and Ikoyi 0.8 percent. The contrast is even more vivid at the other end of the age scale below 15 years. Thus, almost 32 percent of the population in Oshodi was below 6 years as against only 20.1 percent for Lagos Island. For the age group 6 years but under 15 years, the 32.4 percent for Obalende contrasts with the 22 percent and 22.4 percent for Ikoyi and Ajengunle respectively.

The popular notion that women tend to out-live men seems to be sustained by the surveys. Thus the proportions of males in the age

group below 6 years, and in the age 6 years but under 15 years, are respectively 24.2 percent and 26.4 percent compared with those for the females of 23.7 percent and 25.8 percent. In the age group of those who are 55 years old but below 60 years the proportions are equal at 1.7 percent. At age 60 and over, however, the proportion of males is 1.7 percent as compared with 2.0 percent for females.

(c) Birth, Death and Infant Mortality Rates.--When it comes to computing infant deaths, many a demographic researcher "has come on the racks" and the author does not claim to be an exception. In many parts of West Africa there is also a superstition against reporting the number of children one may have lost. Because unreported infant deaths affect not only the infant mortality figure, but figures for the birth and death rates as well, it must be presumed that many of these vital rates as reported in various parts of the world are too low. For our purposes it becomes essential to keep track of birth and death rates in order to be accurate on household sizes which affect demand for housing units.

In the data analysis by Morgan and Kannisto, they introduced a correction factor based on the number of women reported pregnant at one round of the survey, who at the next round were to be found no longer pregnant and who did not have a new-born infant to report. Two correction factors were introduced:

1. A factor based on the results of Gravindex (pregnancy) test administered to women of child-bearing age in five sample areas randomly chosen. It was found that interviews reported a total of

43 pregnancies, whereas Gravindex test which was presumed to be more accurate, gave a total of 56, in the five areas. A correction factor of 56/43 or 1.30 was thus applied to the pregnancies reported by interviewers which were found terminated without a new-born infant to report.

2. To this figure, an additional correction of 0.90 was applied in an effort to compensate for pregnancies not resulting in a live-birth (i.e. abortion). In determining this correction factor, the analysts relied on the impressions of several obstetricians interviewed at Lagos hospitals. They also relied on data reported in the highly accurate surveys carried out in East Pakistan over the past several years by the Pakistan SEATO Cholera Research Laboratory, whose staff visit homes daily computing vital event registrations in a rural vaccines field trial area not far from Dacca. In its June 1969 report, the Pakistan unit recorded 5,614 pregnancies in its sample, of which 5,207 or 92.75 percent came to live-birth (220 miscarriages or abortions and 219 still births also reported, the apparent discrepancy in figures due to a number of twin births).

The figure thus obtained for estimated pregnancies terminating without a reported new-born child, corrected to allow for still-births etc. was added to reported infant deaths in the Lagos sample, as well as to reported births and deaths and these figures were employed in the computations. It must be recognized that, unlike other vital events, reports not employing a correction figure and hence presumably erring on the low side are like the ones here; the figures in table given here may err on the side of being either too high or too low.

Some Aspects of Marriage and Fertility Among Women in Lagos

In the preceding pages a rapid fall in the ratio of males to females had been suggested. The results of a 1973 survey revealed the popular notion of a massive influx of younger adult females into Lagos. To realize the momentum behind the astronomical growth of Lagos population one can take a look at the following table.

Table 12.--Adult Females by Broad Age Groups (% Distribution).

		Lagos City		Metropolis	
Age Group	1963	1967	1973	1967	1973
15-24	44	39	50	40	52
25-34	35	36	31	36	33
35-49	21	25	19	24	15
Total	100	100	100	100	100

In the above table, the 1963 and 1967 population distributions are respectively derived from the 1963 census and from Morgan's Family Health Project of 1967/68 (Morgan, 1973). Precise comparison between 1967 and 1973 is not possible because of differences in the samples, and because of age misstatement by some respondents. Ejiogu (1968) found that the majority of migrants in the main migrant areas of Lagos in 1964 were aged between 15 and 34. As mentioned earlier, the renewed immigration of younger females after the civil war is indicated by the increased proportion aged 15 to 24 recorded in 1973. Also it has been

found out that the adult female population in 1973 is predominantly migrant, and that relative differences between Lagos-born and migrants is greatest in the 20-24 and 25-29 age groups. For example, for every woman aged 25-29 who grew up in Lagos State, there are three immigrants of the same age.

Fertility: In the table that follows the average number of births to women in different categories is illustrated.

Table 13.--Lagos Metropolis: Mean Live Births, 1973.

	Education					Occupation		All
Age Group				Islam	Xtan	Other Employed	Not Employed	Females
15-19	.3	.3	.1	.3	.2	.3	.2	.2
20-24	1.4	1.5	1.0	1.2	1.4	1.5	1.2	1.3
25-29	2.7	2.7	2.2	2.5	2.6	2.6	2.6	2.6
30-34	3.6	4.5	3.6	3.3	4.2	3.6	4.5	3.9
35-39	4.2	5.4	4.5	4.2	4.9	4.6	4.4	4.6
40-44	4.4	5.7	4.3	4.1	4.9	4.7	4.8	4.7
45-49	3.9	6.2	3.2	3.8	5.4	4.7	4.9	4.8
n=	551	615	433	549	1046	850	749	1600

The educational split which divides women into those with no education, those with secondary education needs particularly explanation since it does not show the usual inverse relationship between education and fertility. Females with no education may be more prone to under-report births, particularly as they grow older; alternatively there may be a truely lower number of mean births to these women.

Over .75 of women with no or elementary education believed that it was bad for a wife to have sexual intercourse with her husband while she is breat-feeding her child. The illiterate women tended to breast-feed for longer periods and may be more likely to be sterile reflecting poorer health care or nutrition. The proportions that report no births or just one birth is usually much higher among the illiterates aged over forty than amongst those with elementary or secondary education. Another factor may be that illiterate mothers with many children may be more likely to die, after child-birth.

The differences by religion may be reflected to those by education if Muslin women are less educated than christians. In the next table, another measure of fertility is provided based on the number of births in the 12 months preceding the survey, multiplied by five since it takes each woman five years to pass through each age group. The 1973 results are compared with those recorded by Morgan in 1968 (see Morgan, 1963). Morgan's figures are corrected upwards to allow for reported births, but his raw data would seem to indicate a total fertility rate of about 6.2 which compares reasonably well with the 6.5 for 1973.

We may conclude from the tables quoted above that the popular impression of a recent influx of young females into Lagos is confirmed. The equalizing of the sex ratio would lead to a rise in the crude birth rate as the immigrant females begin child-bearing. The effect of the increasing standard of education of females is not clear. At the secondary school level females seem to be forming more definite ideas

Table 14.--Five Year Age--Specific Birth Rates.

Age Group	Morgan's 1967/68 Study	1973 Lagos Metropolis
15-19	.7	.5
20-24	1.5	1.6
25-29	1.7	1.7
30-34	1.5	1.1
35-39	1.0	1.1
40-44	.5	.5
45-49	.4	--
Total Fertility	7.3	6.5
n=	717	1,600.

of their family size ideals, but the less educated females may be having fewer children than the educated ones because of prolonged breast feeding and poorer health and nutrition. The question that arises is: How do these fertility trends affect the demand for housing? Will families be demanding less housing because women are getting more and more educated and likely to limit the sizes of their families? These vital questions will be touched upon in the following chapter on determination of housing needs and demands.

Based on calculations made by Morgan and Kannisto, the vital rates for the Lagos Metropolitan Area in the May 1967-May 1968 period were obtained:

1. Crude Birth Rate--about 53 per 1,000 persons
2. Crude Death Rate--about 12 per 1,000 persons

3. Infant Mortality Rate--about 109 per 1,000 persons

4. Rate of Natural Increase--about 4 percent (actually 4.05 percent)

These figures appear reasonable in themselves, as the further discussion below will bring out, and they are presented here as the best estimates for the vital rates reported, based on the survey data referred to.

The overall crude birth rate figure of 53/1000 (.053) seems acceptable. A rural birth rate figure of 50 was obtained in an earlier demographic sample survey carried out by the Nigerian Federal Office of Statistics in 1965-1966. Recent analysis of demographic and fertility surveys suggests that fertility is presently somewhat higher in urban Nigeria than in the rural areas. It would appear that not many births escaped recording in the survey, with the possible exception as previously noted of some infants dying between survey rounds. To measure internal consistency in Lagos, a X^2 test[13] was made comparing births actually recorded with expected figures. The resulting X^2 value was 39.94, significant on a probability level of between 0.05 and 0.10. Between--area differences are thus only barely significant, and a certain amount of true between--area variation is to be expected.

The number of cases falling within one standard error from the expected figure is 17, or almost as many as would be anticipated in a

---

[13]The X^2 (chi-square) test is a very general test that can be used whenever we wish to evaluate whether or not frequencies which have been empirically obtained differ significantly from those which could be expected under a certain set of theoretical assumptions.

fully random distribution. The number deviating by more than two Standard Errors is four, while not more than two such cases would be expected to occur in a homogeneous sample. The material is thus not fully homogeneous but nearly so. The only areas in which important omissions of birth might be expected are the higher income areas in the sample and it is possible that fertility in these areas actually is lower than in the others.

The recording of deaths appears at first glance to be low. The rate for the metropolitan area being 12.4 as compared with a figure of 26.9 for the rural demographic sample. Unfortunately, there is no valid analytical test which can help us here in assessing the quality of the data. Sociological and medical factors, however, suggest that urban death rates should be much lower than rural rates. Among inmigrants to the city, elderly or chronically ill family members frequently are sent back to their villages of origin in order to receive better care from extended family members, so that one might expect a high proportion of deaths in the villages. One also must note the much more extensive medical facilities in Lagos as compared with the villages. The fact that the death rates may be approximately twice as high in rural areas as in the more advanced urban areas, in developing countries, has been borne out in a number of surveys. The difference in infant mortality between the various districts of Lagos does not seem improbable. Large differences between quarters have always been found in urban places where the mortality is high. The difference is in the direction expected, considering the much reduced medical, sanitation, and general inadequacy of environmental facilities in the suburban sectors.

Education as a Demographic Element

In discussing the socio-economic characteristics of the population in Lagos Metropolitan Area, Mabogunje based his observations on the 1952 census data. He noted that in 1952 it shows that by and large the older wards in Lagos Island had a relatively lower proportion of their population who are educated. In general there seemed to exist a correlation between low educational achievement and the religion of Islam. The immigrant wards, by contrast, showed a higher proportion of Christians and a correspondingly higher proportion of educated people.

The pattern of distribution of the educated people among the wards allows some further insight into the characteristics of the migrants into Lagos. It appears that, by and large, most of the educated people, that is, those who would aspire to the white-collar jobs tend to concentrate on Yaba in particular and to a lesser extent on Ebute-Metta.

Morgan and Kannisto in their 1967-68 survey, found that only 45 men and 4 women in a sample of over 13000 persons (i.e., one percent of the estimated metropolitan population) have attended a university. In general it was found out that the general educational level of Lagos residents is confined to the "Primary Only" and "No Schooling" categories (see Table 15).

A significantly greater proportion of men than of women have attended schools at most levels. Unfortunately, the present state of data analysis does not permit a presentation of figures for post-school

Table 15.--Educational Levels, Lagos Metro Area, May 1967.

Education	Males		Females		Sex Not Known		Total	
	No.	%	No.	%	No.	%	No.	%
No Schooling	2341	33.0	3411	55.7	8	5.3	5760	43.1
Primary Only	2957	41.7	1933	33.6	9	6.0	4899	36.7
Up to Class 3 or Modern 3	527	7.4	315	5.1	0	--	842	6.3
Class 4 - 5, Teacher Grade 3	359	5.1	111	1.8	0	--	470	3.5
Trade Center	32	0.5	8	0.1	0	--	40	0.3
School Cert., Grade 2 Teacher	295	4.2	48	0.8	2	1.4	345	2.6
Higher School, Teacher Grade 1	46	0.6	10	0.2	0	--	56	0.4
N.C.E. Training	20	0.3	7	0.1	0	--	27	0.2
University	20	0.6	4	0.1	0	--	49	0.4
Not Recorded	468	6.6	278	4.5	131	87.3	877	6.6
Total	7090	100.0	6125	100.0	150	100.0	13365	100.0

age persons only. Obviously these figures would be more meaningful than the ones given. In fact, because of the more rapid development of Nigerian education in recent decades, and the increase more recently still in female school attendants, an educational breakdown by age and sex would be most useful. Comparison of the age-sex data with the educational data would suggest that for the post-school population, the median educational levels are "Primary Only" for males and "No Schooling" for females in the Metro area. In the latter stages of this study, educational levels will be weighted in order to compute housing needs and demands for the households.

Household Data

Considerable data on household composition and size were developed by Morgan and Kannisto in their survey. Table 16 illustrates a partial presentation. Data were taken on a total of 3,550 households in the urban area with an average size of 3.8 persons. A division was made into "family" and "non-family" households, the latter comprising dwelling units, usually rented rooms, occupied by one or more persons without family relationship to each other. Normally these are young people coming to the city in search of work who have banded together to save money in view of the very high rentals charged in Lagos.

Household Size

A total of 986 households or 27.8 percent of the dwelling units in the city were of the non-family type housing a total of 1,479 persons or 11.1 percent of the city's population. The average size of family

Table 16.--Lagos Metropolitan Area, Summary of Household Data.

Classification of Household	No. of Households	No. of Persons	Mean No. Per Household
Total households	3,550	13,364	3.8
Single-person households	738	738	1.0
Other non-family households	248	741	3.0
Family households	2,564	11,885	4.6
Head by husband	1,827	9,058	5.0
Other family households	737	2,827	3.8

Table 17.--Distribution of Persons by Household Size.

Size of Household	Persons in Households of Indicated Size (Lagos)	% Distribution (Lagos)
1	738	5.5
2	1,306	9.8
3	1,698	12.7
4	1,996	15.0
5	1,725	12.9
6	1,614	12.1
7	1,085	8.1
8	968	7.2
9	630	4.7
10 and over	1,604	12.0
Total	13,364	100.0

households was 4.6 persons, with 9,058 of these households or 76.3 percent headed by a husband, the remainder being headed in most cases by a wife in a polygamous marriage who was living away from her husband, or a wife who was widowed or separated. Family households for this survey were defined as groups of persons related by birth, marriage or adoption, living under the same roof or in the same compound, and eating out of the same pot or set of cooking utensils.

The above data could be compared with the Household Population figure gathered by the Human Resources Unit, University of Lagos in 1966 and 1972. A total of 2,515 households were covered with a population of 19,709. This gives an average household size of 7.8 persons. It is considerably higher than the 5.5 persons recorded in the 1966 survey, and thus strengthens the view of a serious worsening in the housing situation in Lagos. The figures obtained were much higher than that of Morgan and Kannisto, illustrating further the disparity in sample surveys as to which to take as reliable. However, from field observations, the author believes that the figure 7.8 is much on the high side while 3.8 is quite low even for 1968. Therefore for all practical purposes, a figure of 5.5 persons per household seems justified.

There are, as in other respects already considered, wide inter-district differences. Lagos Island has the highest density of household population with an average of 10.8 persons per household, while Victoria Island has the lowest with 4.8. The table that follows shows the household population density in selected districts for the two survey periods 1966 and 1972 referred to above (Table 18). It suggests that for Lagos as a whole household density increased by nearly 45

Table 18.--Household Population Density in Selected Lagos Districts 1966 and 1972.

District	Average Household 1966	Population 1972	Change % 1966-72
Victoria Island	--	4.8	--
Ikoyi	9.0	6.1	-32.23
Obalende	5.5	8.7	-58.19
Lagos Island	5.4	10.8	100.
Ebute-Metta	5.03	7.4	46.
Yaba	5.03	7.2	46.
Apapa	7.0	5.6	-20.
Ajegunle	7.0	5.8	-20.
Surulere	5.83	7.8	34.49
Mushin/Idioro	5.0	8.0	60.0
Ikeja	3.8	5.4	42.11
All Districts	5.4	7.8	44.45

percent in the six year interval. On Lagos Island it has doubled. Only in Ikoyi and Apapa areas is there some evidence of decline. The most objective comparison of the household population situation between districts can however, be made in terms of population per room, and by the relative quality of the accommodation occupied. This will be discussed further in the section on overcrowding. (In the following chapters there will be a detailed discussion on household projections and methods employed in doing this.)

Useful comparisons could be made about household growth and other characteristics.

The UN in 1961 reported the result of a sample survey of housing in the city of Lagos concerning density of occupation and tenure. According to this survey, there were a total of 92,900 households in 1961 with an average of 3.0 persons per room. Of these, 940 (1.0 %) had less than 1.0 persons per room, 14,920 (16.1%) with less than 1.5, 77,530 (83.9%) with 1.5 or more, 56,600 (61.2%) with 2.0 or more, while 38,150 (41.3%) had 3.0 or more persons per room. The reliability of these data are questionable.

The tenure of households was made up as follows: Owner-occupied 7,450 (8.0%); renters 75,200 (80.9%); others 10,250 (11.0%).

The above figures don't have much veracity but they seem to be pointing out that some significant developments have been affecting the number and formation of households in Lagos. People seem to be marrying earlier; there has been rising standards of living and rise in income. In six years (1966-72) the number of households seem to have grown by 45 percent or an annual growth of seven percent.

If we compare the above picture with conditions in Greater London, we are bound to see a lot of differences. In Greater London as a whole, just over one household in twenty (5.6%) had six or more persons in 1961. But more than one dwelling in every four (25.5%) had six or more rooms. While 14 percent of all households had five or more persons, 56 percent of all dwellings had five or more rooms. For Greater London the number of households grew slightly from 2,630,946 in 1951 to 2,674,356 housed in 2,151,919 and 2,426,985 dwellings for the respective years. This gave only a 43,410 change

in the number of households in ten years. Between 1950 and 1956, households in the City of Chicago increased by a comparable 45,000. But between 1940 and 1950 an increase of 138,000 households occurred. So while in other places the number of households seem to be decreasing in growth rates, Lagos has been experiencing a high increase.

Household Income Distribution and Unemployment Characteristics

The principal consuming unit in the Lagos Metropolitan Area is the household. Income changes since the last decade, therefore assume maximum significance when related to this fundamental buying unit. Since the implementation of the recommendations of Wages and Salaries Review Commissions in the early 1970's, there is no doubt that household incomes have recorded sharp gains. There are no tabulated data on household income distribution: no one knows how many households are in the various income brackets. Furthermore, the picture is complicated by the fact that there are too many self-employeds in Lagos especially housewives who trade with modest capitals. For avoiding taxation they usually do not report their income and thus it becomes difficult to categorize families according to income levels.

However, from field observations and random interviews some estimation could be made, pending the outcome of research efforts being directed into these questions. It appears that by 1960, only one out of ten households in the Lagos Metropolitan Area had an annual income of £720 or more. By 1975 nearly three out of every ten

households had incomes of ₦1440 or more per annum (i.e. Level 05 and up). This increase has been due mainly to the substantial salary increases for most grades of workers in the public service ranging in most cases from 8 percent to more than 100 percent recommended by the Udoji Commission and implemented by the government.

The Lagos Metropolitan Area had a total of 342,091 households in 1975 (calculated by author) and is projected to be over 506,000 by 1985. This represents an increase of over 91,000 households or nearly 27 percent in the last decade. However the number of households earning less than ₦1,000 dropped considerably. The number of households earning between ₦1,440 and ₦3,264 was nearly eight times greater than that in 1960. While the number of households in higher income ranges recorded sharp gains during the last decade, the lower income ranges seems to have decreased. What will all these trends mean to housing demand in the Lagos area? There will be, as later explained, more and more people entering the housing market and willing to pay any price resulting in unprecedented rise in rents, and other costs of accommodation.

Another element of the population in Lagos is the unemployment ratio. As usual there are no definite data on this. But in a recent survey it was found out that of the unemployed males interviewed, about 24 percent are married and 75 percent have never been married. The corresponding figures for females are about 23 percent and 76 percent respectively. The high figure for unmarried females does not raise any eye-brows in a place like Lagos; many young men will be most willing

to house them as concubines. However, all told, the above trend will aggravate overcrowding, sharing of facilities and increase room densities substantially.

The picture above shows that about .75 of the unemployed people in Lagos have never been married. Of those that have never been married, about 97 percent have no children. Of those that are married, about 89 percent have children and 30 percent have more than two children. The condition of the unemployed married people is made worse by their having to support not only themselves, but also their wives and their children. Even if their wives and children are not with them in Lagos, the unemployed migrants would be expected to remit money to the family in their home villages.

People who have no jobs still have to satisfy their basic needs--food, clothing and shelter. In most developed countries, there are social security and unemployment benefits provided by the Government for unemployed people. In some places, trade unions and voluntary organizations provide funds to be used to cater for unemployed and aged people in the society. In Nigeria, the Government has no social security programs and does not pay unemployment reliefs. The society, however, still manages to cater for the needs of the unemployed. The "traditional social security system" which performs the roles government should undertake is the extended family system. Under this system, any member of a family who is in difficulty is expected by custom to be maintained by the other members of the family--particularly those that are well-off. Children are expected to cater for their parents

as soon as the children start working. Having children is thus a kind of social insurance.

In Table 19 that follows, it shows that the relatives of the unemployed workers provide shelter for about 40 percent, food for about 36 percent and clothing for about 26 percent for the unemployed person. Parents provide housing accommodation for 26 percent, food for 26 percent and clothing for about 28 percent of the unemployed people in Lagos. Thus the extended family system provide housing for 66 percent and clothing for 54 percent of the unemployed people in Lagos. When the help of friends is included, the figures rise to 77 percent for shelter, 69 percent for food and 58 percent for clothing. In contrast, to the dependence of unemployed people on the extended family system, the nuclear family i.e. the unemployed person, his/her spouse provide housing for 21 percent, food for 30 percent and clothing for about 37 percent of the unemployed people.

According to the survey referred above, the unemployed people in Lagos live mostly in the Mushin/Idioro, Lagos Island, Yaba and Ebute-Metta districts. These four regions respectively accommodate 23 percent, 14 percent, 12 percent, and 10 percent of the unemployed people in Lagos. These are the old sections of the city. Most of the unemployed people who live in Yaba, Ebute-Metta and probably all of those who live in Mushin/Idioro are from States other than Lagos. This is probably more true of Igbobi/Shomolu/Baniga district, Surulere/ Ijora/Iganmu district and Ajegunle district which each accommodates between 6 percent and 8 percent of the unemployed people of Lagos.

Table 19.--Unemployed by Source of Social Maintenance.

Source of Maintenance	Accommodation		Food		Clothing and Other Expenses	
	No.	%	No.	%	No.	%
Self	220	14.86	333	22.50	469	31.69
Wife & Husband	91	6.14	109	7.36	87	5.88
Parent/Parents	386	26.08	338	26.22	408	27.57
Friends	166	11.21	112	7.57	68	4.59
Relatives	585	39.52	528	35.68	390	26.35
Other Persons or Sources	13	0.87	8	0.54	2	0.14
Not Fixed/ Nobody	19	1.28	2	0.54	56	3.78
All Unemployed	1480	100.00	1480	100.00	1480	100.00

In the new district of Victoria Island, Ikoyi, Oshodi, Palmgrove/ Ilupeju and Ikeja, there are very few unemployed people. These are either industrial centers or they are residential areas for the top executives in business and industries and senior government officials. The percentage of the unemployed people in Lagos who live in these areas are usually below 5 percent, mostly less than two percent. Of the unemployed people interviewed, about a third have lived in Lagos for less than two years, almost half have lived in Lagos for four years or less and more than a quarter have lived in Lagos for more than ten years. Eighty percent of those who have spent four years or less are between the ages of 15 and 34.

The unemployed people do not change their place of abode frequently. About 84 percent of all the unemployed people have never changed their residence and 9 percent have changed residence once. As pointed out above, two thirds of the unemployed are housed through the social maintenance system. They live with their relatives and pay no rent. There is therefore little compelling force for them to quit their places of abode. Of those who changed residence, only a small proportion, 1.6 percent did so because of disagreement with their host; 4.3 percent changed accommodation because of inadequate space with their hosts. But as soon as the unemployed find jobs, the tendency is for them to enter the housing market and this has a definite impact on the demand processes. Unfortunately, it is not possible at this stage to make meaningful guess about the percentage of unemployment in Lagos Metropolitan Area. The only source from which such a data would be computed is the Labor Office, but only just a handful of unemployed report here. It is evident that unemployment rate in Lagos will be about 30 percent.

Migration Trends

As noted previously on page 42, one of the important components that determine the need for residential housing is migratory movements. In most cases one has to determine the number of dwellings needed to meet demand and needs created by immigration. There is no city in Black Africa where the significance of this is greater than it is in Lagos. In this section therefore, the migratory trends in the Lagos Metropolitan Area will be examined as they relate to housing.

First we could look briefly at the national picture vis-a-vis Lagos. Prior to the Second World War, Nigeria's population was growing at a rate of approximately 1.8 percent yearly. The major population movements were rural-to-rural and much migration was seasonal and temporary. In 1952, the largest town was Ibadan (460,206 persons) having an annual population growth rate of 2.1 percent. The second largest town was Lagos, followed by Kano. Like Ibadan, Kano owed its expansion to natural increase in population rather than to any tangible degree of rural-to-urban migration.

The only evidence of an imminent "take-off" into urbanization appeared in Lagos. Here, by contrast, its 1952 census revealed a sudden upsurge in population growth attributable more to in-migration than natural increase. Between 1952 and 1963, Lagos headed what may be described as no less than an urban revolution. The revolution was accompanied by an unprecedented rise in the overall rate of increase in the country's population from 1.8 percent to what several authorities estimate to be 2.8 percent annually. In the next pages, we shall see how this trend operated in the Lagos Metropolitan Area. Two preliminary surveys will be used to examine this trend.

One of the most outstanding features of rapid urbanization in Lagos is housing and sanitation problems both of which are closely related to the massive flow of population into the city. This migration has, during recent years, particularly after the end of the civil war in 1970 assumed alarming dimensions, such that complaints are now often heard about its adverse effect on the city. It is said,

for example, that the movement has resulted in overstretching of the available utilities. For this reason, the Human Resources Unit of the University of Lagos made a survey in 1972 and some of the essential findings are reported here.

The population of Lagos, as that of capital cities in many developing countries is very mixed. This characteristic feature of the population is not a recent phenomenon as shown in Table 20 that follows. The table reveals a phenomenal rise in the proportion of immigrants in Lagos between 1911 and 1963.

Table 20.--Immigrants in Lagos, 1900-1963.

Year	Number	% of Total Population	% Increase of Migrants	% Increase of Total Population
1911	15,144	20.53	--	76.3
1921	24,261	24.34	60.20	35.1
1931	25,361	20.11	4.53	26.5
1950	67,040	29.12	164.34	82.6
1952	71,433	26.71	6.55	16.13
1963	199,686	30.02	179.54	148.78

In 1911, the city had only 15,144 immigrants. By 1963 the figure had risen to 199,686. The major influx of migrants to Lagos occurred in 1921, 1950, and 1963. These periods coincided with political, social and economic changes which took place in the country and rebound on the development of Lagos.

In their survey, Morgan and Kannisto, also referred to the astonishing degree of migration into Lagos, with approximately 45 percent of the persons in any given sample area moving out and being replaced by newcomers during a 12 month period. Their figures point out the astonishing degree of horizontal mobility in the city. The migration pattern was more extreme in the former Western Region areas, with about 55.7 percent moving out of the 12 areas during the year and 52.6 percent newcomers moving in. The situation was of course affected by the departure of Eastern Nigerians in 1966. Nevertheless, even in the most stable and long-settled Yoruba areas of the city more than one-quarter of the population was migrant in the 12 month period. Judging from the Koenigsberger report, together with this survey data, one would say that the Lagos Metropolitan Area was experiencing during the pre-crisis period an annual growth rate of about 14 percent. Out of this figure, four percent was due to an excess of births over deaths, and the added 10 percent due to an excess of in-migrants over out-migrants.

The above discussion does not tell the whole story. The state of origin of the migrants is another important element because it determines in what part of Lagos these migrants will reside, how easy it will be for them to get housing etc. By 1972, all the twelve states were represented in the city. The degree of representation, however, varies not only on regional but also on state levels. There are sharp regional differences between the north and the south. Of the two, the south stands out as the most highly represented having 89.19 percent of the population.

The differences among the states are even greater. The largest group of migrants in Lagos are people of Western Nigerian origin. They account for over half of the people in Lagos. The next important contributor of migrants to the city is Lagos State. They represent 13.67 percent of the population. It is difficult to ascertain what proportion of this group are Lagos-City-born and what proportion come from other parts of Lagos State. What is obvious, however, is that since the creation of the state, the number of people outside the city who have claim to be born inside the city has increased.

Table 21.--The Effect of Distance Between Lagos and State Capitals.

Distance from Lagos:	Miles	Kilo-meters	Distribution of Migrants (Sample)	Percentage
Lagos	--	--	344	14.3
Ibadan	89	149	1368	57.0
Ilorin	193	302	126	5.2
Benin	209	336	255	10.6
Enugu	363	756	160	6.7
Port Harcourt	427	859	40	1.6
Sokoto	532	999	3	0.1
Kaduna	553	932	6	0.3
Calabar	637	935	77	3.2
Jos	674	1186	6	0.3
Kano	701	1175	6	0.3
Maiduguri	1043	1775	9	0.4

Table 22.--Heads of Households by Home State and Length of Continuous Residence in Lagos.

Home State	Less Than 2 years No.	2-4 No.	4-6 No.	6-8 No.	8-10 No.	10-12 No.	12-14 No.	14 & Over No.	Others No.	Total No.
Benue-Plateau	--	--	3	1	1	--	1	--	--	6
East Central	45	44	7	8	8	4	8	34	2	160
Kano	--	1	2	1	--	--	--	2	--	6
Kwara	7	11	11	10	8	12	8	49	10	126
Lagos	4	8	12	13	4	15	12	227	49	344
Mid-West	9	23	34	40	30	22	16	75	6	255
North Central	1	--	2	--	--	2	1	--	--	6
North Eastern	1	4	2	--	--	1	--	1	--	9
North Western	--	--	--	--	--	1	--	2	--	3
Rivers	2	8	4	5	5	3	5	7	1	40
South Eastern	1	11	10	6	5	6	8	30	--	77
Western	28	105	148	177	145	142	104	478	41	1,368
Non-Nigerian	22	27	21	12	3	2	--	25	4	116
All States	120	242	256	273	209	210	163	930	113	2,516

Of the remaining four states in the south, Mid-West and East Central are the most significant contributors. The former had 10.4 and the latter 6.36 percent of the population. Formerly, the people of East Central State origin tended to be found in the larger number in Lagos than those of the Mid-Western State origin. However, this has now changed. Although people of the East-Central State origin account for only 6.36 percent of the population of Lagos in 1972, this figure is spectacular considering the mass emigration out of Lagos during the Nigerian crisis.

Among the northern states, Kwara provided the bulk of the immigrants, accounting for 5.01 percent, while North-West is the most poorly represented with 0.12 percent of the population. This pattern of immigration to Lagos is accounted for partly by the level of education of the migrants, partly by the opportunities in each state as compared with Lagos and the way in which the people percieve them and partly by the distance between Lagos and the origin of the migrants. Table 21, for example, shows that distance from Lagos has a clear effect on the number of migrants coming to Lagos from various parts of the country. As distance increases, the number of migrants falls sharply.

It would appear that distance also influences the length of stay of migrants in Lagos. The number of migrants who have spent a long time over 14 years in Lagos decreased with the increasing distance from the city. The table on this further shows that over one-third of the surveyed migrants have spent over 14 years in Lagos while a further

15 percent have spent over 10 years in the city. Nearly four-fifths of those people who have spent over 14 years in Lagos are from the Western and Lagos States. Another striking feature of the table is the large number of migrants of East-Central State origin who have spent under two years and between two and four years in Lagos. About 28 percent of them have not lived up to two years in Lagos while 27.5 percent were in Lagos within the last two to four years. These figures clearly reflect the mass movement of people to Lagos during and after the civil war.

The great majority of these new migrants are young, most of them being in their early twenties. About 40 percent of the people within the age group of 20-25 have been in Lagos continuously for less than two years. Among the 25-30 age group, the proportion of people who have not been out of Lagos for the past 4 years is about 30 percent. The corresponding proportion among the 30-35 and 35-40 age groups is 15 percent each. When one turns to the adults, that is, people over 40, however, the pattern is different. Fewer people within this category have just spent four years or less in Lagos whereas a large number have been in Lagos continuously for several years. Among the older adults, two-thirds have spent more than 14 years in Lagos. Nearly half of the younger adults have been in Lagos for over fourteen consecutive years.

The pattern thus shows that the older the age, the longer the migrants stay in Lagos. The implication of this pattern is that migrants are gradually building a permanent population in Lagos. For

even if the heads of households do not wish to see their lives out in Lagos, many of them have all or most of their children born and reared in the city. This trend will evidently affect the housing tenure system and influence the programs envisaged.

Main Residential Locations of Migrants

Immigrants from all the southern and Kwara states are to be found in nearly all the districts of Lagos while those from the northern states are restricted to a few localities. The confinement to a few neighborhoods, reflect primarily, once again, the small extent of immigration generally from the northern states. The few northerners in Lagos are concentrated in four major areas, namely, Ajegunle (26.67 percent), Agege (20 percent), the high grade residential areas of Apapa and Victoria Island (33.33 percent), and also Yaba, Obalende and Lagos Island.

By far, the overwhelming majority of immigrants in Lagos are Yoruba, from the three Yoruba-dominated states, Western, Lagos and Kwara. Kwara State accounts for the lowest proportion of the Yoruba immigrants and Western State the highest. The westerners account for over half of the population of six districts, namely, Igbobi (76.30 percent), Mushin (74.26 percent), Agege (68.91 percent), Yaba (61.44 percent), Ebute-Metta (52.60 percent) and Oshobi (52.36 percent). In other five neighborhoods they constitute the largest single group. These neighborhoods are Palmgrove (47.06 percent), Surulere (44.16 percent), Lagos Island (44.09 percent), Obalende (30.30 percent) and Ajengule (25.75 percent).

Next to westerners, people of Lagos State origin are strongly represented on the Island, in Obalende and Surulere where they form 39.09, 24.24, and 12.44 percent respectively of the population of the districts. Like their counterparts from the West, the settlement of early immigrants is of great significance in explaining the concentration of these people on the Island.

The rest of the population of Lagos is made up of Nigerians inhabiting areas east of Western State and also non-Nigerians. Of the Nigerian elements, the position of the people of the Mid-West and East Central States is striking. Together with the people of Rivers and Southeastern States they constitute 53.46 percent of the population of Ajegunle, a low income residential area for factory workers at Apapa. Apapa also provides opportunities for those of them who prefer to work as domestic servants. This fact explains why the eastern group make up 38.10 percent of the residents of this high grade residential area. In three similar high grade districts, namely, Ikoyi, Victoria Island and Surulere their distribution follows the same pattern. They account for 38.45, 32.70, and 32.67 percent of the population of Ikoyi, Victoria Island and Surulere respectively. The three districts exhibit contrasts in the proportion of ethnic groups. Except for Surulere, people of East-Central State origin are dominant in these districts. They account for 33.33 and 11.54 percent of the population of Victoria Island and Ikoyi respectively. On the other hand, Midwesterners are far more numerous in Mushin, Yaba, Ebute-Metta, Surulere, Igbobi and Oshodi. In each of these district, they form, next to Westerners, the second largest single group.

The distribution of non-Nigerians, many of whom are members of the diplomatic corps, executives in commerce and industry, is reminiscent of the colonial days when special reservations were created for them. Thus, although fewer in number than the Nigerian immigrants, the non-Nigerians outnumber all other Nigerians in the relatively new reservations and estates. In these places they constitute the following proportions of the population: Ikeja (72 percent), Victoria Island (50 percent), Palmgrove (47.06 percent), and Apapa (25 percent). In the older reservations of Ikoyi, the proportion of non-Nigerians are now relatively small. They account for 12.82 percent of the population of Lagos Island.

Conclusion

As noted in the evidence presented in this chapter there are serious gaps in the basic demographic data in Lagos and for Nigeria at large. It is necessary to emphasize that there is also a major question of the reliability of the data which are available. Improvement in standards must go hand in hand with refinement and the extension of the scope of demographic estimates in the country.

Most of the population estimates for Lagos reported here vary widely, sometime more than one hundred percent differences exist. For the purpose of this study it has been very difficult to reconcile the estimates. The author has therefore relied more on the estimates by Morgan and Kannisto, supplemented by those of the Human Resources Unit of the University of Lagos. In the absence of a successful census enumeration a collaborative effort whould be initiated by

organizations and individuals who must work with numbers so as to arrive at agreeable estimates.

For housing, more refined methods of estimating the future number of households should take into account the composition of population by age, sex, marital status, relationship to head of households, etc., including the use of headship rates as is attempted here. In estimating present and future needs and demands for housing units, it is necessary to have some knowledge of the rates of formation and dissolution of households--something like life-cycle of families.

In this chapter, an estimation of total population in the LMA, has been carved out, and its characteristics as to growth rate, age, sex, and education has been analyzed. The household data have been presented: size, income distribution and growth rate. The same treatment was given to the effects of migration and their characteristics in the LMA. All these estimations were conducted bearing in mind that both public awareness of and action programs are shaped by statistical information; therefore, it is essential that such inventories are conceptually adequate and empirically accurate. Their compilation demands greater judgment than what typical census enumerators or even real estate experts can consistently apply.

Recognition of the importance of making an inventory of the housing stock and relating it to population which occupies the available housing is fairly new in Nigeria. There is now a growing realization of the necessity of such stock-taking as a step towards assessing present levels of housing conditions. In the next chapter, a comprehensive analysis of current housing statistics is presented.

CHAPTER II

STATUS OF PRESENT HOUSING AND INFRASTRUCTURE SITUATIONS IN THE LAGOS METROPOLITAN AREA

The terminal objective of this dissertation, to formulate workable, practicable housing policies for the LMA, must emanate from estimates of current and future housing requirements. In turn, the basis for determining housing requirements for any unit of human settlement must consist of knowledge of what are the current quantitative and qualitative dimensions of housing and the related infrastructure.

This chapter provides this initial basis whereby the essential characteristics (so far as determinable data permit) of the housing stock are tabulated and analyzed. Included in this analysis are the crucial dimensions and characteristics of the related infrastructure, those major components of community structure the relative adequacy of which influences--even controls--the level of quality and livability of the neighborhood environment and of the house structure itself. Although not universally recognized as an element of housing, this infrastructure provides an integral part of any residential area and significantly complements the provision of mere shelter.

Housing Inventory and Characteristics

The housing inventory encompasses the number of existing housing units, their quality and location, as well as aspects of occupancy and

tenure. When the housing inventory, or housing stock, is compared with the actual shelter requirements in a city, say the LMA, it provides an indication of the housing deficit or surplus. Housing production output directly affects the housing inventory and the size of the deficit or surplus. In turn, the housing deficit or surplus, representing the difference between the existing number of housing units and the need to shelter the population adequately, has a direct bearing on the size of the housing production.

Since housing surplus is almost non-existent in most countries of the world, the other major elements--housing inventory, deficit and supply--are affected by, and directly affect, other elements pertaining to housing, such as housing policy and financing, the building materials industry, community services and policies of land use control and physical planning. The evaluation of the housing requirements in Lagos, and the establishment of a practicable basis for the formulation of realistic policies regarding the elements preceding require a sound knowledge of the current housing situation and the many factors affecting it. The methods to be used in estimating present and future housing needs and demands (depend to a large extent) on the actual housing situation in that geographic unit.

In most developed countries and in some developing ones, housing inventories are conducted as part of the population censuses. Comparisons between intercensal results in such countries yield more or less accurate information on housing trends and other statistics. In Nigeria there has been no housing census ever conducted. However,

from time to time, ad hoc housing surveys are carried out by research agencies or the Nigeria Office of Statistics. Such surveys are always limited in their coverage and reliability. For this study, it was not possible due to time, cost and other constraints to conduct independent housing inventory for Lagos. To fill the gap, the surveys made by the Lagos State Development and Property Corporation (L.S.D.P.C.) and the Human Resources Unit of the University of Lagos will be relied upon in summarizing housing inventory in the L.M.A. Though the data were drawn from different sources and surveys, these will be supplemented by the author's field observations and will be presented here to portray as accurate a picture as is possible.

On the basis of this type of analysis, it will be possible to assess housing needs and demands and formulate effective long-term programs. At the end of this chapter, there will be a proposed schedule for conducting housing inventories and/or surveys in Lagos. The current characteristics of residential structures are discussed under the following headings.

Types and Number of Dwelling Structures

According to the L.S.D.P.C., there has not been a reliable study of the types of buildings in the L.M.A.[13] But from field research, the author found that most structures are single-story types in bungalow or terrace form. (A bungalow is a one-storied dwelling structure with

---

[13]Lagos Executive Development Board, Preliminary Sketch Master Plan, Lagos Metropolitan Area, 1965-1985, p. 74.

low sweeping lines and a wide verandah.) Except in two wards of the City of Lagos most structures are built with concrete blocks.

A housing survey conducted by the L.E.D.B.[14] in 1967, put the total number of buildings in the Municipality at 27,202. Of this number, 19,359 or 71.2 percent were for residential purpose. In 1969, a similar study was conducted in the rest of the metropolitan area (that is, excluding the City of Lagos). From this study, it was found that there were about 37,000 buildings and an additional 2,383 were still under construction. The 1969 survey did not give an exact number of buildings used for residential purpose; but it gave an estimate of 93 percent or 37,000 buildings as being residential. From both studies, the residential housing stock in the L.M.A. is about 56,360.

The above account could be regarded as a fairly accurate estimate of the housing stock at that particular time. However, one has to realize that in a place like Lagos it is very difficult to keep track of total available housing stock. Registration of property is very irregular and the scanty and existing air photos of the city and its environs are quite out-of-date. Moreover, people erect and rent buildings sometimes without official approvals or permits.

For the purpose of this analysis of the housing stock, the writer has chosen to work with the number of 56,360 dwelling structures bearing in mind the above factors that make an accurate inventory almost impossible. All the structures contain two or more dwelling units.

---

[14]The L.E.D.B. is a precusor of the L.S.D.P.C.

With all the best information at the author's disposal, the figure of 82 percent checks out to be a reliable estimate of what percentage of the total buildings (residential, industrial, etc.) in the entire L.M.A. are residential structures.

Classification of Residential Structures--
Physical Conditions

Apart from counting the number of existing residential structures, the two studies (1967 and 1969) attempted to classify all buildings into three categories: good, fair and bad. It seemed that the only criteria for this classification was the external appearance of the building. No account was taken of such basic facilities as interior running water, water closet, bathing or cooking facilities. These would be normally taken note of in passing such a judgment. Although both surveys were carried out by trained staff equipped with photographs of each category, a great deal of subjective evaluation cannot be ruled out in a study of this nature. The very words good, fair and bad have unavoidable subjective, value judgment inferences.

However, in the absence of a better study, this discussion provides a guideline in determining which structures could still be of use even if some conversion or repairs have to be carried out. It also indicates a rough estimate of dwelling structures that cannot be counted upon in making future plans. This statement does not rule out the fact that further research is necessary in the form of conducting a complete inventory of the existing stock of housing. While it is possible to state reliably derived percentages of residential buildings

in the Municipality that could be considered good, fair and bad, only estimates can be given for each category in the entire Metropolitan area (see Figure 8).

Summary of Physical Conditions of Residential Structures

	Lagos Municipality (%)	Entire Metro Area (%)
Good	42.3	20.0
Fair	17.4	25.0
Bad	40.3	55.0
Total	100.0	100.0

Types and Sizes of Dwelling Units

One of the most important aspects of housing is a consideration of the type and sizes of dwelling units. It is not enough to know that people are given shelter from the natural elements and danger, it is necessary to know in what way they are sheltered. With regard to types of dwelling units, there are three categories in the L.M.A.

A Self-Contained Whole House.--This is often detached and occupied by one household whose members are usually from one family. Such a household would comprise a group of persons: the father, mother (or mothers) and their children living with them. Because of the prevalence of the extended family system in Nigeria, other relations, lodgers and even servants may occupy this type of dwelling unit with the above household under a common head and keeping house from a common purse. This type of dwelling unit would approximate the American or western single-family detached unit except in tolerable occupany standards and relationship of occupants. A self-contained

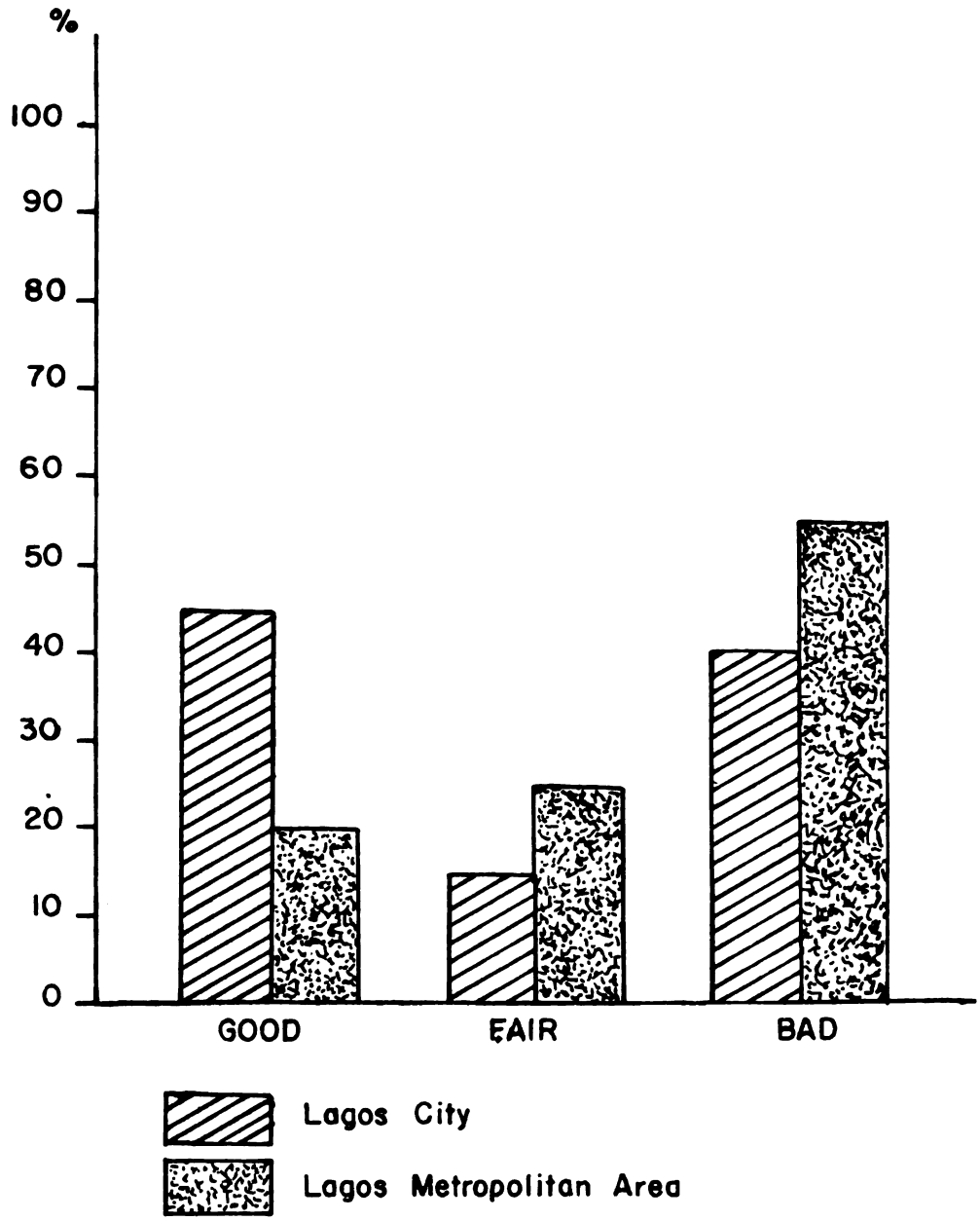


Figure 8 : Physical Conditions of Buildings

house or unit in Nigeria would be one having reasonable facilities more or less exclusive to one household.

Flat or Apartment Type.--A self-contained dwelling unit in a structure where there are more than one such unit, all having common grounds. All the rooms in a flat or apartment are on one floor. An apartment is usually occupied by one household. But in cases of extreme housing shortage, it may be shared by single-persons or small households--this is the process of sub-letting rampant in Lagos.

Rooming Type.--This is a dwelling unit with one or more rooms occupied by one household sharing facilities with other households. One household also shares in the common use of the front and connecting passages.

A study carried out in Lagos City by the L.E.D.B. in 1964, covering a sample of 1,566 households, showed a preponderance of rooming type of dwelling units in each of the four districts covered. These districts were: Lagos Island, Ebute-Metta, Yaba and Surulere. Of all the households studied, 19.5 percent lived in house types, 7.3 percent in flats and 73.2 percent in rooming types. In most recent years, the percentage of households living in flats has risen to about 10 percent as a reaction to the rent control measures which favored landlords if they let out their houses in flats. Yet the rooming type predominates.

The percentages of households in each type for each area surveyed is given below:

	House Type (Single-Family)	Flat or Apartment	Rooming Type	Total
Lagos Island	3.9	0.2	95.9	100
Ebute-Metta	4.8	4.8	90.4	100
Yaba	3.0	9.6	87.4	100
Surulere	38.1	12.0	49.9	100
All Areas	19.5	7.3	73.2	100

An important point to note in this study is that of the total number of households living in rooming type of dwelling units, as many as 75.4 percent, live, eat and sleep in just one room, no matter the size of the household. Of the total number of households in single-family houses for all areas studied, Surulere has the largest proportion (88.6 percent) largely as a result of the housing activity of the L.E.D.B. It has the lowest percentage of households living in rooming type because it is a relatively newer development area than any of the other three districts. Most of the residential structures are built in flats for economic management reasons. Yaba was developed in the 1930's partly by the government and partly by private capital to attract population from the congested Lagos Island. Most of the houses in Yaba as well as in most parts of the L.M.A. are of the so-called "Brazilian" type which is distinguished by a corridor into which all rooms open.

Ajegunle is the only area outside the Municipality in which any detailed study has been carried out recently. While the data from this district is not yet available in a processed form, some useful information on present housing condition has been obtained. For instance, it has been found that 4.1 percent of all households

surveyed lived in house types, 2.5 percent in flats, and 94.4 percent in rooming type.

This district is one of the unplanned new settlements that developed in the L.M.A. in recent years to cope with the influx of population from the provinces of Nigeria. Conditions in Ajegunle, could safely be taken as representative of those in areas like Shomolu, Bariga, Mushin, Oshodi, and Agege. Somewhat different conditions may be expected in Ikeja where the activities of the Western Housing Corporation (W.H.C.) and the Ikeja Area Planning Authority (I.A.P.A.) did change the pattern of housing slightly. But in parts of Ikeja outside the G.R.A. and Housing Estates conditions have continued to be even worse than those of Shomolu or Oshodi.

Age of Houses

The age of housing units is significant only as it is related to other characteristics of the housing supply, especially the quality of the units. The age of an existing house may be a rough index of its condition; but age alone will not measure the adequacy of the dwelling or its structural soundness. Even for houses of identical age and construction, the usual life spans of the structures may vary widely, because careful maintenance would materially extend the period of usefulness. Age also can suggest the degree of monitoring which should be carried on--whereas the older units can understandably be expected, on the average, to deteriorate sooner than younger ones.

Within a community, a classification of houses by age is useful for correlation with other characteristics of the housing supply.

Generally for the community as a whole, a basis is provided for evaluating the need and prospect for rehabilitation, as against the need for outright replacement, when age is analyzed carefully. Another positive aspect of the age factor is that it is more likely to exert a direct, independent, market influence through design. Some dwellings, because of inappropriateness to modern living will fall low in consumer preference.

In developing countries, houses become quickly deteriorated because of the dynamic nature of the society. Houses wear out more rapidly because of the high density of usage and impermanency of materials used in construction. During the early colonial times in Nigeria, the building standards were low because of the need to accommodate local traditions and low level of income. Up till 1958, the suburban districts of Lagos were without a town Planning Authority or a building ordinance.

Most of the housing built 20 years ago in those suburban districts were therefore not guided by any building specifications. Thus, the larger the proportion of buildings twenty or more years old, the greater would be the incidence of obsolesence. In estimating housing needs, the age analysis will help to calculate replacement need factor. A comparison of annual housing starts in Lagos will show that it has <u>not</u> performed very well in keeping up with increased demand or population growth.

This gap between housing supply and population increase makes the consideration of replacement based on the age of houses an important

one. According to the Human Resources Unit of the University of Lagos, only 22.5 percent of the current stock of houses were built over the past ten years as compared with an annual population increase of 13.6 percent. The correlation here may be surprisingly high, but other evidence (by the Health Department) shows it may be conservative.

Building Components

One of the most important characteristics of the supply of housing in the total market is the quality of the housing. Obviously of primary concern is poor-quality housing; another concern is to keep good housing from deteriorating prematurely. In the U.S. for example, the combination of data on presence or absence of plumbing facilities and their condition is considered one measure of housing quality. It takes account of the physical characteristics of the housing unit--the structural condition and the presence of basic plumbing facilities (water supply, toilet facilities and bathing facilities). Recently other factors as light, ventilation, heating, and general neighborhood characteristics have been used increasingly to reflect housing quality.

In a developing country like Nigeria, plumbing facilities are not widely provided in houses. The quality of houses in Lagos for example are based mostly on external characteristics of the walls, roofs, doors and windows. Some internal characteristics are at times taken into account especially when there is opportunity for prospective tenants to exercise preference. In this section, there is a discussion on the characteristics of the building components mentioned above in order to determine houses that are sound, deteriorating or dilapidated.

The quality of houses reflect level of economic, social and technological attainment of people in a particular place. The materials of construction for walls, roofs, windows, floors etc. will demonstrate the housing standards in Lagos, as well as what materials can be locally available.

Walls.--The location of Lagos on a sandy coastal area where neither stone nor clay was found meant that early building materials consisted of raffia and bamboo. The houses built with these materials are now few and limited to those parts of the City where economic and social conditions are still poor. Of the 60 such houses in the L.M.A., about half are found among the oldest settled communities. Seventeen are located at Oko-Baba areas of Ebute-Metta. There are three of these houses in each of Mushin and Agege. The rest are in the remains of the old villages engulfed by the metropolitan explosion of Lagos.

Mud, a slightly better material, was introduced quite early in the history of Lagos. Today, less than two percent of the houses in the city are built of mud. Most of these are found in Bariga, Oko-Baba area of Ebute-Metta, Iwaya area of Yaba, Isale-Eko area of Lagos Island, Mushin and Agege.

Side by side with these poorer dwellings are houses built of bricks and plastered with stucco finish. Over a quarter of all houses in the L.M.A. have walls built in this fashion. They are found in large numbers in Lagos Island and Agege. In the rest of the metropolitan area, between 15-33 percent of the houses are built of bricks.

Recent development in technology and economic conditions has tended to introduce more solid, durable and better quality building materials, namely, concrete blocks. The proportion of houses built with such materials is highest in Victoria Island and Ikeja where they make up 100 percent of the houses. The proportion is lowest in Lagos Island and Agege where the houses form 29.09 and 40.30 percent of the buildings respectively. In between these extremes are Ikoyi, Apapa, Surulere and Palmgrove/Ilupeju where the proportion is over 90 percent and Obalende, Ebute-Metta, Igbobi, Mushin and Oshodi where it varies between 60 and 80 percent.

Roofing.--The bulk of the houses (78.18 percent) in Lagos are roofed with durable zinc and aluminum. However, there is a clear distinction between the low income areas and the high income areas. In districts such as Obalende, Lagos Island, Ebute-Metta, Yaba, Agenjule, Bariga/Shomolu, Mushin, Oshodi and Agege, over 80 percent of the buildings are roofed with zinc and aluminum. On the other hand, asbestos and concrete (popularly known as decking) form the major roofing materials in Victoria Island (54.62 percent), Ikoyi (69.23 percent), Apapa (55.95 percent), Surulere (63.13 percent), Palmgrove (82.35 percent) and Ikoyi (96 percent).

Floor.--With respect to floor materials, the pattern is the same as that of the roofing materials. The few mud floors are found in Lagos Island, Yaba, Mushin and Ebute-Metta. A majority (87.44 percent) of the houses have concrete floors. Except Ikeja, Apapa and Victoria Island, between 70 and 100 percent of the houses in each

neighborhood have concrete floors. While this pattern reflects the changing taste in floor type, it also indicates the age of the house. Thus the old high grade residential area of Ikoyi, developed before the introduction of terrazo into the country has 69.23 percent with concrete floors. The new residential districts use vinyl tiles and terrazo. Of these districts, Ikeja has the highest proportion (88 percent) of terrazo floors. It is followed by Apapa, Victoria Island and Surulere which have 53.57, 42.31 and 20.74 percent of terrazo floors, respectively.

Windows.--The window materials have also been affected by great changes. One of these was the replacement of the wooden windows by glass panes or louvres for windows. This replacement has taken place in all the neighborhoods. However, as with the building and roofing materials, the changes are most marked in Ikeja, Victoria Island, Apapa and Surulere where over 70 percent of the window areas are enclosed by glass panes.

There is also an increased desire for glass panes for windows in shanty districts of Mushin, Oshodi and Bariga as well as in Surulere, Ebute-Metta, Lagos Island and Yaba where between 50 and 60 percent of the houses have glass panes. It is only in Agege, Ajengule and Obalende that wooden windows still predominate, accounting for 88.24, 75.25, and 54.55 percent of all the windows in the neighborhoods respectively. However, sizeable proportion of wooden windows are still found in Lagos Island (46.82 percent), Ebute-Metta (45 percent), Yaba (39.87 percent), Bariga/Shomolu (39.88 percent), Mushin (38.78 percent), and Oshodi (33.33 percent).

On the basis of the internal housing facilities as well as the quality of the materials of the walls, roofs, floors and windows, the houses can thus be classified as good, fair, and poor. Based on this criterion, the condition of nearly all the houses in Victoria Island, Ikeja, Ikoyi,Apapa and Palmgrove/Ilupeju and Surulere is good; Yaba and Obalende are fair. It is significant that Ebute-Metta is fast degenerating into poor category like Mushin, Agege, Bariga/Shomolu and Ajegunle. One can therefore expect the first group of houses to attract high rents and high income people. The whole of Lagos Municipality is mixed up as shown by the table below--the only reliable survey data available.

Table 23.--Physical Structure of Buildings in the LMA by Words (1962): Walls.

Ward	Concrete Block or Brick Wall	Cement Plastered Mud Wall (Stucco)	Bamboo and Corrugated Iron Sheet Walls
Lagos Island	64.28	23.62	12.10
Ikoyi	70.28	0.86	28.88
Obalende	24.21	28.42	47.37
Apapa	81.74	11.30	6.96
Victoria Island	84.94	15.06	Nil
Ebute-Metta	28.65	70.80	0.55
Yaba	69.67	12.30	18.03
Iddo-Ijora	53.04	7.18	39.78

Overcrowding

It is generally known that the demand for housing in terms of dwelling unit of space is elastic over most of price ranges. It is to be expected, therefore, that the high rents in the city will lead to expectation or tolerance for correspondingly reduced space. This is largely borne out by a study which indicates that about 40 percent of the population in Lagos city resides in single rooms. The proportion is noticeably higher in Ebute-Metta, Obalende, Shomolu, Lagos Island, Mushin, Agege and Yaba--all areas of the low income class with very large family size.

One can compare this picture of overcrowding in the LMA with the following figures:

New York, 1880 . . . 16.37 persons per dwelling structure

London, 1881 . . . . 7.9 persons per dwelling structure

Philadelphia, 1880 . . 5.79 persons per dwelling structure

Brooklyn (N.Y.), 1880 . 9.11 persons per dwelling structure

Source: Habitat, June 1974, Vol. 17, No. 1, p. 9.

Relating household to dwelling space, another study revealed that of all households living in just one room, in Lagos City, 57.1 percent had between 1-5 persons per family, 37.1 percent had between 6-10 persons per household and one percent had more than 15 (see Table 24). The inference to be drawn from this table and its distribution pattern is that in over 50 percent of the homes, the occupancy ratio may well be over six percent. This really represents a high incidence of overcrowding. However, as pointed out in the Report of the Housing Management Sub-Committee of England, "overcrowding is an out-of-date

Table 24.--Dwelling Size (Percentages of Families)--

Table 24.--Dwelling Size (Percentages of Families).

Areas	1 Bedroom Sharing Kitchen	1 Bedroom 1 Sitting room Sharing Kitchen	2 Bedroom 1 Sitting room Sharing Kitchen	1 Bedroom 1 Sitting room Private Kitchen	2 Bedroom 1 Sitting room Private Kitchen	3 Bedroom 1 Sitting room Private Kitchen	4 or More 1 Sitting room Private Kitchen	Total
Lagos Island	70.3	20.2	3.7	--	0.2	2.2	3.4	100
Ebutte-Metta	60.3	18.6	2.9	0.3	4.5	6.0	7.4	100
Yaba	61.5	18.5	0.7	--	6.7	5.9	6.7	100
Surulere	39.4	9.3	2.4	19.9	12.3	10.2	6.5	100
Obalende	60.61	--	--	--	--	--	--	--
Shomolu	52.02	--	--	--	--	--	--	--
Mushin	50.26	--	--	--	--	--	--	--
Agege	52.10	--	--	--	--	--	--	--
Family Size by Dwelling Size								
1-5 persons	57.1	22.8	14.3	24.6	18.9	18.5	16.4	40.4
6-10 persons	37.1	56.9	54.7	65.5	62.2	51.9	50.9	45.6
11-15 persons	11.8	17.7	23.8	9.2	18.0	25.0	27.3	11.2
16-20 persons	0.8	2.2	4.8	0.7	--	3.7	1.8	1.6
21-25 persons	0.2	0.4	2.4	--	0.9	0.9	3.6	0.6
25 and over	--	--	--	--	--	--	--	--

Source: LSDPC.

concept. More generally, the issue is the standard to be employed in determining an appropriate allocation of space for a family, having regard to positive needs rather than the negative approach of avoiding overcrowding. One should have regard to the way of life of the people rather than be content with a single formula of so many people to the number of rooms in the house." In 1961 according to Lawal, the average living area per person was 34 square feet, in 1970 it was 40 square feet--an increase of 6 square feet in 9 years.

From field observation, no matter the degree of acceptability of overcrowding, it would be ridiculous not to take the excessive overcrowding as found in Lagos as a serious problem. It causes social problems (lack of privacy, family quarrels, discontent, stress and strains and delinquency), health problems, human congestion etc. After all, why study the housing problem if the aim is not at least to alleviate the overcrowding? There must be a cut-off point to acceptable space standard--no matter what the minimum is.

From the tables referred to earlier, there is definite overcrowding in most dwellings and the incidence of under-occupation is negligible, being confined to very few houses in Ikoyi and Victoria Island. Dr. G. O. Sofoluwe in his 1966 study found that 68.7 percent of households on Lagos Island and 53 percent in Surulere lived in crowded conditions. He took a crowded dwelling as one in which "more than <u>two adults</u> and one child occupy a room of dimensions not more than 120 square feet." Defining overcrowding as "where more than two persons occupy one room of dimensions not more than 120 square feet, Dr. J. W. K. Duncan observes in a paper that 66 percent of index

persons studied in 1966 attending Surulere Health Center lived in overcrowded condition.

Lagos City had in the past, witnessed two terrible plagues--the 1918 Influenza epidemic and the 1924-31 Bubonic plague which claimed many lives. This was a result of bad housing, unhealthy environment, and poor medical services, but more so to excessive overcrowding. So far, since the last plague, improvements in medical services have mitigated the effect of bad housing and unsanitary environment somewhat; but the cost of preventive medical services could be employed in curative medicine and research. Even with the heavy outlay on preventive medicine--vaccinations, spraying of drains and bushes that checks spread of malaria on a very minute scale--records will show that many hours of productivity are lost through absenteesm from work on health grounds than need be necessary given better housing conditions. Studies carried out by Drs. Sofowule and Duncan point to greater health hazards for people living in poor housing and environment. Dr. Sofowule found positive correlation between infant mortality and poor housing.

Apart from the social and economic loss incurred as a result of poor health and reduced productivity, standard of morality must fall. This is so, especially where young people have to hang around in the streets for lack of adequate homes for relaxation or to which they can bring their friends thus exposing them to deviant behavior. A visit to the disused cemetery at Campos Square on Lagos Island where a few drug addicts have made their abode is enough to convince one of what inadequate and poor housing could do to youths. More observation

is still to be done into this in order to gain quantitative measurements of the effect of bad housing on the moral standard of youths. Even poor housing has been associated with poor performance at school among children in Lagos.

Slums as a Cumulative Index of Poor Housing Conditions

There is often a controversy as to which comes first: slum habits or wholesale deterioration of dwellings and environment. Those who contend that slum habits contribute largely to hasty deterioration of dwellings hold that what makes a slum is not so much the physical condition of such buildings but the dirty habits of the dwellers and the neglect of the buildings and their environment. On the other hand, those who contend that it is the deterioration of buildings and/or environment which encourages slum habits in people hold that such deterioration lowers the value of properties in the areas, causing people who are higher up the social-economic ladder to move out and attracting those at the bottom of the ladder. Like other social phenomena, the incidence of slums in any city does not lend itself to a mono-causal explanation, and the slums of Lagos City and its metropolitan area are no exception.

Besides these explanations, slums could be caused by the predominant type of residential arrangement and high occupancy rate; lack of or inadequate facilities provided in the dwellings which are complementary to domestic habits are also factors. The transfer of rural habits to urban areas where these become more pronounced coupled with subsidiary uses of buildings facilitate the turning of neighborhoods

into slums. Studies show presence of worse slums in Ajegunle and Lagos Island which are predominantly rooming dwellings than are found in Surulere. In the map which follows, other slum areas in Lagos are identified (see Figure 9).

Problems of Estimation and Data Collection of Housing Quality: Proposal for a Methodology

Estimates on dwelling quality, in view of the judgment they call for, are almost always, at least in part, arbitrary, or, at any rate, based on conventional criteria. In Nigeria, they are even more arbitrary and inadequate due to the insufficiency of available data and the methods of estimation used. In order to obtain better information and derive appraisals a possible survey methodology will be given in this chapter. The considerations made, and the method to be presented for estimating dwelling quality, refer to Lagos Metropolitan area. However, if one remembers that similar situations may be found in Ibadan, Enugu, Kano and any other Nigerian City, and that the principal feature of the method is its flexibility, it should be partially valid for many Nigerian cities and other cities in Black Africa.

Inadequacy and Insufficiency of Estimates Made Until Now

The total number of dwellings available at a given moment in time may prove inadequate to meet both the quantitative and the qualitative requirements of a community. Since this decade, the general quantitative shortage of housing in Lagos has drawn attention to the qualitative aspects of housing requirements, which should therefore

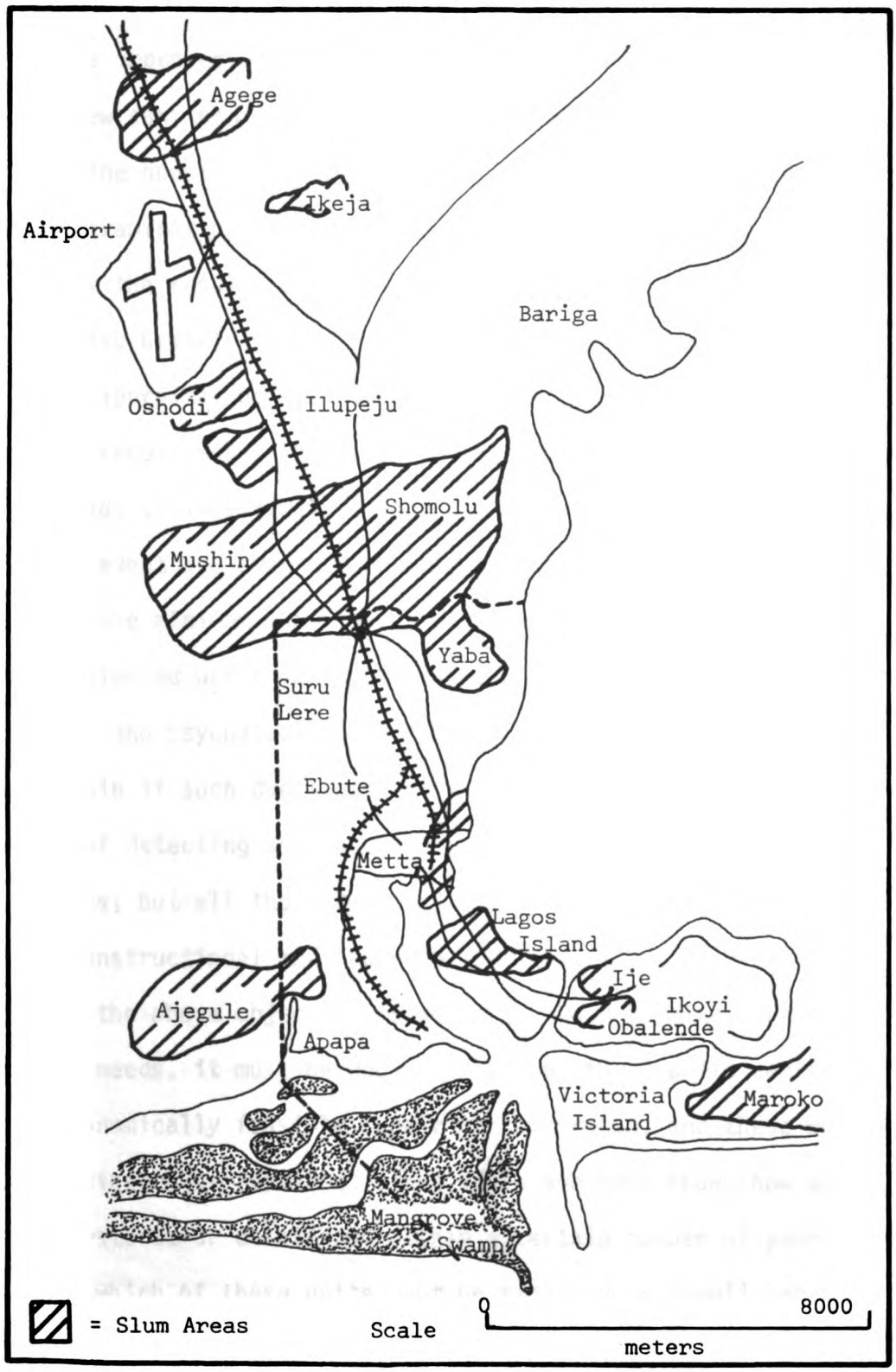


Figure 9.--Slum Areas in the LMA.

be taken into consideration in the formulation of the national housing policy. The improvement of the housing situation from a quantitative point of view can then lead to a growing emphasis on the qualitative aspects of the housing stock. The importance of the latter is confirmed both by an examination of official and unofficial estimates of housing needs and by the results of careful surveys carried out in other countries like Britain.

The appraisal of the qualitative adequacy of the housing stock to meet the requirements--both current and future--of a collectivity, normally leads to an estimate of the needs for rehabilitation, improvement, replacement and even urban renewal. In practice, having once established the minimum qualitative standards below which a dwelling must be considered unfit for habitation as it represents a threat to the physical and psychological well-being of its occupants, one must then ascertain if such dwellings exist and how many. It is, therefore, a question of detecting and localizing not only hovels, budonvilles, slums, shacks; but all those dwellings which are inadequate from a technico--constructional and technico--sanitary point of view.

But the above objective is not all. To determine predetermined qualitative needs, it must be decided which of these units can be saved by economically feasible repair or conversion, and these which must be eliminated or replaced. Then again one must know, how many should be restored or demolished within a certain number of years; and finally which of these units must be replaced or demolished because they are situated in areas due for clearance. In other words, it is not enough just to detect those units which do not reach the minimum

standard, but a differentiated judgment must be made on the qualitative conditions of every dwelling.

Let us say straight away that the problem does not exist with regard to "improper" (not conventional) dwellings: in view of their characteristics, they are easily detected, and there is no doubt that the occupying households have to be rehoused. The difficulty lies in determining which of the "proper" (or conventional) dwellings are to be considered qualitatively inadequate and therefore subject to repair or replacement. Unfortunately, the instruments (methods of appraisal and statistical data) used until now, are unable to give even approximately this sort of information, so that the estimates concerned are very arbitrary. Let us examine the reasons for this.

A first factor of arbitrariness--which can only be partially eliminated--concerns the fixing of the qualitative standards that the dwellings must reach. In Nigeria, there is no precise and detailed official definition of these standards.[15] They have only been implied in assessments of requirements, generally made by private experts, and are consequently based on a few, or even one item taken from available irregular statistics of samples. These items, as it will be seen, are not sufficient to characterize a dwelling from a qualitative point of view.

In fact, a further drawback is that the only (although important) indications available as to the quality of a conventional dwelling, are

---

[15]Although the Lagos City Council has Building By-laws and Regulations, they relate almost entirely to dimensional character which are rarely enforced (cf. Extracts from the Lagos Local Govt. Bye-Laws-Building-Bye-Laws and Regulations).

its installations (water supply, lavatory, bath-room, electricity and gas). These are features which measure--although not completely--sanitary adequacy, but they obviously do not provide information on the ventilation of a dwelling, the presence of dampness, the solidity of the structure or the healthiness of the area in which it is situated--circumstances which, nevertheless, affect the quality considerably.

Furthermore, the small amount of information available is not adequately "exploited" so as to arrive at a concise appraisal of the quality of a dwelling. (It should be remembered, though, that certain seemingly concise appraisals on the fitness of dwellings for habitation and the possibility of restoring them, were made in the near past by the LSDPC and the Human Resources Research Unit of the Lagos University.) For example, if one considers "minor" deficiencies, it is possible to combine all information by assigning weights, according to the importance of the items in the characterization of a dwelling, and in this way one may arrive at a differentiated judgment. Instead, normally speaking, only one or two essential installations are taken into consideration, the absence of which is regarded as sufficient to qualify a dwelling as unfit for habitation.

Proposals to Improve Appraisals of the Quality of Housing Stock: Methods of Estimation

It seems that these elementary considerations provide certain important indications of the way in which one may reduce or even eliminate the arbitrary nature and insufficiency of estimates on the quality of the housing stock. To this end, one must:

1. Establish as simple and objective as possible a method of appraisal to measure the adequacy of dwelling;
2. Adapt data collection to the method established by working out an ad hoc survey.

The word "method" has been used on purpose as in respected opinions, a special effort should be made not only to fix minimum qualitative standards, but to work out a complete and consistent method of appraisal, which when properly utilized, will permit the achievement of the desired aims. In view of what has been done in other countries, the writer thinks it appropriate to proceed in the following manner.

As should be well known by now, the qualitative adequacy of a dwelling is normally measured with respect to the health, safety of the occupants and the functional character of the dwelling. But these are general criteria that they are of little practical value in any appraisal of adequacy. Instead, more direct and concrete criteria are necessary to provide a basis on which to judge objectively the quality of a dwelling. With these general aims in mind, one should then establish the so-called "factors or qualitative adequacy" or "basic categories of qualitative housing characteristics." These could be the existence and condition of internal equipment, layout and spatial characteristics, maintenance, dampness, site, natural light and conditions, exposure to infectious diseases, the healthiness of the area in which the dwellings are situated etc.

In order to render the judgment of the quality of a dwelling still less general and subjective, three basic factors can be used to set the individual appraisal items (specific standards) to be considered

one by one. These will correspond to the narrowly defined, easily observable and measurable characteristic (for example, location of the lavatory and number of people it serves, dimensions of the windows and doors etc.--a selection of these possible items is listed later in the framework, together with the essential instruments of the method). For each appraisal item the minimum standard is fixed and the practical appraisal of the quality should then be made on the basis of the deficiencies presented by the dwelling with regard to each item.

At this point however, it has yet to be established how one should arrive at a concise appraisal of a dwelling. In the meanwhile it is clear that some of these features (items) are so important that when they reach unacceptable levels, the dwelling becomes unfit for human habitation until improvement has been carried out. First of all, therefore, one must indicate those items in the list which, when they reach unacceptable levels are considered basic deficiencies (for example, lack of an essential sanitary installations etc.), one of which is sufficient to qualify a dwelling as substandard. But most of the appraisal items are not, however, such as to call for immediate intervention. How, therefore, can one form an overall judgment on a dwelling which presents various defects which are not basic? It will be remembered that for our purposes, in order to ascertain the possibility of feasible improvements, dwellings have to be divided into "qualitative categories," not just classed as substandard. The categories could be: dwellings in good condition, dwellings in need of improvements, unhealthy dwellings which can be made habitable,

dwellings to be demolished or just, good, fair or bad. But this classification as noted is not sufficient.

In practice, to whatever the extent the appraisal items may be specified, there are two ways. The first consists in asking whoever is carrying out the inspection for a qualitative appraisal both for the individual items and for the dwelling as a whole, to be objective enough, providing him only with indications of the criteria to be followed in the formulation of the judgment. The practical application of this method is generally quite simple, but leaves a wide margin for personal opinion, and the more general the appraisal item, the more subjective is the judgment. It is, therefore, a good idea to control the consistency of the separate partial judgments and the overall judgment of quality on the basis of the importance of each item in the characterization of the quality of a dwelling.

The second procedure consists in the so-called system of penalty points. After having collected the objective data, the inspector should assign penalty points for each item on the basis of the importance of the deficiencies which come to light. The total number of penalty points determines the "qualitative category" of the dwelling. The penalty points to be assigned to each item are taken from a list compiled on the basis of the financial cost of eliminating the defficiency, in proportion to total construction costs. The maximum penalty points assignable to each individual item may also take account of the importance of the item in the qualitative characteristic of a dwelling. The degree of this importance (or weights) may be established. For example, we may take an average of all the

values suggested by a certain number of experts; or use the coefficients obtained by regressing construction costs or better still, market price (value for owner-occupied and monthly rent for tenant-occupied dwellings) on the individual measure of the quality characteristics; or use factor analysis.

Finally, we should like to mention that, in order to determine whether or not a dwelling should be demolished for reasons of urban renewal, the list of appraisal items should contain one or more indications as to the healthiness of the area in which the dwelling is situated. The application of one of the methods mentioned here can, to a large extent, reduce the elements of arbitrariness and subjectivity present in current estimates on the quality of dwellings. The elements of subjectivity which each judgment may contain, can be limited by providing precise and detailed definitions of the nature and extent of the deficiencies. However, a certain element of arbitrariness remains in the choice of the items and the weight to be assigned to each one. But in order to take maximum advantage of the method, certain facts should be bore in mind.

First, the qualitative standards must be directly related to the customs and the socio-economic condition of the population concerned. Thus the standards (or points) will sometimes have to be modified in order to adapt them to local or regional conditions; hence the APHA appraisal technique[16] which would be very sophisticated for

---

[16]American Public Health Association technique was developed, tested and refined to its present form over a period of years by a group of public health specialists, city planners, sociologists and others composing the membership of the Association's Committee on the Hygiene

the health standards of a place like Lagos is not recommended outright here. However whichever technique is used, the norms must also be periodically re-examined in order to take into account changing needs.

Secondly, the method adopted and the amount of detail to be incorporated into a housing quality appraisal program, depend upon the particular aims of the program and upon the means available. It is important only to obtain sufficient information on the characteristics so that decisions may be taken with a reasonable degree of certainty. Thus, to be of greatest use, the method should be reasonably simple (concerning the characteristics and data to be collected). It should be recognized by all the public bodies concerned, and applied regularly in the formulation of judgments on the quality of dwelling. The author therefore hopes, as is the case in other countries, that this method will be refined and used through the collaboration between the Federal Office of Statistics, Building Inspection Division of Lagos City Councio, Ministry of Health, Ministry of Housing, Urban Development and Environment and Housing Authority.

Data Collection

The principles guiding a reasonably objective assessment of the quality of a dwelling has already been illustrated (see Appendix A for method). Now let us consider how the necessary information may be obtained. It is worth observing straight away that complete surveys such as population consuses do not represent the best opportunities

---

of Housing, cf. American Public Health Association: An Appraisal Method for Measuring the Quality of Housing--A Yardstick for Health Officials and Planners (New York: APHA, 1950).

for collecting all data on the quality of the dwellings which are necessary in order to apply the method discussed. Nevertheless, housing censuses (which have never been held in Nigeria) provide the necessary background to carry out special surveys. It seems desirable when censuses are taken, besides the usual details, to take note of other objective items, using the building as an additional unit of enumeration. Such items as data of construction of the building, divided into large classes of age, the materials used for external walls, outside plastering, etc., could perhaps enable us to make a concise judgment on the general state of the building.

But it is clear that only a staff with a certain technical training which is obviously not available for the purpose of census taking, can validly judge the structural and sanitary defficiencies mentioned. Therefore, in order to obtain current and reliable information on the quality of the housing stock, the best solution is to carry out an ad hoc sample survey, as has been done in other countries. This survey, which could be promoted by the Federal Office of Statistics in collaboration with one or more of the public bodies qualified in research of a technico--urbanistic nature, should obviously be carried out with the help of interviewers who are specially prepared.

Normally, the best sampling frames for a survey on dwellings, are a complete list of dwellings or buildings and a list of the census sections or other smaller areas. In the second instance, an area sampling is taken, using perhaps the entire city as the universe. Since population census are always unsuccessful and Nigerians suspect questions related to same, it is therefore necessary to carry out as soon as

possible an ad hoc survey on housing quality. Several advantages could be gained by this practice, for example, the excellent information that could be provided will allow one to increase the efficiency of sample estimates. It should be remembered, that if one chooses the units to be examined at random, in order to limit sampling errors of the estimates for smaller areas, a very large sample is needed. In order to reduce the size of the sample at equal standard error, one should proceed to a stratification with varying sampling fractions; and when it is considered appropriate for other areas, the survey could be complete.

Concluding, the advantages to be gained by the application of the methods described in the previous pages can be considered as follows: In the first place, one may determine the number (disaggregate for large districts) of dwellings in need of more or less urgent repair, and those instead which must be replaced. Moreover, these data could perhaps provide further information. The cross-classification of dwellings by period of construction or other objective characteristics and by qualitative condition permits one to calculate the frequencies of replacement on the basis of age and other features. These frequencies, besides representing a good basis for improving the interpretation of data on housing quality, could be profitably used to estimate future needs for replacement.

The data obtained from the survey, and their elaboration, should, therefore, prove of great value for the formulation of government housing policy, particularly as regards programmes of intervention for repair or maintenance, improvements and urban renewal.

The data should also be useful in the estimation of the value of the dwelling stock, which is an important factor in compensation to be paid. Systematic information is a key to results. The availability, analysis and interpretation of the total scores in the appraisal will make it possible to map with accuracy the housing assets and liabilities in a city such as Lagos. Results of the appraisal can be used as a check on inadequate building and housing codes. Their regulations and enforcement are then directed to a purpose.

Finally, territorial analyses, besides making possible a comparison of the living conditions of different areas, may bring to light specific problems which must be investigated by means of special surveys. The appraisal puts housing standards to work on a broad front, providing the technical basis for a joint attack by all agencies concerned with housing and planning. The system is offered as one of the technical tools in that larger Kit--including legislative, financial and administrative tools--which must be boldly put to work if Nigerians do actually intend to solve their housing problem, especially in the big cities.

In recent years criteria of the environment have been greatly sharpened as compared to the usual indices of persons per room or other descriptive characteristics relating to fixed physical facilities. The physical neighborhood environment is recognized as an essential part of housing. Environmental factors that are appraised include crowding of the land by buildings, intermixture of business and industrial uses with residence, proximity to major traffic streets and railroads, incidence of pollution etc.

The Rating System

Scores are a distinctive feature of the method. They consist of penalty points assigned to conditions that fail to meet accepted housing standards. The basic factors which make housing adequate or inadequate for human living are widely recognized as elements of healthfulness, health being broadly interpreted to include physical safety and emotional well-being. If the elements of housing can be appraised from a progressive public health viewpoint, by sound investigative methods, a valid and broadly useful measurement of housing adequacy will have been achieved. Therefore, this calls for information of facts which will classify the physical quality of housing as to conformance with contemporary standards of healthfulness, safety and amenity.

Penalties rather than credit scores are used because the method measures departures downward from a level of acceptability. As noted by Allan A. Twichell of the American Public Health Association, "it should be stressed that field enumerators do no rating. Their only duty is to observe and record the facts. Scoring is done later in the office, using templates which carry the rating scale for each qualitative item."[17]

The penalty value assigned to each deficiency is usually determined by panel of experts on scale-construction (housing experts,

---

[17]Most of this section is adapted from American Public Health Association's point system, and the method developed in Italy by Luigi Biggeri of the University of Florence; see also Allan A. Twichell: "An Appraisal Method for Measuring the Quality of Housing," Urban Housing, ed. by W. L. C. Wheaton, et al. (New York: Free Press, 1966) pp. 394-403.

others experienced in public health and related fields). In the absence of a system in Nigeria, the author has developed a reasonable penalty point system based on the works quoted earlier. Each deficiency is graded according to the seriousness of that condition as a threat to health, or safety or as an impairment of comfort or general livability (see Appendix A).

In assigning scores to a schedule item specially designed scale-construction forms are used--to assure systematic reviews of essential factors. This will help to consider, for instance, whether the field information is of a type tending to give reliable and objective data; whether the item can be expected to have constant significance as between the several types of dwellings, different localities, various economic levels and the like; and whether the item is a true reflector of the detriment it seeks to measure.

Under the rating scale, factors of the dwelling or its environment which show no deficiency receive a zero score. Penalties for individual deficiencies range from one point to a maximum of ninety points (for flooding). For example, scores of thirty to fifty are assigned to conditions which offer extreme and ever-present threats to health or safety. Based on this scheme a total score of zero penalty points for a dwelling unit and its environment will indicate housing conditions which are excellent from the point of view of official agencies and are presumably free from defects of public concern.

For broad comparative purposes, housing is classified into quality grades, depending on median total penalty scores. Class intervals will normally be applied to dwelling and environmental conditions.

Thus an area will fall in A to E or whatever range is desirable, depending on whether there are minor defects, not basically impairing the livability of house or neighborhoods for A and thoroughgoing slum conditions for E with maximum median penalty points.

Scores for certain items are modified to fit local conditions. Any item that registers 50 points or more will be classified as a basic deficiency. In general a basic deficiency is a lack of dwelling facilities, a state of disrepair, or a degree of overcrowding so serious that it has been widely recognized by public health and housing agencies either as calling for a correction order, or as justifying the removal of the affected family to other quarters if the condition is not or cannot be remedied in their present home.

In other words, a basic deficiency is a major substandard condition in the sense that progressive housing regulations acknowledge it as warranting drastic corrective action by an official body. Examples of basic deficiencies are lack of dual egress, a toilet outside the structure, and sleeping area less than minimum acceptable standards. Dwellings with one or more basic deficiencies are designated as substandard and this term should take on a definite official meaning. The number of basic deficiencies gives a measure of this gross sub-standardness.

In Lagos, because of the extensive substandard conditions of the dwelling structures one needs a scientific and technical appraisal tool to classify the houses. Such a classification will make such "blanket" government proposals like converting all pail-system toilets to W.C.'s administratively easier. Furthermore, it will make rehabilitation

schemes proposed in the policy section of this study more meaningful. From the purposeful analysis and interpretation of housing surveys in Lagos, a summary picture that will be understood by the busy public official or the layman is provided. Such findings will facilitate the answering of questions on which housing policy must be based.

Secondary Use of Residential Houses

In many areas of Lagos, houses meant for residential purposes have partly been converted to other uses varying from small-scale shop-keeping in the garages to light industries. Subsidiary uses were found to affect more than two in every five families (22.1 percent) in parts of Lagos City studied in 1964. In this study, an area designated "commercial area" in Lagos Island was treated separately, which accounts for lower rate of dwellings affected by subsidiary use than might have otherwise been the case.

The degree of inconvenience suffered will vary with the type of subsidiary use to which a dwelling house is put. For example, people living where there is a shop selling wares will be expected to suffer less than those living in the same house in which a noisy machinery is used for light industry. This will be the same situation where people are brought in contact with outsiders calling in an office housed in a residential building. Those living in houses with any form of subsidiary use suffer more than those in houses with no subsidiary use.

A recent study of Surulere and Ajengule shows that as many as 35.2 percent and 40.2 percent of existing dwellings are affected by subsidiary uses respectively. In most cases, especially in Surulere,

Table 25.--A Secondary Uses of Buildings--Lagos Municipality.

Area	Dwellings Affected by Subsidiary Uses (%)	Not Affected (%)	Total
Lagos Island	28.0	72.0	100
Ebute-Metta	43.6	56.4	100
Yaba	15.6	84.4	100
Surulere	10.4	89.6	100
All Areas	22.1	77.9	100

	Types of Secondary Uses--Percentages			
	Shops	Light Industries	Offices	Total
Lagos Island	57.4	38.3	4.3	100
Ebute-Metta	47.1	39.7	13.2	100
Yaba	61.9	23.8	14.3	100
Surulere	55.2	35.8	9.0	100

the ground floors are used for shops, repair houses etc. while upper storey or storeys are used for residential purposes. In Table 26 below, the various types of housing projects are analyzed according to number of subsidiary uses found. There seems to be a proponderance of dwellings without subsidiary uses because the LEDB, the original landlord for these projects, enforced strict controls. Yet, you can see Kiosks erected by the lanes of buildings for selling bread, various tinned food, cooking condiments etc., just to supplement family income.

There should be no necessity for converting part of residential buildings into subsidiary uses such as those listed in the tables thus making living conditions less bearable than need be. The explanation

Table 26.--Secondary Use of Dwelling Houses (*) and Types: Surulere and Ajegunle.

Table 26.--Secondary Use of Dwelling Houses (%) and Types: Surulere and Ajegunle.

Area	None	Shops	Light Industries	Other Kind	2 Sub.Uses	3 Sub.Uses	4 Sub.Uses	Total
Surulere								
RHS 1	48.8	1.3	1.3	--	46.3	2.5	--	100
LHS	83.1	--	1.5	--	15.3	--	--	100
RHS 11	39.7	3.4	--	--	56.9	--	--	100
FHS	89.2	1.4	2.7	--	6.8	--	--	100
IDA	58.3	25.0	0.9	0.4	6.6	8.3	0.4	100
All Areas	64.8	13.1	1.0	0.2	17.2	3.5	0.2	100
Ajegunle								
J.M.J. Qrts.	65.2	10.1	1.4	17.4	5.8	--	--	100
UA 1	50.0	34.3	2.2	2.2	11.2	--	--	100
UA 11	66.1	29.1	--	3.1	1.6	--	--	100
RV	77.4	22.6	--	--	--	--	--	100
All Areas	59.8	27.7	1.2	4.9	6.4	--	--	100

therefore lies in the permissive attitudes of tenants and/or owner occupiers, the profit motives of "shylock landlords," the fear of not finding alternative accommodation on the part of some tenants and possible ignorance on the part of others. Moreover, where there are no specific zoning regulations or where other types of controls are weakly enforced (if at all), people feel free to convert their residential units into other subsidiary uses if that will fetch them higher rent in a housing market where the shortage is so acute.

Rent as Index of Housing Adequacy

The housing problem in Lagos Metropolitan area has many angles, all unfavorable to the prospecting tenant. Not only is there a very acute shortage of residential houses, but rents for what little accommodation is available are fast rising beyond the average household's means. As one real estate man put it recently, "Rents in the Lagos area have literally jumped through the roof."

Rent epitomises the housing problems of Lagos. It also throws a searching light about available infrastructure. If one is able to understand the rent trends and related issues, he can easily grasp the various factors responsible for the acute shortage of residential housing. Over the years, the question of rent and its control has dominated discussions on housing problems in Metropolitan Lagos. It determines how many will be homeless at a particular time, the degree of overcrowding, certain government policies, what part of the city an individual can afford to reside in, the seriousness of social

problems like vagrancy, concubinage, adultry, prostitution and even the general behavioral tone of the citizenry.

Therefore, in the light of the above circumstances it will be meaningful to trace the various developments of the rental question in Lagos. As Professor Mabogunje stated, one useful index which summarizes the various characteristics of the population, in-so-far as they determine the residential structure of Lagos, is rent paid for accommodation. It has been suggested that, in an economic system characterized by private ownership of houses and by competitive selling and renting of dwellings without effective governmental restrictions, such as rent controls or price ceilings, all the various factors that make a house or apartment desirable to potential owners or occupants become integrated into a single measure of desirability--its market value--either in the form of sale value or rental value. Under such conditions as exist in Lagos, it can therefore be assumed that rents paid per room afford the best available measure of the desirability of residential districts. Ability to pay, in turn, is determined by socio-economic variables, especially education, occupation and income.

From the preceding discussion of the structural and interior characteristics of housing, it is obvious that housing condition in Lagos is below minimum standards of decency. In relation to water supply, toilets, bath and kitchen facilities, over 75 percent of the houses can be considered substandard. Standard housing is to be found mainly in Ikoyi, Victoria Island, Ilupeju-Palmgrove, Ikeja GRA, Apapa and Southwest Lagos Island. Also, there are isolated developments of

good housing such as the University of Lagos Campus, the Railway Corporation compound in Ebute-Metta and the NEPA quarters at Ijora. In all these areas, the level of the availability of the minimum facility is close to 100 percent of minimum standards.

A few other neighborhoods can be ranked as intermediate, the deviation from the minimum standard here being no less than 50 percent. The districts being qualified here would be Yaba and Surulere. All the remaining neighborhoods have a very low level of amenities.

It is against this background that the discussion on rent as part of housing situation in Lagos is to be viewed. The data on rent is apt to be confusing because it reflects both economic and non-economic measures. In most cases, there are: (a) the normal economic rent, (b) loan payment, (c) government subsidized rent, and (d) free accommodation for servants. Since the last three classes of rent are prevalant mainly in the high income areas, the data on those areas have shown some distortion from the same situation. For example, unreliable survey responses are usually highly loaded in Victoria Island, Ikoyi and Apapa mainly because the houses in these areas are owned by the Government or rented by firms and then given to senior members of staff who in some cases pay rent according to some percentage rates.

Lagos Island is an interesting case. The south-west part of the Island is occupied by Government housing and therefore occupied by civil servants whose rents are subsidized. The major part of the Island is occupied by the descendants of original settlers of Lagos granted rent-free housing.

In 1960, a sample survey of 605 houses was carried out in August.[18] That survey inquired among other things, into the nature of household facilities such as the availability of internal water supply, the type of kitchen arrangement (whether shared or self-contained), the type of toilet facilities (whether bucket--or water system), electricity supply as well as rent paid per month per room. A correlation of these various factors and rent gave the following coefficients (see Table 27).

Table 27.--Correlation Coefficient For Rent and Other Variables (1960).

Variables	Correlation Coefficient
(a) Rent and Water Supply	+ 0.83
(b) Rent and Kitchen Arrangement	+ 0.30
(c) Rent and Toilet Facilities	+ 0.47
(d) Rent and Electricity Supply	+ 0.51

Table 27 emphasizes that all four variables vary directly as rent. The highest coefficient is that of rent and internal water supply. On this result, the existence in a residential dwelling of an internal water supply was shown to explain nearly 70 percent of the variation in rent paid. The provision of modern toilet facilities and of electricity, while not explaining very much of the variation, is shown to vary significantly with rent.

[18] A. L. Mabogunje, Urbanization in Nigeria, p. 296.

There is of course no doubt that considerations other than household facilities do enter into the determination of rent. Low rents for instance, may sometimes represent special concessions to either relations or tenants of long residence or tenants occupying comparatively small rooms in a house of much larger rooms. On the other hand, high rents may reflect nearness to main centers of business as well as general accessibility.

In an area where most families don't own their dwellings, rent is a very important aspect of housing--more important than in areas where many families are owner-occupiers. As already noted, it determines in the main the area where people reside, the type of dwellings they can afford, and to some extent the amount they have left over to keep the dwelling habitable, comfortable or inviting.

The average tenant often protests against paying high rent given half the chance. In many areas in and around Lagos metropolitan area, however, people have reasons for grumbling against rent paid. Average rents have gone up considerably in recent years as to take quite a substantial proportion of a family's income. Other renters grudge simply because they have no visible means of livelihood. But many kick against paying rent simply because the amount of rent paid seems to them out of proportion to the quality of dwellings for which the rent is paid.

For example, let us consider a renter who in 1960 lived in 120 square feet room in a building the walls of which are of mud, with bamboo planks and roofed with corrugated iron sheets. He relies on well water, or else buys tap water for as much as ten Kobo per tin of

four gallons; shares a small smoky kitchen with as many as eight other tenants. Also he pays some amount monthly to have the nightsoilmen empty the toilet buckets, and is called upon to pay as rent as much as three ponds (₦6.00) or $9.00 per room per month or about 25 percent of his monthly income. Such a person will be paying a big chunk of his earning for substandard facilities.

A social survey in 1964 puts the average income per annum at ₦456 for Lagos Island, ₦680 for Ebute-Metta, ₦920 for Yaba and ₦880 for Surulere and ₦734 for all areas studied. It also gave an account of rent paid by geographical districts of Lagos. However, that study did not relate average rent to average income per area. But a more recent study of Surulere and Ajegunle relates average rent with average income in each of the sections into which Surulere and Ajegunle are divided for purposes of the surveys. The table below illustrates the findings.

There is a positive correlation between rent and income in both Surulere and Ajegunle which means that as income rises rent moves up also. This can only be said of these areas because their rents are fixed by the LSDPC based on percentage of a tenant's salary. In other areas of Lagos, where the housing market is competitive, there is no relationship between rent charged and the income of the tenants. But the irony of it all is that the Senior Civil Servants who live in the high income districts where there are good houses and almost all facilities pay just 8.33 percentage of their salary. From the table below, it could be deduced that only medium income people can occupy FHS (Freehold Scheme) and FPS (Free Plot Scheme) houses in Surulere. But if we

Table 28.--Rent as Percentage of Income: In Surulere (1964).

Section	Average Monthly Income	Average Monthly Rent	Average Rent as % of Income
RHS I	₦ 68.8	₦ 5.00	7.3
LHS	₦ 67.8	₦ 5.00	7.4
RHS II	₦ 52.8	₦ 5.20	9.8
FHS	₦211.6	₦33.6	15.9
FPS	₦218.8	₦37.2	17.0
IDA	₦ 79.2	₦13.2	16.7
All Areas	₦113.0	₦14.4	12.7
Ajegunle			
J.M.J. Wurts	₦ 46.6	₦ 6.2	13.3
Urban Area I	₦ 45.8	₦ 5.4	11.8
Urban Area II	₦ 44.2	₦ 5.8	13.1
Rural Area	₦ 32.1	₦ 5.0	15.5
All Areas	₦ 44.6	₦ 5.6	12.6

Analyze the burden of rent, those in RHS houses would be bearing greater burden even at 7.3 percent of their income. There is not much disparity in level of rent and income in sections of Ajegunle so that one area is as much the same as the other to a potential tenant.

Rents Charged in 1976

Mainly because of subsidized housing in the high income districts, the major areas of interest in the discussion of the previous rent position in Lagos has been on the low income districts. In spite of the low standard of housing and government intervention in the form of rent control edicts, with the exception of Agege, over 70 percent of

he household

per month, a

r increase

striking an

services is

ment. The

nearness t

In

Within the

been reco

The Victo

millionai

to pay re

four or f

$24,000 o

($64,000)

about 150

Fo

around ₦30

as advance

have from

either Iko

not readil

that might

In

₦,000 (19

the households in the low income areas pay over ₦10.00 in rent per room per month, and over 30 percent pay more than ₦20.00. This represents an increase of about 100 percent over 1968 rental figures. Particularly striking are Ajegunle, Ebute-Metta and Obalende where the level of services is very low and yet over 75 percent pay more than ₦10.00 in rent. The high rent in these neighborhoods may be attributed to their nearness to employment centers.

In the past two years the rent situation has changed dramatically. Within the last twelve months, more than 100 percent increases have been recorded in many districts of Lagos, and rent are still rising. The Victoria Island/Ikoyi area now fully deserves the nickname of "the millionaires' suburb" because only the affluent households can afford to pay rents being demanded there. This time in 1975 a house with four or five bedrooms could be rented at ₦15,000 per annum (i.e. $24,000 or $2,000 per month). Today, the rents are around ₦40,000 or ($64,000) or about $5,000 per month. This represents an increase of about 150 percent in just one year.

For a three bedroom house on 1/2 acre plot (lot) the rent is around ₦30,000 per annum. In each case rent is payable for five years as advance payment. This means that a prospective tenant needs to have from ₦150,000 to ₦200,000 ready before he can get a house in either Ikoyi or Victoria Island. But even in this area, houses are not readily available. Houses being offered for tenancy now are those that might be ready in three or four months time.

In the South West Ikoyi area rents for houses have moved from ₦8,000 (1965) to ₦18,000 in 1976. Flats or apartments that could be

rented at ₦5,000 twelve months age now rent at ₦12,000 per annum. Here too, five years rents are payable in advance, but there are no vacant accommodation on offer. In Apapa low density areas, rents for houses (detached) have risen from ₦8,000 to between ₦18,000 and ₦20,000 per annum. In the Apapa Water front area where houses have mooring facilities current t rents are ₦25,000; flats that rented for ₦6,000 per annum one year age now rent at ₦12,000 (100 percent increase).

The rent situation in Apapa also applies to the Ikeja GRA. In this area houses are still available but the rents are likely to increase faster than in the Apapa area because with greatly improved road links between Ikeja and Lagos Island many people whose workplaces are on the island are quite willing to live in Ikeja. The demand pressure has consequently increased. In Ilupeju, flats are rented at ₦3,000 to ₦6,000 per annum. The same situation exists in Palmgrove.

In Surulere rent range from ₦1,200 for a two bedroom flat to ₦12,000 per annum depending on the section you are in. In the Adeniran Ogusanya/Bode Thomas/Adelabu complex which have recently been invaded by the traditional Ikoyi-Apapa affluent tenants, rent have jumped beyond the ordinary man's means. In other areas of Surulere rents are still within reach. But they are much higher than what they were a year ago. In these areas where roads are very bad and in most cases non-existent, and where water and electricity supplies are matters of chance, rents for new houses have moved from between ₦60 to ₦80 a month in 1975 to between ₦100 and ₦160 a flat depending on size and on whether there are roads to the houses or not.

The situation in Yaba area is very similar to that of Surulere. The main difference is that accommodation is less available at Yaba. From Table 29 one will notice the woeful story in places like Anthony Village, and even Oshodi, Apege, Bariga etc.

As regards rooming houses, there seem to be no vacancy. The supply of this type of accommodation in which the majority of the urban population of Lagos lives is in fact declining. No investor builds that type of house any more, and those who already have them are converting them into flats. The main reason for this is the rent control edict. Landlords have noted that all past edicts, were enacted mainly in relation to rooms. And since they don't wish to have investments controlled, they have shifted to the building of houses in flats. Moreover a landlord can recover his invested capital quicker if he lets his house by flats instead of rooms. The advance payments (which don't exceed one or two years in Surulere, Oshodi, Yaba, Ebute-Metta) are re-invested to build other houses thus perpetuating the landlord class. Also the problems of rent collection are less for flats than in houses let out in rooms.

Not that you get rooms or flats as soon as a vacancy occurs. There have sprung up phony "real estate agents" whose business is to locate vacant or new flats and negotiate with the landlord for their lease. Prospective tenant register with ₦10.00 at the offices of these "agents" to discover that the offices and agents have disappeared over night. This has become a racket in Lagos and many have been duped more than once. There are many litigations about this business. To

Table 29.--Residential Rent in Lagos, 1975-76.

District	Type of Rental Unit	Rent 1975 Per Annum	Rent 1976 Per Annum	% Increase Per Annum
Victoria Island/ Ikoyi	House	₦15,000	₦40,000	166
South West Ikoyi	House	₦ 8,000	₦18,000	125
	Flat	₦ 7,000	₦16,000	128
Apapa Low Density Area	House	₦ 8,000	₦18,000	125
Apapa LDA (Water Front)	House	--	₦25,000	--
Ikeja GRA	House	₦12,000	₦18,000	50
Ilupeju	House	₦ 6,000	₦16,000	166
	Flat	₦ 1,500	₦ 3,000	100
Palmgrove	House	₦ 5,000	₦16,000	180
Surulere	Flat	₦ 2,500	₦ 6,000	140
Bode Thomas/ Adelabu	House	₦ 4,000	₦12,000	200
Ogulana	Flat	₦ 1,200	₦4,000-12,000	233+
Yaba	House	₦ 3,600	₦ 8,000	122
	Flat	₦ 8,000	₦ 1,200	50
Anthony Village	House	--	₦ 5,000	--
	Flat	₦ 600	₦ 1,500	150
Other Areas	Flat	₦ 1,000	₦1,200-3,000	110

get a flat, one has to apply a year or two in advance hoping that something turns up.

People in the real estate business see no early easing of the rent problem. There is widespread public cynicism about what relief the Rent Tribunal recently set up by the government can bring. There have been rent edicts in the past but these were quickly forgotten as desperate prospective tenants begged landlords to name a price. While the landlords apparently sympathise with tenants, they claim that they are compelled by circumstances to take what the market can offer. According to them, the cost of buildings has gone up so high that only a few people would undertake such projects without taking loans. These loans have amortisation periods of 8 to 10 years with interest of up to 12.5 percent. Also the system of land ownership and land registration in Lagos is frustrating. One plot of land may registered in the Land Registry under many titles belonging to different people. A prospective purchaser of land may get confirmation at the Registry that a plot of land belongs to the man Vending it. But as soon as he starts putting up a structure on it, he may be challenged by five other claimants, all also registered in the Lagos Land Registry. In the following chapters we shall see if the claims about high building costs and high interest on loans are true assertions.

Why has rent shot up so much in just one year? The answer could be found in the unprecedented spiral inflation in the country especially in Lagos. The inflation has been brought about by increases in salaries recommended by the Udoji Review Commission. But what matters is not so much, the amount of rent paid, but its weight in the

consumer price index. It is important to note that since the 1960's rent has been taking an increasingly greater proportion of income, particularly in Lagos.

Therefore, the importance of rent as an item of cost to the individual is best appreciated in terms of its quantitative share in total consumer expenditure. In the computation of the consumer price index, a weight of 112 out of a total of 1,000 was allocated to rent in 1960. The substantial increases in rental charges over the past 15 years have made nonsense of the weight attached to rent in the consumer's basket. However, in the housing chapter of the Third National Plan (1975-80), there is a claim that the urban worker pays as much as 40 percent of his monthly income on rent.

The Anti-Inflation Task Force thinks that this estimate appears on the high side. It claims that rent currently accounts for about 30 percent of the earnings of people in various economic groups. As usual, the burden will be more on the lower than on the middle or higher income group. The writer is in agreement with the Task Force figure. Let us take a middle income worker on level 09 scale of salary earning ₦4,368 per annum and pays ₦120 per month on house rent in Surulere excluding electricity and other utilities. He will be spending 29.6 (30 percent) of his monthly income on rent. His counterpart on Level 10 earning ₦5,460 per annum in a similar accommodation will be paying 26.37 percent of his monthly income on rent--a lesser burden for him than for the first individual--yet both of them are in the same income bracket. For the two cases it averages 29.66 percent (or 30 percent). All the calculations are based on three bedroom flats.

Adequacy of Related Infrastructure

Definition

Infrastructure is a "term widely used in planning, denoting the services and facilities which are an integral part of the life of an urban community. It comprehends transport facilities and communications, power, shopping facilities, housing, schools and recreational facilities. In a healthy urban community such an infrastructure is geared to expanding economic and social life."[19]

In this study, the definition is limited to domestic water supply, domestic power supply and consumption, circulation and disposal of residential solid and liquid wastes. Therefore the meaning of infrastructure is made flexible here to include some services within the dwelling unit like toilet, kitchen and sanitary facilities etc.

Human Wastes Disposal

Environmental Sanitation.--To a large extent, the type of sanitary facilities in a dwelling structure is a function of the dwelling type. For example, while a flat or apartment dweller can have exclusive use of running water for tiolets, kitchen and bathroom, at best a dweller in a rooming type has to share these basic facilities with other tenants if these are provided at all. To a lesser degree, the adequacy of these facilities correlates with the age of dwelling structure. The standard and availability of such facilities depend

---

[19]See Arnold Whittick, Editor-in-Chief, Encyclopedia of Urban Planning (New York: McGraw-Hill Book Company, 1974), p. 553.

on the type, age and quality of the structure and determine the degree of comfort and satisfaction for dwellers.

Various studies and field observations show gross inadequacy of such "goods and services" like clean water, fuel for lighting and cooking, toilet, storm and domestic drainage and open space as one goes from the oldest and/or poorest areas of L.M.A. to the newest or more affluent areas.

The lack of and/or inadequacy of these services have direct bearing on the environmental sanitation and perhaps on the rate at which dwelling structures and the environment degenerate into slum condition. A recent study of both Surulere and Ajegunle on the status of these facilities is illustrated by the tables below.

Bathroom (Shower or Bath tub)

Area	Shared %[a]	Private %[b]	None %	Total
Surulere	34.2	65.8	--	100.0
Ajegunle	84.0	4.9	8.7	100.0

Toilet (latrine)

Area	Shared %[a]	Private %[b]	None	W.C.%	Bucket %	Pit %[c]
Surulere	34.2	56.8	--	98.4	10.4	0.2
Ajegunle	84.0	4.4	9.6	16.5	75.8	8.7

[a]Members of more than one household in the same dwelling structure share these facilities regardless of number in each household.

[b]Only members of one household have exclusive use of these facilities.

[c]A household shares these facilities with other members of the community who have need to use them.

From the above tables one can deduce that over 60 percent of the dwelling units in the L.M.A. are without modern water closet and are therefore substandard. Less than 40 percent of the households make use of flush toilets and these are mostly concentrated in Ikoyi, Victoria Island, Ikeja, GRA and Apapa.

The bucket latrine is the most widely used (41.30 percent) type in the municipality especially in Lagos Island (85.45 percent), Obalende (63.64 percent) and Ebute-Metta (47.69 percent). Consequently, in these neighborhoods, about 1,500 night-soil buckets are used and these are gathered by some 500 collectors and then tipped into the lagoon. Apart from the official government contractors, a small group of contractors is functioning in some districts and houses. Their workers could be seen, face half hooded, with bucketfuls of nightsoil in broad daylight walking side by side with other street users in parts of Itire, Ikate.

For the private contractor workers the lagoon is too far for the disposal. Instead, some undeveloped part of the neighborhood is the dumping ground. Nightsoil disposal both through official channels by trucks into the lagoon and through unofficial contractors in the neighborhoods is a major source of environmental pollution in the city. One can hardly stay around Isale-Eko because of the nasty odors from the adjacent lagoon into which the nightsoil is dumped.

The use of the pit latrine is fairly widespread in Agege, Ojota, Eregun, Oshodi, Mushin and Bariga. Apart from Mushin, these neighborhoods were originally outlying villages which were recently

engulfed by urban explosion. However, in view of the porous nature of the underlying soil, the effluents can be expected to flow through the ground and contaminate the well water supply, which in these districts is the major source of water supply. Peter Maris reported in 1961 that all but 15 percent of the school children in Lagos have either hook-worm or round-worm; and more than 10 percent of all deaths in Lagos were attributed to dysentary or diarrhoea.[20] The situation has not changed dramatically since then.

Less than one-quarter of the households surveyed by the Human Resources Unit of the University of Lagos in 1974, have independent bathroom facilities. Most of those that have are found in Ikoyi, Victoria Island, Apapa, Ikeja GRA, Palmgrove and Ilupeju Estates. The percentage of households with a separate kitchen is slightly higher (39.63 percent) and this is probably due to the misleading information arising from the increasing number of small stoves usually used in rooms and corridors. Their data did indicate that a very high level of communal sharing is a significant characteristic of the housing conditions in Lagos. The adverse effects of this is already being felt in the rapid spread of diseases in the low-income neighborhoods where the degree of sharing is highest.

The table below illustrates the type of fuel used for cooking in Surulere and Ajegunle. It also illustrates the degree of sharing existing facilities.

---

[20]Peter Marris, Family and Social Change in an African City (London: Routledge and Kegan, 1961), p. 84.

Area

Area	Shared %	Private %	None %	Electricity %	Gas %
Surulere	33.7	66.0	--	2.7	39.1
Ajegunle	84.4	4.2	10.1	0.7	6.3
Lagos Island	64.9	35.1	--	10.0	3.0

	Karosine %	Fire Wood %	Coal %
Surulere	37.1	20.6	1.3
Ajegunle	43.0	47.0	2.7
Lagos Island	17	52	28

The above table should not be taken to represent the kind of lighting. For example, almost 100 percent of the households in Surulere use electricity for lighting but only about 3 percent use it for cooking. In Ajegunle about 70 percent use electricity for lighting while the rest use Kerosine and lanterns. The extreme use of Kerosine, firewood and even coal in places like Ajegunle, Lagos Island, Yaba, Ebute-Metta result in smoke pollution especially in the mornings and evenings when the women engage in frying akara balls, plantains and maize by the street sides for thousands who prefer to eat in these "open kitchens."

Domestic Water Supply.--Of the 2,516 houses surveyed recently, 62.5 percent have pipe-borne water. For some 15 percent of the houses, pipe-borne water is available only in the neighborhood while 22 percent have no access at all to pipe-borne water. Generally, the Municipal areas of the metropolitan area is better supplied with water than the adjoining coincil areas and their neighborhoods. Thus, the neighborhoods with highest water deficiency are Ajegunle (83 percent), Agege (90 percent), Oshodi (42 percent) and Ojota-Eregun at all, but a few of the houses make use of boreholes.

The low level of pipe-borne water development is associated with two factors, namely, administrative and technical. Many of the neighborhoods in the LMA were developed outside of the area of jurisdiction of the town planning authority mainly in an attempt to avoid the strict regulations governing the building of houses as well as the high costs of land. Ajegunle, Shomolu, Mushin and Oshodi, sprang up under this condition. Partly as a result of this it was not possible to plan for pipe connection.

Moreover, the Iju Water Works, which is the source of pipe-borne water in Lagos, has reached its technical capacity as will be discussed elsewhere in this study. Built in 1915, the Iju Water Works was able to supply 2.5 million gallons daily for a city population of about 90,000 representing a per capita supply of above 20 gallons. But in 1963 when the city's industries, commercial concerns and population had expanded more than a hundred-fold, the total output of water remained 19 million gallons daily and the per capita supply even in the municipality had been reduced to 15 gallons.

The areas of concentrated supply where the per capita consumption is about 15 gallons a day include Ikoyi, Apapa, Victoria Island, South and Western part of the Lagos Island, and the GRA Ikeja. Until the new program of expansion of the Water Works is completed the prospects of extending reliable pipe-borne water to other neighborhoods is very remote. The distribution of water is very erratic in most parts of Lagos Metro area--in some yards the taps go dry for three or four days in a row. This discussion on water has thus been given because it

as a very

using.

Ga

the house

and import

physical c

the desira

therefore

of the ne

T

the munic

the quali

As the ol

adequate

more sat

have reg

while ov

percent)

while th

areas in

both hig

in Lagos

the Lago

has a very significant impact on the sanitation and standards of housing.

Garbage and Domestic Solid Waste Disposal.--The quality of the house is not the only factor that determines its adequacy. Equally and important is the condition of the neighborhood environment. The physical conditions of the neighborhood have an important bearing on the desirability, livability and healthfulness of a house. It is therefore desirable to examine some aspects of the physical conditions of the neighborhood.

The unequal distribution of water and its inadequacy between the municipality and other parts of the metropolis is reflected in the quality of environmental sanitation, particularly refuse disposal. As the old Federal capital, the municipality had and still has somewhat adequate financial resources to perform its sanitary function much more satisfactorily than the suburb. Thus of the total houses, which have regular refuse disposal system, most are in the municipality.

All the houses in Victoria Island have regular disposal system while over half the inhabitants in Ikoyi (87.18 percent), Apapa (59.32 percent), Lagos Island (50.45 percent) are also regularly cared for. While the first three neighborhoods are in high income and low density areas in which the nation's elite live, Lagos Island is made up of both high and low income groups. The regularity of refuse disposal in Lagos Island is explained by its being the center of operation of the Lagos City Council.

In ot

and face ref

within the nu

refuse dispo

of the house

not clear wh

away to the

to the annua

no sanitary

is to be di

state of af

Ou

have adequ

where the

other part

refuse dis

20 percen

areas, re

I

of Lagos

have appe

Daily Ti

people re

it is al

stuffs si

In other areas within the municipality like Obalende, Surulere and Yaba refuse disposal can be described as fair. The only exception within the municipality is Ebute-Metta where rather surprisingly, refuse disposal is appalingly poor. It is not clear why 81.92 percent of the houses in this area have no public refuse disposal. It is also not clear whether the inhabitants dump their refuse in the nearby swamp to the east of the quarter. What is certain is that according to the annual report of the Health Department, some 13,744 houses had no sanitary dustbins in 1972. The absence of such bins in which refuse is to be disposed are collected might have contributed to the appaling state of affairs.

Outside the municipality only two districts, Ikeja and Palmgrove have adequate refuse disposal system. These are high income areas where the system of refuse disposal has long been established. In other parts of the suburb sanitation is appallingly poor. Public refuse disposal is unknown in Oshobi, and in Mushin and Agege over 80 percent of the people have no public refuse disposal. In these areas, refuse shares streets with automobiles.

In general the environmental sanitation in residential districts of Lagos leaves much to be desired. Public officials and the media have appealed to the people several times, but all to no avail. The Daily Times (a national newspaper) has been most vocal in making people realize the usefulness of environmental sanitation. In Mushin, it is all filth and a complete eyesore as people buy and sell food-stuffs sitting by refuse heaps. As the paper once said, "the health

department of the Lagos City Council is charged with the overall responsibility of looking after the health and environmental sanitation of Lagos residents. Quite rightly, a refuse bin is placed conspicously at a road side apparently for refuse disposal. But perhaps by design or accident, refuse and human waste are deposited right near the bin. As the authorities struggle to cope with these problems in Lagos, the citizens don't feel concerned about their own health."[21]

There is no wonder therefore why Lagos is described as the "dirtiest city in the world," and as the governor of Lagos State said recently, "it stinks." In actual fact it has been indicated in many quarters that a large percentage of the community has a propensity to not bothering about filth and are therefore known to be dirty as if by a cultural design. It is therefore difficult to believe that "the city has been faced with immense environmental and social problems" just because it "has enjoyed more than her fair share of rapid urban growth. This is true to a point; it is true that the environmental problems facing the city are multi-dimensional.[22] This could be caused by influx of people, resulting in intolerable overcrowding in homes. But the mounting piles of undisposed refuse; the never-flowing dirty drains and noisy environment can only be attributed to lack of awareness among the people of Lagos of the need for a clean and healthy surrounding due to their poor personal habits of hygiene and cleanliness.

---

[21] Daily Times, Monday, April 5, 1976, p. 19; see picture also in issue of the same paper April 12, 1976, p. 23.

[22] Captain Lawal, Governor Lagos State, Daily Times, March 22, 1976, p. 32.

In spite of the various "Operation keep Lagos clean" launched recently, the situation grows worse.

Storm Drainage.--It was often very difficult for respondents in a recent survey to express a reasonable opinion on the type of drainage around the buildings they occupy because many are ignorant of what constitutes proper drainage. It is just as difficult for field workers to classify drains. They tend to classify as good drains those that do not smell. In a study of Surulere carried out by the LSDPC recently, the following types of conditions of drainage were found (see Table 24).

From the table it appears that even in Surulere only 34.3 percent of the dwellings could really be said to be properly drained. Dr. G. O. Sofoluwe in his study puts the proportion of well-drained dwellings at 57.4 percent and badly-drained ones at 42.6 percent but he must have considered open drains that were in good shape acceptable.[23] Experts however agree that covered or underground drains, if properly constructed, are by far better for human dwellings even in tropical type of climate. Most houses in Mushin, Shomolu, Bariga and Ajegunle are badly drained or have no drains at all.

Street Surface Conditions

Circulation.--The familiar modern city problem of journey-to work emphasizes in Lagos the need for a network of streets to carry traffic among various neighborhoods of the metropolis. There are in fact many streets in the city but they vary in density and qualify from

---

[23] Dr. G. O. Sofoluwe, Nigerian Medical Association Journal, Vol. 4 (1967), p. 4.

Table 30.--Type and Condition of Storm Drains in Surveyed

Table 30.--Type and Condition of Storm Drains in Surulere.

Area	Covered and Clean %	Covered and Smelly	Covered, Smelly and Stagnant	Open and Clean	Open and Smelly	Open, Clean and Stagnant	Open, Smelly and Stagnant
RHSI (Rehousing Scheme)	36.3	5.0	--	2.5	1.2	22.5	32.5
LHS (Lagos Housing Sch.)	32.3	3.0	--	32.3	15.4	1.5	15.4
RHS 11 (Rehousing Sch.)	53.4	6.8	31.0	1.7	3.4	--	3.4
FHS (Fed. Hou. Scheme)	45.9	--	--	24.3	--	20.3	9.5
FPS (Free Plot Scheme)	20.4	1.0	--	25.5	2.0	4.1	46.9
IDA (Interim Dev. Area)	31.6	0.9	--	47.8	0.9	1.3	17.1
All Areas	34.3	2.3	3.0	29.2	2.8	6.8	21.6

the neighbo

carried ou

of the roa

adjacent t

U

of the he

to a road

footpaths

ffage, an

10.10 pe

the resp

unpaved)

roads.

the numi

ents in

ffage an

pality v

is high

tains.

The wri

not sim

his fie

have to

one neighborhood to the other. It has not been possible in the surveys carried out to provide direct measures of these two characteristics of the roads. Rather, the number of household heads residing in houses adjacent to various types of streets has been used as an index.

Using this surrogate, it was found that less than three percent of the heads live in areas without roads. People who do not live close to a road (that is areas in which access to houses is by lands and footpaths) are found mostly in three neighborhoods: Lagos Island, Agege, and Mushin. They respectively account for 30.30, 19.70, and 18.18 percent of all people residing in houses with no adjacent streets.

With respect to quality of streets, a little over a third of the respondents in a recent survey, live adjacent to untarred (or unpaved) roads while nearly two-thirds live close to tarred (paved) roads. Most of the untarred roads are found primarily in areas outside the municipality. Mushin alone accounts for 40 percent of all respondents in the metropolis who are living near such roads. Oshobi, Ajegunle, Agege and Shomolu-Bariga are other major districts outside the municipality where the proportion of people living close to untarred road is high.

A substantial part of these roads cannot be used during the rains. Others are closed for varying periods after each heavy rain. The writer witnessed how roads in Itire and Ikate of Surulere could not simply be used after the first rain in Lagos in late March during his field research. The situation in Aguda is even worse. Workers have to abandon their cars, at the garages, wade through pools of water

with trousers rolled up and wearing rain boots in order to get out to a dry road from where they can trek to catch a bus to work. As the rainny season lasts for some six months, one wonders what will be the fate of such workers for so long a period--will they abandon their houses and look for alternatives? What happens where they have no alternative to this type of accommodation in such an environment and they might have waited for a year or more to get it?

There is no wonder then why national newspapers carry captions like: "Human ferries who make money from the floods."[24] Actually when the rains fall in Lagos, the roads are soon flooded and in many cases become rather impassable. But these have become occasions for some ablebodied people with bright ideas to make some money. They become human ferries carrying for money those who cannot afford to wade through flooded roads. Along the roads linking Ijora area with Badiya and Amukoko areas human carriers are seen at work on such occasions charging 10K (16C) for a trip through the flood. Streets like Jubril Martins, Oduduwa, Onipede, Molusi Avenue and even Durojaiye all in Surulere are often split into two by floods. It is therefore one of the arguments in this study that where available houses are located in such environments, there is a tendency for people to avoid them. Such a situation increases the pressure of demand for houses in better areas and worsens the housing problems by precipitating rents on the upward side.

---

[24] Daily Times, Tuesday, April 8, 1976, p. 5.

The

outside it.

tem are fo

in good con

with such f

categories

uality, 25

Bariga res

Bariga fa

such high

of their

Ilupeju,

unusual a

such road

appear

Lagos.

in Lago

ordinar

several

and ma

could

than 7

The condition within the municipality is in sharp contrast to that outside it. Of all the people living close to good tarred roads 85.2 percent are found in the municipality. Not all tarred roads are, however, in good condition. About 13.13 percent of the heads of families live with such tarred but pot-holed streets. As in the case of all other categories of roads, most of these roads are located outside the municipality, 25.97 and 16.42 percent of them living in Mushin, and Shomolu-Bariga respectively. In fact 31.79 percent of all the roads in Shomolu-Bariga fall into this category. Ajegunle, Isolo, and Agege also have such high proportion of their roads in this class. The high proportion of their roads belong to this class. The high proportion of roads in Ilupeju, Ebute-Metta, Yaba and parts of Ikeja in this category is rather unusual and could only be explained when one thinks of the neglect to such roads (see Table 38 on Road Distances).

Summary

This chapter has presented an outline of the main aspects which appear to be relevant in assessing the current housing situation in Lagos. No doubt, a thorough evaluation of the housing needs and demand in Lagos in the next chapters will show that no single factor is the dominant or the crucial one. But there seem to be a convergence of several significant factors and these occur in varied combinations.

The residential housing stock in the LMA was about 56,000 in 1969 and has not increased appreciably since then. More than half of these could be described as "bad" or substandard. Overcrowding is rife as more than 75 percent of the dwelling units are let out in single rooms. It

is just recently that durable materials started to be used in constructing walls, roofs, floors, windows and other building components. Rents have been very high and residential units have often been converted into secondary uses like light industries, shops, etc. Above all the methods of disposing human wastes are quite rudimentary and this inadequacy further deteriorates existing stock and degenerates the environment.

The current trends are largely the result of well-known built-in problems. In and around the LMA, such disharmonious processes have been at work. Indeed, in view of the basic factors, it is hardly surprising to find that the difficulties in the housing situation in Lagos, arise both through net shortages and through various aspects of maldistribution and outright denigration of the residential areas by people who have no regard to environmental or sanitary decency.

The shortage of housing has remained substantial--and will continue to be regarded as substantial--for various reasons, social administrative and demographic. The rise in standards of living and changes in social habits have led to higher expectations, and so to increased demand for adequate housing. Differentials in the supply of housing have favored some groups of the population, and have left others behind. In the following section the definitions of housing requirements and allocation will be analyzed.

CHAPTER III

HOUSING REQUIREMENTS IN LAGOS METRO AREA 1976-85

In the context of the analyses that follow, housing requirements will include both the need and demand for housing. Housing *need* will involve the necessity to provide households with dwellings of an acceptable standard seen from a social point of view. The *demand* for housing will be the expected ability and willingness of the population to spend money for housing purposes. These two aspects are to be treated separately in the analyses.

Conceptual Problems

Though the distinction between the estimations of housing needs and housing demands is not a very sharp one, it is useful to deal separately with both terms and procedures. The term "housing need" is a social concept expressing: (1) the desired quantitative balance between the number of households and the number of housing units; (2) the quality of housing conditions which should not fall below the accepted social and public health norms.

According to the UN standard definition, "housing *needs* are defined as the number of conventional dwellings or other suitable housing units that need to be constructed or repaired, in order to bring housing conditions as of a particular point of time up to *nationally* adopted standards. This will include the number that need to be constructed, repaired and/or maintained to ensure that housing

conditions remain at the standard level over a stated period of time." Related to rates of population growth, anticipated rates of housing replacement, etc.; the term housing need also indicates the housing that must be provided if the established norms are to be maintained in the future.

Housing *demand* expresses a desire for housing supported by the economic ability to satisfy the desire. Households which represent effective demand for housing may or may not be in need of housing from a social point of view. Households with no "social" need for housing frequently desire larger or better equipped homes. Provided they are financially able to purchase or rent improved housing, these households represent "effective demand." On the other hand, households living in overcrowded, ill-equipped housing units of makeshift construction represent a "housing need," but if they do not have the money to pay for better housing, they do not represent "effective demand."

Briefly stated, housing *demand* is generally considered to be market demand. For example, how many houses are likely to be sold, transfered, or rented, based on what households are willing and able to pay, in any given period? Housing *need*, on the other hand, is represented by the total housing requirements of individuals and households based on standards of minimum social acceptability, whether or not they can afford what is available. Of course there is overlapping between the two terms, and this is in part the cause of the confusion. For example, most new households formed by marriage not only create a need but they often also constitute a market demand. Furthermore, households living in substandard housing, who have had a

rise

can t

can b

to be

perio

inclu

sound

to as

real

perio

can b

by lo

those

this

In te

deman

Analy

of th

or re

to ex

In th

aspec

the p

resour

rise in family income, can create a demand for better housing if they can then afford what is being built or rented.

It has to be noted here that neither of these terms, however, can be used to reflect the volume of new construction that is likely to be built during any investment period or the immediate future period. A demand estimate would be too narrow because it would not include subsidized public housing units for low-income families. Any sound estimate of total need would be too broad because it would have to assume the replacement of all substandard units--a goal which cannot realistically be achieved in Lagos during the next development planning period. What can be expected, however, is that the effective demand can be met and that a high proportion of the substandard units occupied by low-income families can be replaced by standard units built for those families. We can use the term "attainable need" to represent this combination of demand and partial need.

But in a purely economic sense, housing needs could be formulated in terms of effective demand, using coefficients of elasticity of demand in relation to income to determine the demand for housing. Analysis of the market for housing usually indicates the proportion of the population which can afford housing at a predetermined price or rent, with those below the income level established as being able to exercise such effective demand presumed to be out of the market. In the case of developing countries, this method disregards the social aspects of the problem. In some cases, like Lagos, large sectors of the population, inadequately housed, but without sufficient economic resources to have any immediate prospect of improving their housing

situation, a

need for

services a

situation.

needs is to

effectively

Th

known con

of the ga

general m

To start

standards

standard

and hous

future n

specifie

determin

anticipa

and when

reconci

with the

political

not with

situation, and therefore, not considered as representing effective demand for housing in the market sense, would be omitted from the estimates altogether. This study would attempt to prevent such a situation. The main use for forecasts of aggregate housing demand and needs is to enable Governments to plan their housing policies more effectively.

Setting Standards for Housing in Lagos

The interdependence of standards, goals and targets is a well known concept. Since even the identification of need implies measurement of the gap between existing conditions and some kind of standard, the general method suggested for the purposes of this study could be: (a) To start with the formulation of a tentative minimum standard or standards; (b) then by measuring existing conditions against the standard and estimating future requirements to provide for population and household growth and the replacement of obsolescence, to determine future needs; (c) next, formulate as tentative goals the meeting of specified portions of the need in a certain number of years; (d) to determine whether the goals and standards are consistent with the anticipated resources, or are too ambitious or perhaps too modest, and where appropriate, to modify the goals or the standards so as to reconcile them with resources; and (e) finally to set targets consistent with the goals or modified goals. The setting of priorities (a political-management role) within the various goals or targets is not within the scope of this study.

Problem of Standards

Housing in Lagos is often regarded as a chronic and insoluble problem, since the housing situation and the criteria by which it is judged are continuously changing. When looking ahead, people naturally fix their eyes on finite goals, not too far beyond their reach, since to look further would invite despair; it is only as these goals are approached that more ambitious targets are substituted for them.

Politically, it may be difficult to impose standards based on future needs if these are very markedly different from the standard of existing housing. Added point is given to this when the new standards involve financial costs which have the effect of further increasing the proportion of households who are unable to meet the full economic cost of housing.

Standards have been defined as measures of levels of acceptability at a given time, place and in a given set of cultural, technological and economic conditions. Standards vary from country to country, within a country from urban to rural, and by stages of development and urbanization. They vary with climate, culture, time, health and sanitation, and costs. Standards are relative rather than objective or absolute; dynamic rather than fixed. In setting the levels of today's standards, anticipation of the direction of future development is a relevent factor.

In a rapidly developing country where resources are expected to increase quite sharply, but where the current level of housing space is low, the minimum for new housing might be set higher than the present level in order to avoid building quantities of housing which

might become substandard within a few years. Where no such increase is hoped for, the standard might have to be far more modest. One may conclude that the most important single aspect of housing policy is the need for a balanced realism in the consideration of housing standards. If standards are set too high, new housing becomes too costly for the average income renter or even owner-occupier and the activities of public housing authorities become restricted. If standards are too low, existing unsatisfactory conditions are perpetuated. New standards should be related to the way people live and to their social and economic condition. By doing this, the aim would be the improvement of housing on a broad front, not just the construction of a few model schemes, however admirable they may be.

Standards are expressed in this study by the area, equipment and quality of finish of the housing to be built; they also comprise elements of physical planning such as density of occupation. The standards therefore fall into two broad categories: (1) health and space standards, (2) structural performance standards.

Health and Space Standards.--These define such things as size of habitable rooms, living area and floor area per person, the provision of cooking and sanitary facilities, and accommodation density.

Structural Performance Standards.--These determine the stability and durability of buildings. Minimum standards consider such factors as adequate shelter from heat, rain and wind storms, air movements to relieve heat and humidity, and protection from the sun. This implies walls and roofs impervious to driving rains, ceilings high enough to maintain thermal comfort, and adequate windows, doors and terraces for ventilation and shade.

and des

develop

degree

less du

than fr

Wyoming

economi

during

estima

by fou

water

gallon

153.0E

person

Percen

the De
of the

Figure
Wyomi
.
fracti
Univer

The standards take into account local building methods, materials and designs. The rapid changes characteristic of an immature and developing economy like Nigeria is considered in determining the degree of performance of structures built. In owner-occupied housing, less durable materials and methods of construction maybe acceptable than in rental housing.

Minimum Standards Set[25]

Considering the existing standards of housing, the social and economic conditions of the people, the limited resources available during the plan periods, the following standards *are recommended* for estimating the housing needs from 1976-1985 in Lagos.

Health and Space Standards:

1. Water Supply: Minimum of one tap on the premises shared by four households (about 20 persons). (In 1970, 28 percent had no water on their premises.) Quantitatively, this will mean about 10,000 gallons (37,853 litres) per household per month or about 16.6 gallons (63.08 litres) per person per day.[26]

2. Kitchen: Minimum of one kitchen to two households of 10 persons. About 8 percent had no kitchen in 1970.

3. Bathroom: Minimum of one bathroom to two households; 1.4 percent had none in 1970.

---

[25]The author acknowledges the contributions of M. I. Lawal of the Department of Estate Management, University of Ife for the calculations of the standards that follow.

[26]Regardless of the differences in health standards etc. this figures compares very poorly with 75 gallons per person/day in Lansing, Michigah, USA. See: Anne E. Field, "A Study of Water Consumption Practices in Households" (unpublished Ph.D. Thesis, Michigan State University, 1973).

4. Latrines: Minimum of one water closet to two households. In 1970, 56.5 percent had pail or no latrine at all.

5. Number of persons per room: In 1960, the average number of persons per room was five, in 1973 it was 6.5. The average size of a room in 1961 was 104 sq. ft. (9.66 sq. meters), in 1970 it was 115 sq. ft. (11.04 sq. meters). The minimum size of a room recommended is 120 sq. ft. or 11.52 sq. meters.

6. Living area per person: In 1961, the average living area per person was 34 sq. ft. (3.3 sq. meters); in 1970 it was 40 sq. ft. (3.716 sq. meters), an increase of 6 sq. ft. or 0.576 sq. meters in 9 years.

Except for the short period of economic stagnation during the civil war, the Nigerian economy has been gathering momentum over the past decade. The emergence of a very strong and growing economy after the war provided a good base for social development including housing. Considering the projected high rate of economic growth during the Third National Development Plan period, and the very bright prospects of higher rate of economic growth, it is quite possible to progressively increase the average living area per person to 45 sq. ft. or 4.3 sq. meters by 1985. In order to achieve this, an average of 60 sq. ft. or 5.7 sq. meters per person should be adopted for housing development from 1976 to 1985. The minimum and maximum standards on which the above average is based are:

Tyipcal Area Occupied By	Minimum Per Person		Maximum Per Person	
	sq. ft.	sq. meters	sq. ft.	sq. meters
Low-Income Group	50	4.8	--	--
Middle-Income Group	--	--	80	7.68
High-Income Group	--	--	130	12.48

To these figures must be added space for circulation, services and recreation (open space). Based on the present design of "Lagos Traditional house,"[27] and considering the minimum service standard set above, the following minimum and maximum are recommended:

In Low-Income Area--30 sq. ft./2.88 sq. meters, minimum

In Middle-Income Area--50 sq. ft./4.8 sq. meters maximum

In High-Income Area--70 sq. ft./6.72 sq. meters, maximum

The total space requirement for the dwelling structure and open space will be as follows:

In Low-Income Area--80 sq. ft./7.68 sq. meters, minimum

In Middle-Income Area--130 sq. ft./12.48 sq. meters, maximum

In High-Income Area--200 sq. ft./19.2 sq. meters, maximum

In effect, standards involve the provision of required technical specifications regarding the physical components of dwelling units, the site and development. This section is intended to be used as a reference during the design process.

Construction Standards

There are three broad categories of construction types in the LMA: (1) CI--Concrete blocks or concrete brickwalls with corrugated

---

[27] Two rows of rooms with a central passage (corridor) and conveniences at the back.

iron on asbestos roof; (2) CMI--Mud walls plastered with cement (stucco), the roof is of corrugated iron or asbestos; (3) O type--any other type, mainly bamboo wall and thatch roof; corrugated iron sheet walls and roof or combinations. (In the analysis with Stock-User Matrix, these types will further be divided into more groups.)

According to the Federal Office of Statistics (FOS), in 1961, about 59 percent of the housing stock in the LMA were of the first category, 21 percent were of the second category and 20 percent were of the third category. In 1970, 65 percent were CI, 20 percent were CMI, while 15 percent were O type. In terms of stability, durability, fire-resistance, adequate shelter from heat, rain and wind storms which are the essential criteria of acceptability, the O type construction is substandard and should only under special circumstances be allowed. The minimum construction standard acceptable and recommended is the CMI type.

The use of mud is still widewpread in Nigerian villages and rural areas but it is fast declining in urban areas, particularly in the major cities. While this decline is due in some cases to social and economic advancement, in very many cases, it is due to unfavorable official attitude to the use of this material. Attitude is reflected in the stringent building and planning regulations[28] generally applied, the result of which is uncontrollable contraventions.

Some general comments would summarize this section on standards. "The subject of housing standards is interwoven into the whole fabric

---

[28]Cf. Building By-Laws and Regulations, Extracts from the Lagos Local Govt. By-Laws, Lagos City Council.

of the housing problem. In fact, in the absence of the concepts of standards, there is no housing problem."[29] Minimum housing standards are incorporated by law and regulation in local controls. In most places, the whole public housing controversy stems from differences in the levels of housing quality which are assumed to be socially intolerable.

The term "standard" has required many connotations but most frequently implying minimum situations, with the situations expressed in physical terms. It needs be repeated here and to give emphasis to the point that the only standards which have relevance in housing programs are those which have their basic expression in human values and that the concept of standards has meaning at all levels of housing quality. The problems of housing lie in the unsatisfactory living situations of individuals and families; the cures can develop from evolutionary or socially-induced modifications of the housing situations and housing processes. A primary objective of housing legislation and housing problems is to raise housing standards and to modify or create housing situations that are acceptable.

The measurement of the impact of housing attributes on humans is a complex and imposing task. Yet, because it is central to raise the level of housing conditions and reduce housing costs, it must be undertaken by those who have faith in the instrumentality of research in accelerating social progress. There appear to be two categories of

---

[29]R. V. Ratchiff, "Housing Standards and Housing Research," Land Economics, Vol. 28 (Nov. 1952), p. 328.

standards involved in the multiform problems of housing--which might be labelled "minimum" and "volitional" (maximum).

Minimum housing standards are those levels of living, directly determined by housing situations, which are no more than just socially acceptable. Whether these standards be codified in local housing regulations or administratively determined under broad definitions, the process is one of official decision. Presumably the decision is based upon knowledge of how certain housing situations affect human beings. Actually this knowledge exists in only the crudest of forms, if it exists at all, and the standards which are established are expressed as physical specifications as not as levels of living.

Volitional housing standards reflect living conditions which are generally in excess of levels of minimum social acceptability and which apply to households above a certain level of subsistence, where choice exists over the whole range of expenditures. Here the standard is not one set by formal official devices to forestall deplorable living conditions, but standards which represent the choices of consumers to whom a range of choice is open. A volitional housing standard is a spatial design or equipment feature, which for the consumer, yields the optimum satisfaction, all other alternative expenditures considered, within a given total of available income. With tentative standards set, the next step will be to refer to existing conditions and current deficit, then assess or estimate the needs and demand.

Estimated Needs for Residential Housing in LMA

The objectivity required to "measure" an entity such as housing need, which is derived from subjective considerations, represents a

difficult and controversial task. The implied subjectivity in need makes it practically impossible to arrive at an absolutely objective and satisfactory solution. In the field of housing, need is almost synonymous and often used interchangeably with *deficit*. When examined in its very meaning, housing deficit, in actuality, reflects a difference in terms of standard, that is, between existing housing conditions, no matter how inadequate they are, and empirical or ideal standards established as a basis for ambitions or necessary improvements.

Measuring housing needs depends on agreement and acceptance of a basic minimum standard, which in turn is dependent on discretionary and subjective considerations of what is regarded as adequate or sufficient in a given society. Common criteria for establishing such standards usually include condition of occupancy (overcrowding), structural characteristics of the shelter (materials used and number and size of rooms), and the availability of basic services such as potable water, sewage disposal facilities, and major neighborhood facilities. Once a standard is established, the determination of needs becomes a statistical problem and depends in its accuracy on available data usually compiled from population and housing censuses. The resulting figure, then, represents the additional number of housing units needed to achieve at least minimum standard of shelter for those living in dwellings below that standard at the time the data were collected.

In view of inadequate statistical data and in the absence of detailed relevant surveys, housing need calculations for the LMA should be kept as simple as possible so as to avoid major errors and still

retain valuable indices of the housing deficit. It should be expressly noted, however, that any housing need calculation which is based on data as incomplete and fragmentary as those of Nigeria, must be treated with caution and should not be accepted like similar computations in more developed countries which have available complete, reliable, and accurate statistics. It should also be noted that the need figures resulting from calculations made in this study, may differ from those of other agencies or individuals since different methods, assumptions or data are employed.

In general, the procedure for estimating housing needs is: the first stage is to obtain a projection of the population in the target year by age, sex and marital status. Basically, there is a close relationship between a given population's structure and the number of households it contains. It will therefore be possible to estimate for the data fixed the probable number of households and their average size. (See page 47 for the definitions of household and family.)

Given the average size of households, it is not difficult to make a rough estimate of the proportion of households of each size. If one applies the assumed standard of accommodation to the calculated household population, one can find the number and size distribution of dwellings required for normal occupation. In addition, allowance has to be made for vacant dwellings and conversions which is inevitably necessary to allow households to move freely. The total housing stock required at the future date has now been estimated.

By comparing the stock of dwelling structures in existence at the present time, the number of units of each size that have to be

added is obtained. But these are not all the new structures that will need to be built. Some, and possibly a great number, of the existing buildings will need to be demolished and replaced by the target year.

In a country like Nigeria, undergoing rapid industrialization and urbanization with limited resources, in addition to setting minimum and maximum standards as effective tools in goal formulation and programming, it is also necessary to adopt an order of priority for meeting housing needs. Considering the rate of population growth, the present housing situation and the development priorities of the National Development Plans, the order of housing development priority suggested here is as follows:

1. Needs arising from population increase especially natural increase in the number of households plus migration;

2. Replacement requirements arising from general public works development;

3. Needs arising from vacancy reserve and;

4. Needs arising from existing deficit as implied in all of the above three.

Needs Arising from Population, Natural Increase and Migration

The Demographic Division of the Federal Office of Statistics has computed population projections by states from 1963 to year 2000. Their projections were based on four percent annual growth rate for LMA and 2.5 percent for other parts of the country. (This projection for LMA is quite conservative.) Constant rates of growth were used for the 1963-2000 period. A number of other estimates has been referred

to and a reconciled estimate has been evolved by the author. (See Chapter II section on total population.) The population increase in the Metropolitan Area of Lagos between 1970 and 1974 was about 239,000, and by 1985 the increase is projected to be about 887,220.

Number and Sizes of Households

If the number of future households is to be predicted accurately, it is necessary to have a detailed estimate of the population for that date, classified by age, sex, and marital status. The number and sizes of households is by far the most important component in estimating housing need. The number of households in a given population depends on the number of adults rather than on the total population. Young children do not form separate households and a married couple with children will stay one household, and only one, whether they have two children or three.

The relationship between the number of adults and of households enables one to make more reliable forecasts of household formation up to twenty years since, in order to forecast total population, one needs to predict the birth-rate, which can fluctuate considerably. But the future birth-rate is irrelevant to the number of adults in twenty year's time--they have already been born. A forecast of adult population for that period ahead, requires a prediction of the death-rate, which is more stable, and the extent of migration.

The number of households in a given population will be influenced not only by the size of the adult population, but also by its age, distribution, and marital structure: a higher proportion of single people than of married people, for instance, share dwellings, and

young single people are less likely to be head of households than older ones. Most heads of households, in fact, are drawn from a comparatively narrow section of the population. In Lagos, the population in the age bracket 21-30 has been increasing since 1951 (Table 9). The rate, therefore, at which households are formed depends to a large extent on the number of people in the household-forming groups. Past changes in the total number of persons per household do not appear to be a good guide to determining future trends.

Headship Rates

A more elaborate but more reliable way of predicting the number of future households is to relate the number of households to the number of people in smaller groups, defined in terms of age, sex, and marital status. For each group, the percentage that are heads of households is known as the "headship rate" of that group. Headship rates tend to be fairly constant over a period of time. There is no scientific method yet available for estimating headship rates, but attempts are being made to develop methods and techniques for such computations.[30]

Sizes of Households

For estimating housing needs, it is important to know, not merely the total number of households at a given future time, but also

---

[30]See for example: Ralph Jhansson, National Housing Board, Sweeden, "Methods and Techniques in Computing the Future Number of Households with Application of Headship Rates," in UN Publication, Housing Requirements and Demand: Current Methods of Assessment and Problems of Estimation, Eco. Commission for Europe, Geneva 1973.

their size

consisting

possible,

distributi

of the inv

assess how

to accomm

B

distribut

ever exis

will be s

the relat

time; eve

size at t

between t

N

can be va

units cur

requireme

because

the stock

future ch

the housi

regular,

adjustmen

their size distribution, that is, the proportion of all households consisting of one person, two persons, etc. But, even if it were possible, it is not required to obtain a precise estimate of the distribution of the households according to size. The ultimate purpose of the investigation into the numbers and type of households is to assess how many and what sizes of dwelling units need to be provided to accommodate satisfactorily the households at a future date.

But it is futile to expect that perfect match between the distribution of households and the number of houses available will ever exist. Whatever accommodation standards are agreed upon, there will be some overcrowding and perhaps under-occupation. In addition the relative number of households of different sizes changes over time; even if the dwellings matched the households in numbers and size at the target date, there might well be considerable discrepancies between the two after a few years.

Nevertheless, approximate estimates of future household sizes can be valuable in determining whether the number and type of dwelling units currently under construction is radically out of line with future requirements and how the program needs to be changed. Moreover, because the sizes and number of households change rapidly compared with the stock of houses available, it is all the more important to foresee future changes many years ahead so that the requisite adjustments to the housing stock can be made in time. Ideally, there should be regular, overlapping estimates of the size of households and a continuous adjustment of the housing program.

Introduc

of offic

world, i

and in t

is neces

pulation

evolutio

equation

where

P(

x(

pulation

from it

records

containe

the purp

trends i

Extrapolation

In some countries estimates of households are published as part of official censuses. But in other countries, particularly the developing world, including Nigeria, the appropriate statistics may not be collected and in these cases it is difficult to make reliable estimates. It may be necessary then to construct an ad hoc projection by means of extrapolation, however unsuitable this method is.

Starting from the census or annual series of population, the evolution of the number of households could be determined by the following equation:

$$AF = \frac{P\ (t + At)}{x\ (t + At)} - \frac{P(t)}{x(t)}$$

where AF = number of households

P(t) = population in the year t

x(t) = average size per household in the year t

$Pt = Po(I + a)^t$

a = the annual growth index for the estimation period, say 1970-1974.

The decision on whether to use the headship rate, or the extrapolation method will depend on the availability of census data in the form it will be applied to avoid gross errors. Since there are no records of headships, the author has utilized the available data as contained in Chapter II to determine the household number and size for the purpose of determining the housing need arising from demographic trends in the LMA.

Household Number and Sizes and Kinship in the LMA

Four different types of factors affect the composition of households: the kinship organization and associated social values; the demographic structure of the population; financial resources available to the group or individual; and the availability of housing. In Lagos, the demographic structure of the population has little effect, the other three are the major factors affecting the composition of households. Sociologists and others have argued for a long time that households consisting solely of an elementary or nuclear family (parents and their children) are the product of a fairly recent stage in industrialized urban societies, and are symptomatic of the comparative isolation of the modern family and the weakening of ties within the wider kin group. The ties with the wider kin group described as extended family are still very strong in Nigeria and mostly affect the composition of the household. In very many cases, persons who have no ties of kin with other members of a household form part of it: domestic servants, lodgers or persons connected with the economic activity of the family such as apprentice or laborers.

Household and dwelling are usually defined in ways which assimilate one to the other. On this basis, the average size of a household in Lagos has been estimated at 5.0 for 1975. The average size was 4.1 in 1961; for 1970 it was 4.64. By this definition, a very important factor affecting household formation and size is the availability of housing. There are cases where two, three or four persons combine to form a single household, and, as soon as houses become available or their economic position improves, they separate to form more households.

Some authorities consider that there are between six and ten persons per "family" (household) in the Lagos Metropolitan Area and about four to eight persons per family in the Lagos State. The figures for the Metropolitan Region appears to be on the high side but assuming that they are the right ones because of the extended family system still prevalent in Lagos, they are likely to decline with increasing economic prosperity and improvement in housing situation. An average size of five persons per household is recommended here for estimating dwelling units required. The estimated population increase during the 1970-74 was 239,000; at an average household size of five, the number of dwellings would have been 47,800. By the same token this would have risen to 177,440 dwelling units by 1985. This calculation looks too simplistic to be dependable.

Replacement Needs

Replacement requirements arising from economic development is next to be considered. The major economic development proposal that required demolition of households during the 1970-74 Plan period was the Agege Motor Road Improvement. This, according to the Federal Ministry of Works, affected 50,000 to 60,000 people. At an average household size of five, a total of 10,000 to 12,000 dwelling units would be required for relocation. For the 1975-80 Plan period, more road and bridge constructions are being undertaken. These include the Lagos Island Ring Roads (Falomo bridge and interchange, Mobalaji Johnson Way, Lagos Northern Foreshore Road and Marina and New Five Cowrie Bridge), Oworonsholi--Ikeja--Oshodi--Apapa Expressway; Third

Axial Road and Bridge, Oyinbo-Airport complex, Western Avenue--Apege Motor Road, Malu--Kirikiri--Apapa--Ikeja Expressway, Eko Bridge Extension Phase III, and Right of Way Acquisition. The above projects will at least affect 100,000 people requiring about 20,000 dwelling units.

The replacement of Substandard Dwellings is always the most critical area of assessing housing needs. The total estimated need would depend on the replacement rates adopted by the estimator. The proportion of existing dwellings that need to be replaced can be determined by examining the soundness and quality of all dwellings. This requires a comprehensive structural survey of all houses, using uniform standards.

Such a survey would be expensive and administratively difficult and would take a long time to complete, hence this present study relied on sample surveys. This is why, in practice, calculations of replacement needs are often based on the age distribution of the existing housing. The problem with this method is that there is no single way of determining what the average life of a house should be and is often difficult to establish the age distribution of dwellings.

In most Western countries, the age structure of the housing is already known, requiring little additional research. In Nigeria such information is not available and to the best of the author's knowledge no research has been instituted to that effect. The usual practice assumes an average life of 33 to 35 years for the housing stock and employs a replacement rate at three percent per annum. The median age of houses in Nigeria and Metropolitan Lagos should be much lower than

30 years

permanen

structu

more re

structi

picture

sidered

7,245 c

15 perc

there a

of five

stock--

and re

of pol

investi

which

stock.

be 1,4

averag

to rou

person

At an

lings

102,00

33 years considering that large proportions of the houses are semi-permanent in nature" (Lawal, 1974).

Since there is no information on age of buildings and a detailed structural survey of housing has not been undertaken, it is considered more realistic to base replacement requirements on the minimum construction standard already set. This would provide a more objective picture of replacement requirements. The "0" type dwellings are considered substandard and therefore need replacement. In 1970, about 7,245 of the houses in Lagos Municipality were "0" type representing 15 percent of the total stock of 48,300 or nearly 50,000. By 1985, there are expected to be about 75,000 and, if one allows a down-grading of five percent, it will give about 15,000 or 20 percent of the total stock--double the number in 15 years.

The question is to decide the appropriate rate of demolition and replacement depending on resources. If it is decided as a matter of policy that all "0" type dwellings are to be replaced during the investment period, then about 1,483 houses would be replaced yearly which represents a replacement rate of 3.5 percent of the total housing stock. Since the population of Metropolitan Lagos was estimated to be 1,405,700 in 1970, the housing stock of 48,300 thus represented an average of 31 persons per house in 1970. By 1985 it will have risen to roughly 34 persons per house. On this basis a total of about 224,000 persons would have to be rehoused as a result of the policy decision. At an average household size of five persons per dwelling, 44,920 dwellings were required in 1970; by 1985 it would be 510,000 persons and 102,000 dwelling units.

It is assumed that none of the other CI and CMI house types would be demolished except in very serious cases of structural defects that constitute danger to the public. And no allowance for such occasional demolitions has been made in the estimate that follows.

Vacancy Reserve

We would also estimate vacancy reserve. The essential purpose of vacancy reserve is to make the housing market function normally, by making it as easy as possible for households to satisfy their housing needs during different periods of their lifetime and in accordance with their living standards. There does not seem to be any generally agreed standards for this vacancy rate but in many countries a reserve of one to three percent is regarded as reasonable. In 1961, 2.2 percent of the rooms in the LMA were "artificially" vacant; in 1970 it was 2.7 percent; a vacancy rate of three percent is adopted here up to 1985.

Multifunctional use of dwellings is a common feature in the LMA as has been pointed out in earlier chapters. In 1961, 2.3 percent of the rooms were used for other purposes apart from residential; in 1970 it was 4.3 percent. With positive planning and proper organization of commercial activities, secondary use of dwelling structures would perhaps diminish or at worst stabilize at five percent. However, a reserve of three percent is adopted for the 1970-74 plan period and four percent for the 1975-1985.

An estimate of housing needs is summarized here. The total housing *need* for the LMA during the 1970 to 1974 Plan Period and projected through 1976-1985 would be:

a. Ho
an

b. Ac
An

c. Re

d. Va
Se
re

at an

be a

of tha

this

50,00

Court

figur

whole

many

not m

how m

22,00

detac

obtic

	Dwelling Units	
	1970-1974	1976-1985
a. Households Formation (Natural Population and Migratory Growth)	47,800	177,440
b. Accumulated Deficit and Demolitions Arising from Public Works	12,000	100,000
c. Replacement of Substandard Dwellings	44,920	510,000
d. Vacancy Reserve and Units Converted to Secondary Uses (6 percent, 7 percent respectively)	6,282	55,120
Total	111,002	842,560

The total of 111,000 dwellings units in five years will work out at an average of 22,200 annually. For the 1976-85 Plan period it would be a total of 842,560 dwelling units or 84,000 needed per year because of the expected acceleration of growth in economy and population. When this estimate is compared with the government projected estimate of 60,000 dwelling units from 1975-80 or 12,000 per annum for the entire country, there is evidence of gross underestimation. Even though this figure has recently been increased to 200,000 dwelling units for the whole of Nigeria, it is still inadequate. But the question is: how many of these projected number will be constructed when officials do not make their estimates on the basis of the factors used here. Also how many dwelling units will be allocated to Lagos which needs at least 22,000 to maintain a minimum standard.

Whether these dwelling units should be in detached, semi-detached, terrace houses, flats or whatever is a matter for official policy decision by the urban planners using density indices. But who

gets the units to be built? How will the stock be allocated--by the market mechanism or by filtering? At the end of this chapter, an allocative process is recommended aimed at an optimal or near optimal solution of this problem.

It is impractical to require that all new housing be built to the minimum standard. The provision of houses above the minimum standard is necessary to satisfy the requirement of the high income and middle income groups. But, the proportion of the total annual new housing production built at the minimum standard as compared with what is built at higher standard is a matter of basic policy and affects total costs. Such a policy will grope where theoretical constructs (like the one to be provided later in the stock-user matrix) are lacking. A relatively small proportion of very expensive dwellings would sharply reduce the number of dwellings a given quantity of investments can finance. In order to match outlay with resources and achieve the desired objectives, the housing requirements should be apportioned among the various income groups. The First National Development Plan 1962-68 recommended the apportionment of the required housing units in the following proportions:

Low-Income	60 percent
Middle-Income	30 percent
Upper-Income	10 percent

The basis of this apportionment is not known. However, based on the 1970 income structure, it was recommended by Lawal that the estimated housing needs should be apportioned as follows:

Low-Income	70 percent

In the

standar

tremend

wide ra

nating

sectio

rates

Altern

method

or und

import

these

the fo

Depart

Improv

which

and wh

calcul

treat

be tak

which

case o

Middle-Income	25 percent
High-Income	5 percent

In the absence of well defined national goals and ojbectives, regional standards and priorities, estimating housing needs would always pose tremendous problems to the experts whose estimates often differ by wide margins. The estimates are sometimes over-simplified by eliminating important variables like migratory movements. In the next sections how to accommodate these other variables when making estimates of needs is treated.

Alternative Methods

The most common way to estimate housing needs is by the tabular method. However because it introduces errors of either overestimation or underestimation and is too gross in its measurement results it is important to seek better methods of doing the computation. One of these is the mathematical method which is described below. Part of the formula used was derived in a study in Honduras by a team of the Department of Social Affairs, Pan American Union, in 1964.

The method of estimating needs previously outlined could be improved. In the next few pages, some other methods are discussed which can lend themselves more easily to mechanical computations as and when data become available and sufficiently refined. The accurate calculation of future needs requires statistical data of relatively great detail and refinement. A substantial number of factors have to be taken into consideration that provide the basis for a technique from which an accurate needs determination can be derived. However, in the case of Lagos, as is in many comparable Black African cities, only

limited

versus t

conventi

future h

tations

the bas

hold fo

causing

defici

needs.

of pres

necess

housin

needs

housin

justif

crowdi

cated

size

are n

crowd

suitab

by sh

of ad

limited data are available which are compiled in the course of regular census taking, and which are insufficient for the application of the conventional formula. For this reason, the usual method of computing future housing needs must be greatly modified in terms of the limitations of the information available.

In the formula that follows, future needs will be calculated on the basis of two essential factors: population increase, i.e. household formation, and replacement requirements anticipated for the future, causing current and progressive deterioration. The existing housing deficit, i.e. present needs, is often added to the estimated future needs. In the case of Lagos, however, it appears that the inclusion of present housing needs in future needs considerations may not be necessary in the light of the formula that follows. If the existing housing stock is currently increased in accordance with the future needs estimates, a great portion of the present needs, or existing housing deficit, will eventually be eliminated. This conclusion is justified since the existing housing backlog is caused mainly by overcrowding.

If the housing stock is increased by the number of units indicated in the future needs estimates and if the new units are of the size that would accommodate large households, a great number of which are now housed in inadequately small dwellings, the rate of overcrowding would be reduced significantly. New households would presumably find the vacated smaller dwellings adequate in size. Thus, by shifting large families from over-crowded quarters to new dwellings of adequate size and making their former dwellings available to new

house

const

remai

exist

to t

esti

acce

be a

in e

cons

to b

and

It s

met

dif

nee

Pop

It

for

lat

hou

Ow

cen

hou

households, overcrowding would no longer be serious and would no longer constitute the major portion of the present needs. There would still remain, of course, the smaller portion of the present needs caused by existing substandard dwellings, which portion would be negligible relative to the mounting housing requirements as expressed in the future needs estimates.

If the foregoing assumption is considered invalid or not acceptable, a discretionary portion of the present needs estimates may be added to the calculation estimates of future needs in each year or in each projection period. The sum of these two estimates then would constitute the number of units by which the housing stock would have to be increased to meet the current needs anticipated in future years and to eliminate gradually the accumulated housing backlog of the past. It should be noted, however, that if the future needs are not adequately met, the present backlog will increase at a rate equivalent to the difference between actual housing production and the estimated future needs.

The first component in future needs calculations, namely, population increase, can be ascertained from the previous chapters. It would be more accurate, however, to relate population increase to formation of new households. It is realized that the rate of population increase does not fully coincide with that of the increase of households. In the absence of a known correlation factor between these two rates of growth, and in view of the relatively short projection period of 10 years (1976-1985), it seems reasonable to assume that households increase at the same rate as the population, and that the

present household composition of 5.0 persons remains static in the projection period. It should be noted, however, that the size of households normally tends to decline as social and economic development progresses, and therefore the estimates of future housing needs may be understated in this study by the ensuing formula. The population growth rates employed in the future calculation will be five percent.

The second component in the calculation is represented by the need to replace progressively dwellings that will be lost from the housing inventory because of deterioration. Other reasons for replacement needs, as stated before, are loss of housing units due to natural disasters, fires, or replacement by nonresidential uses. It is almost impossible to estimate their number, and they have been therefore somewhat ignored here. In order to arrive at a reasonable estimate of replacement needs caused by progressive deterioration of the housing stock, it becomes necessary for this calculation to establish an estimated average technical life of the dwelling. Following the author's field observations and field interviews, the conservative estimate of an average life of 50 years for Lagos dwellings will be used--different from the 33-35 years used earlier in this section. From this, it is possible also to derive the percentage of the housing stock that must be replaced each year.

These two components, population growth and replacement, provide the basis for the calculation of future needs, and their relationship can be expressed in a simple formula:

$$N_t = DR_t + (Dt \frac{DR_t}{2}) \frac{t}{L}$$

ere:

ousin

the ne

of fle

condit

city i

calcul

of ass

ent f

can be

For ex

substa

shorte

as nam

and re

from t

availa

in the

formula

where: N = number of dwellings needed

t = time period for which the need are calculated (in years)

D = number of dwellings in existence (housing stock) at the beginning of time period (t)

R = geometric rate of population growth for time period (t)

L = average technical life of the dwellings (in years)

The fixed element in the formula is the number of existing housing units (D) at the beginning of the time period (t) for which the needs are calculated. The variables in the formula provide a degree of flexibility and adaptability that can be applied to a number of conditions and requirements to suit the particular circumstances or city in Nigeria or elsewhere in Africa and the world. Thus, need calculations for any given time period (t) can be made, and a range of assumed population growth rates (R) can be used. Also, the replacement factor which is based on an assumed technical life of a house (L) can be altered depending on the over-all condition of the housing stock. For example, if some 80 percent of the housing stock is in poor and substandard condition, the technical life applied to it would be much shorter than that used for a housing stock in over-all good condition.

In general, the formula is rather simple and does not require as many data as the more elaborate formulas. The achieved accuracy and reliability, of course, cannot measure up to the results obtained from the latter. But, under conditions where only limited data are available, it provides a good indication of the housing units needed in the near future.

Serving as a practical example of application of this simple formula, the housing needs for Lagos Metropolitan Area for the first

five year p

projections

t =

D

Rt

L

N5

N5

N5

This wil

160,000

assumpti

for Lag

1976-19

popula

5.0 pe

needs)

elimin

But it
face c
develo

five year period 1976-1980, which is the first section of the needs projections, are computed where:

t = 5(number of years for which needs are calculated, i.e. Third National Development Plan Period for Nigeria)[31]

D = 57,238(existing number of housing units in 1975)

Rt = .26(annual growth of 5 percent projected at a geometric rate over 5 years)

L = 50(average technical life of the dwelling in number of years)

$$N5 = 57{,}238 \times .26 + \left(57{,}238 + \frac{57{,}238 \times .26}{2}\right) \times \left(\frac{5}{50}\right)$$

N5 = 14,881.88 + 64,678.94

N5 = 79,560.82 or 79,561 units needed over the five year period 1976-1980.

This will give an annual need of 15,912.16 or nearly 16,000 units or 160,000 units from 1976-1985.

In summary, the estimate of future housing needs is based on the assumptions that:

1. The average annual population growth rate of five percent for Lagos will remain constant during the entire projection period 1976-1980; it may decline later.

2. Household formation will take place at the same rate as population growth rate with household composition at remaining at 5.0 persons.

3. A major proportion of the existing housing backlog (present needs) caused by overcrowding will automatically be reduced and possibly eliminated if the total estimated future needs is met each year.

---

[31]The Third National Development Plan is actually from 1975-1980, but it was not implemented until 1976. So 1975 is regarded as an interface or transitional year or an extension year for the 2nd National Development Plan.

The future needs estimates will, however, be projected over a total of ten years (1976-1985) and sectioned into two periods of five years each. A longer projection period would lend itself to major errors and would appear to be unrealistic, particularly in view of inevitable future economic and social changes and the scarcity of data. Also, long-range programming in housing and physical planning in a place like Lagos will be easily overtaken by its rapid and astronomical population, economic and social development.

If we compare the results of tabular and mathematical methods of the estimates of needs arrived at, we would see that the figure of 16,000 units per years is quite realistic, and attainable. Such a figure could be more easily accommodated by the investments budgets for the city. The estimate of 184,000 units per year over 1975-1985 seems too high to accomplish, while 22,000 is also considered high enough by the author. Estimates of housing needs usually vary widely depending upon the assumptions made by the estimator concerning the rate of the new household formation, the occupancy ratio, and the replacement of the older structures, in the housing inventory.

A review of approximately 20 estimates of long term housing needs in the United States covering periods of varying length from 1946 to 1960 revealed considerable variation between annual number of dwelling units needed, 706,000 and the estimate of maximum need of 2,000,000 per annum.[32] However, this variation is done on purpose and should not be regarded as an error--US Census Series projections uses formula "A through E."

---

[32]Housing and Home Finance Agency, The Housing Situation (Washington: Govt. Printing Office, 1948), Table XXXVIII.

It may be of interest to note that the rate of new housing in the U.S. production from 1946 to 1953 averaged close to 1,000,000 units per year. The actual level of housing production, however, is not a good measure of the accuracy of an estimate of housing need. Housing production reflects the ability and willingness of the population to spend their incomes for housing rather than their need for a given quantity or quality of shelter. Furthermore, estimates of new construction do not take into consideration the influence of the volume of demolitions and conversions. The former tend to vary with commercial and highway building activity, while conversions rise in periods of housing shortage and during depressions. Measurement of the combined influence of these factors is made difficult because of lack of adequate data on the volume of demolitions and conversions.

Demand for Housing in the LMA

The aims and methods of estimating housing *demand* are determined, on the one hand, by the social and economic organization of the country, and on the other, by the housing systems operating in that country. Before discussing the approaches, techniques and analysis to be used for the Lagos estimates, it is necessary to sum up, in general, the purpose and functions of estimating housing demand and the nature and dimensions of housing demand.

It should be stressed from the onset that the aim of this review is by no means an analysis of the econometric techniques and models used in measuring demand relationships, nor a description of the functioning of the housing market. The following presentation is

intended to recognize basic information on the specific nature of housing demand, as compared with that for other commodities, on the ways of assessing the demand by means of household surveys, thus setting the stage for the analysis in Lagos. These aspects should also clarify the role which knowledge of housing demand plays in shaping governmental housing policies. The following discussion is, moreover, limited by the fact that it is related mainly to problems as seen from the consumer's side and from the point of view of public authorities wishing to make the housing market function in comformity with the goals of the policies.

The stress on the consumer's view of housing demand is reflected in that more attention is given to such factors as *incomes, household structure, household preferences and motives,* than to the supply factors of demand such as the price of housing and housing substitutes, construction costs, vacancies, changes in land values, taxes and rates, changes in mortgage policy, in government policy in such issues as rent control, town planning, subsidization of households etc. Neither the behavior of promoters of the housebuilding industry, nor the supply inflexibility of the housing market with more rapidly changing demand patterns could have been taken into account in this context. The emphasis is the discussion on the role of incomes and the behavior of consumers as compared with the role of prices and the behavior of producers, which is due also to growing evidence that the demand for housing is less sensitive to changes in prices than to changes in

incomes. As expressed in a recent study by Colin Clark and G. T. Jones,[33] it is very difficult to estimate the total effect of price, as compared with that of the income. But it is "considered reasonable to fix the effect of price in general at about half of the effect of income,--the most important problem remains the ascertainment of the effects of income, or income elasticity," which until quite recently was seriously underestimated.

Estimating Housing Demand

Purpose and Functions

Forecasts of housing demand may have many purposes. They may be used by public authorities as well as by organizations and individuals having an interest in housing as consumers, producers, investors, etc. Organizations--mainly building industry firms and firms producing equipment and facilities for dwellings--are interested in estimates of demand in housing because such information enables them to adapt their behavior accordingly. The interest of the public authorities may lie in the same direction.

It may be based however on a desire to know the relation between certain price factors and the quantity and quality of building demanded, in order to arrange public influence on housing expenses (through loan conditions, tax subsidies, etc.) in such a way as to adapt the demand to a desired housing situation. In practice, the two elements will normally be associated in national housing policies so that the demand

---

[33] Clark and Jones, The Demand for Housing, Center for Environmental Studies, University Working Paper No. 11, London, 1971, pp. 73 and 13.

is inve

y infl

can be

out ge

progra

of hou

nine

finan

reali

polic

uncer

housi

their

prov

infl

hous

life

fact

repl

of d

Vige

the

Mar

is investigated in order to strike a balance between demand and supply by influencing supply as well as factors which are decisive for demand.

Some of the main functions of the estimates of housing demand can be described in the following way:

a. Estimates of housing demand have a decisive role in working out general principles of housing policy and in elaborating housing programs, due to the fact that the extent to which households in need of housing may be in a position to pay for *improved housing* will determine the extent to which housing programs may be expected to be financially self-supporting. Estimates of demand contribute more realistically to determining the housing norms to be used in the housing policy.

b. The forecasts of housing demand narrow the wide margin of uncertainty about replacement needs. In the normative estimates of housing requirements, replacement needs form an important part, but their assessment is often based on arbitrary assumptions which frequently prove unrealistic. The replacement of unfit dwellings is strongly influenced by the household's ability and preparedness to pay for better housing. And so the replacement rates depend on incomes, changes in life styles, prices, interest rates and many other economic and social factors which are not taken into account in normative estimates of replacement needs, but which are mostly included in the calculations of demand for housing.

c. In countries where types of tenure are varied like in Nigeria, the forecast of housing demand can assess with fair reliability the behavior of households, as far as preferences are concerned, thus narrowing the uncertainties about future housebuilding rates.

d. A sound rent policy is impossible without knowledge of housing demand and its structure. If rents are controlled in the major part of the housing, as Nigeria purports to be doing, the analysis of demand can help determine the probable social effects of introducing market prices in housing or "economic rent" (i.e., rents covering the construction and maintenance costs). Furthermore, government policies as to size and distribution of public assistance for the housing market--on the supply side or on the demand side--are possible only with a knowledge of the existing and forecasted demand.

e. A co-ordination of government, social and housing policies is ineffective without the knowledge of how much different types of households are able and willing to pay for housing.

f. The estimates of demand play an important role in public and private programs for meeting the housing needs of special population groups such as low-income families, families with a female head, families with many children etc. These groups generally form the major part of the so-called ineffective demand, the extent of which can be assessed only in conjunction with a knowledge of the over-all demand for housing.

g. The estimates of housing demand also play a role in macro-economic decision-making aimed at balanced economic growth, eg. full employment, rising productivity etc. The building industry being one of the largest in most developing economies and having a labor-intensive character, it has a special place in the calculations of governments trying to increase employment rates. If, however, a considerable part of the construction industry is in house building,

steps must be taken to ensure that its output will in fact be used and paid for.

h. Knowledge of housing demands is also useful in programming city renewal and slum clearance. Parts of the cities which are to be cleared, or renewed, are inhabited by households of old people and households with low incomes per capita. Therefore if slum clearance is to be successfully carried out, decent housing for the dislocated households must be provided. To carry out this policy, public aid is necessary and its extent cannot be determined without the knowledge of the ability of the household to pay for the substitute housing provided.

Nature and Dimensions

Most studies on housing demand stress that methods of estimating housing demand should correspond to the specific features of the housing market, which differs considerably from the market of other commodities and services. The housing market belongs to the complex type of market and our knowledge as to its operation is still insufficient. Much conceptualization and many empirical studies will still be needed for a better understanding of its functioning. The Lagos example partially serves this purpose.

The specific features of the housing market are due partly to the basic characteristics of housing units:

their extreme durability;

their high capital costs;

their fixed location;

their availability either by purchase or by renting;

their household orientation; and

provision and cost of related goods and services essential for the functioning of the dwelling.

Moreover the complexity of the housing market is increased by the fact that in Nigeria, especially in Lagos, there co-exist minimal public housing sectors with extensive private housing sectors. The public sector is subsidized to a large extent from public sources and with some profit-making sectors (housing authorities, corporations and the building societies). Also there exist sectors of rent controlled housing and decontrolled sectors. The interaction between all these sectors of housing and their impact on the housing market is as yet not quite clear, and comprehensive models of national or local housing markets are still remote goals.

Due to the specific characteristics of housing and to the complexities of the housing market, the simple economic market models are not suitable for the analysis of demand and supply of housing. Using this type of model would have involved identifying and quantifying the demand and supply variables or factors, establish the demand gap and solve for the gap in order to bridge it. This type of approach would enable us to know or estimate how many dwelling units to supply to the market in order to meet; existing or accumulated shortages, replacement needs, and needs due to population increase especially that arising from migration. But with the limited or non-existing data would be difficult to quantify such variables as marital status, land availability, cultural constraints etc. which would normally be items to be considered in order to arrive at the demand gap.

There exist however, different approaches for forecasting housing demand. The analyses of the housing demand differ also as to the dimension taken into account. According to some studies reviewed, they are mostly concerned with the following dimensions:

1. Types of households demanding housing: households without a dwelling of their own; households having a dwelling of their own but wishing to move; specific groups of households as low-income, etc.

2. Quality of housing demanded: size of housing units; equipment; location, etc.

3. Types of tenure: owner-occupied, rented (public, private), co-operative, service flats, etc.

4. Kinds of housing units: shacks, durable houses, flats, etc.

5. Time dimension: present demand, housing demand in the near future (short-range demand); and housing demand in the distant future (long-range demand).

Some of these dimensions of the housing demand deserve special attention. In a place like Lagos where the housing shortage is acute and likely to persist, accordingly there would be an emphasis on demand for additional housing units, i.e., numerical demand. When the housing situation improves and there is a balance between the number of households and dwellings, the role of demand for better dwellings will increase. To a large extent the housing demand then will be created by those who are already accommodated but wish to improve their housing standard. This type of demand may be called standard demand.

Standard demand has some considerable income elasticity. With rising real incomes, expenditures for housing increase in parallel with

shifts in demand for additional dwellings or to better dwellings. Most studies on the other hand have shown that the numerical demand has a lower income elasticity than the standard demand. The shifts in the proportions of the numerical and standard demand must be taken into account by the authorities in Lagos and Nigeria when working out the long-term housing policies. The most intricate problems are those connected with the interplay of the demand for additional dwellings and demand for better dwellings. Disggregated housing market models seem to be the most appropriate methodological devices for handling this problem, hence the use of the stock-user matrix analysis.

Basic Approaches and Background Data

It is generally agreed that the methods and the techniques for estimating housing demand must correspond to the economic and social framework of the country concerned and to its housing systems and situation. In view of the fact that the housing systems of Nigeria differ to a considerable extent from those of developed countries and that it is in a different phase of economic and social development and therefore faces different housing problems, it cannot be supported that a uniform methodology could be applied. What is possible, however, is to point out the basic approaches applicable in the estimates of the demand for housing; to show their respective strengths and weaknesses, and to discuss the main variables which must be taken into account and adapted for the estimates in Lagos.

1. The most frequently used approach to estimate effective demand is that which uses survey data on households that wish to move. A more objective and rigorous variant of this approach is the study of

moves made by the households and an analysis of the conditions under which such moves were undertaken. Surveys on household propensities to move provide estimates of the effective demand for housing which was unsatisfied at the time of the survey, i.e., they give "a picture" of the situation at a point in time, which cannot at all readily be projected forward.

It is not a technique which can easily be used to forecast far into the future, as it takes little or no account of the formation and dissolution of households. Limitations of data would preclude the use of this technique in Lagos. However, the advantage of survey-based methods is that estimates of the present unsatisfied demand could be accurate, due to the fact that they can use fairly reliable information (which is not available in Lagos). The advantages and disadvantages of this approach have a common base--the estimates are concerned with the present demand.

2. A newer and as yet less often used approach "seeks to forecast flows of households moving from one house to another, new households formed, and households dissolved. Such an alternative approach has been developed in the United Kingdom, stressing the fact "that it is new households formed and existing households that move that generate the demand for new houses, not households that stay where they are." On the demand side of the market various kinds of flows are taken into account:

a. New households formed;

b. Households migrating into the city (Lagos);

c. Households moving from one house to another;

d. Household income;

e. Concubinage etc.

The operation of the market from the supply side is described by the following changes enabling households to rent or buy a housing unit:

1. Houses vacated through households being dissolved by death or other causes;
2. Houses vacated by households moving to other houses;
3. New houses built (dependent on available credit facilities, building materials, land and even levels of construction skills, etc.).

It is necessary, when using this approach, to estimate the flows for a base period, i.e. to estimate all formations and dissolutions of households and all vacations of dwellings per annum. For estimating the future housing demand, forecasts of the flows for individual years in the future must be made and then respective trends have to be calculated. The use of this alternative approach depends on statistical data, which in Nigeria, are not always readily available. This applies mainly to data about the vacations of dwellings, but information on household formation and dissolution could be derived from population statistics.

The forecasts can be partly based on population projections, but for estimating the supply side of flows simple projection methods including many uncertainties have to be used. The method described above is concerned with predicting the movements of households already existing and of new households formed. The advantage of such a

procedure is the fact that it is based on analysis of the behavior of households already existing. For a realistic estimate of housing demand it is, however, necessary to assess also the probable behavior of persons who are about to form a household. This cannot be achieved by surveys, which refer only to households already formed, but only by interviewing the individual in the households in order to discover potential aspects of demand.

Another important aspect, in which the individual estimates of housing demand differ, is the extent of diaggregation of the demand. On the one hand, there exist crude estimates which aim at assessing only the main and elementary sources of demand, i.e., the number of households, the necessary vacancies and replacement demand.

On the other hand, some theoretical studies stress that "aggregate demand cannot be forecast except by the process of summing up disaggregated demands, the demands in geographical units, in each qualitative category of housing, in each income level, in each family size category, and in the several categories of the housing tenure and density preferences, etc."[34] Such a highly disaggregated model of housing demand would evidently be extremely difficult to construct especially for a City like Lagos. However, with certain simplifications, and assumptions and an attempt will be made here. Such disaggregated forecast of housing demand are effective instruments in long-term planning of public expenditures in housing.

---

[34]Wallace F. Smith, "Housing," The Social and Economic Elements (Los Angeles: University of California Press, Berkeley, 1970), pp. 109.

It should be stressed, however, that sufficient statistical data on separate districts of a city, groups of households, types of tenure and of housing units, are a necessary precondition of such a disaggregation. Experience has shown that current data as assembled in population and housing censuses are not sufficient for such estimates.

The quality of the assessments of housing demand depends not only on the approaches chosen and on the available statistical data, but also on the extent to which the methods of assessments used correspond to the general social and economic conditions of the country or city concerned. Therefore, before starting the actual calculations, background data should first be assembled and analyzed. Under the term, background data are generally understood to be:

1. Information on basic institutional elements influencing the supply and demand side of the housing market, among them also assumptions about relevant government policies;

2. Assumptions on the development of the national economy concerned mainly with such facts as the rate of increase in real incomes, the expected general level of prices of housing, e.g. of rents and purchases.

The background data are not used in the actual calculations of the housing demand, but they must be well understood and fully taken into account. First of all the general questions have to be answered whether the estimates of the effective demand for housing fit the institutional framework of the city or country. Estimates of housing demand are meaningful only under certain conditions, i.e. under a housing policy that calls upon households to make some payment towards

the cost of their housing or under any policy which gives people at least some responsibility for determining the character, quality and location of their houses. Under conditions where the allocation of dwellings is merely an administrative procedure, analysis of this kind are superfluous.

The forecast of housing demand must also take into account the specific features of the housing market caused by the known qualities of the market's supply side. The unusual durability of houses, their high costs and the fact that they are geographically fixed cause a high degree of non-elasticity of supply. The housing stock in contemporary mobile societies with rapidly changing demands is unable to adapt quickly to the everchanging housing market to the same extent as most other commodities.

At the same time it is necessary to develop methods of studying the interactions between different parts (i.e. private, state or public), of the housing sector. Such interactions should be studied both from the point of view of stock allocation processes and from that of capital formation processes. At present, we do not fully understand in what way the free sector of housing is influenced by the controlled sector and vice versa.[35] Experience from some countries with a long history of rent control indicates that low rents have become a kind of social and cultural norm, and that when surveying the solvency of households, the respondents are not able to estimate the rent they are willing to

---

[35]For an attempt to clarify the interaction between the free and the controlled sector, see Ingernar Stahl, "Some Aspects of a Mixed Housing Market," The Economic Problems of Housing, ed. by A. A. Nevitt (London: Macmillan, 1974).

pay in new and better flats or apartments. The techniques of demand analyses must therefore be adjusted to these facts.

Estimates of Present and Future Demand for Housing in Lagos

The methods and techniques used in estimating housing demand depend to a large degree on the kind of demand which is being studied. Usually estimates of demands are obtained through social surveys--in order to find out, in a general way, the intentions of households with regard to housing. The function of survey-based methods is to state the housing demand at a certain period. To some extent they can be used also for short-term forecasts. For long-term forecast, the surveys of households are not suitable. The analyses of the flows of households prove to be more appropriate for these purposes.

It is recommended to repeat periodically the short-range forecast after several years. Generally it is agreed that the results obtained are valid from three to four years. These periodically repeated short-term forecasts based on surveys of households, suffice to register changes in the balance of supply and demands, changes in preferences and intentions of the households. As long as a country does not undergo radical changes in housing policies, the basic social and economic determinants of demand do not change to such an extent as to prevent the use of three-year old data. Short-term estimates are not a sufficient basis for long-term government housing policies and long-term decisions on the investment policy of the construction industry and should be supplemented by long-term estimates.

The elementary structure of the projections of demand for housing that could be used in Lagos and the interactions between the main parts of the projections can be seen from Figure 10 that follows. If we compare this diagram with that of Figure 11 (Flow Chart in Estimating Housing Requirements) we can see that there are many identical steps. However, the following steps are specific for housing demand projections:

1. Projections of personal income growth rates;
2. Projections of household's incomes;
3. Analyses of ability to pay for housing.

The scheme in the latter diagram (Figure 11) is an elementary model which, although it is a true picture of the forecasts' logic, cannot reliably measure shifts in the demand for different types of tenure, or demand within the same type of tenure, and is too general. Moreover, this model is based on the analyses of the data on *all* households and the necessary information has to be gathered by extensive sample surveys. To obtain detailed results and to get at a disaggregated model of the future demand for housing, new methods have to be developed. Features of such a method will include and be able to estimate the demand for the newly built houses and also the supply side of the market, i.e. the vacations of dwellings due to different causes.

The decisive flows which must be estimated for the forecast are:

1. The formation of new households by marriage or remarriage, i.e. the number of marriages of bachelors to spinsters or by people taking second wives or keeping concubines and of divorced persons to single persons;

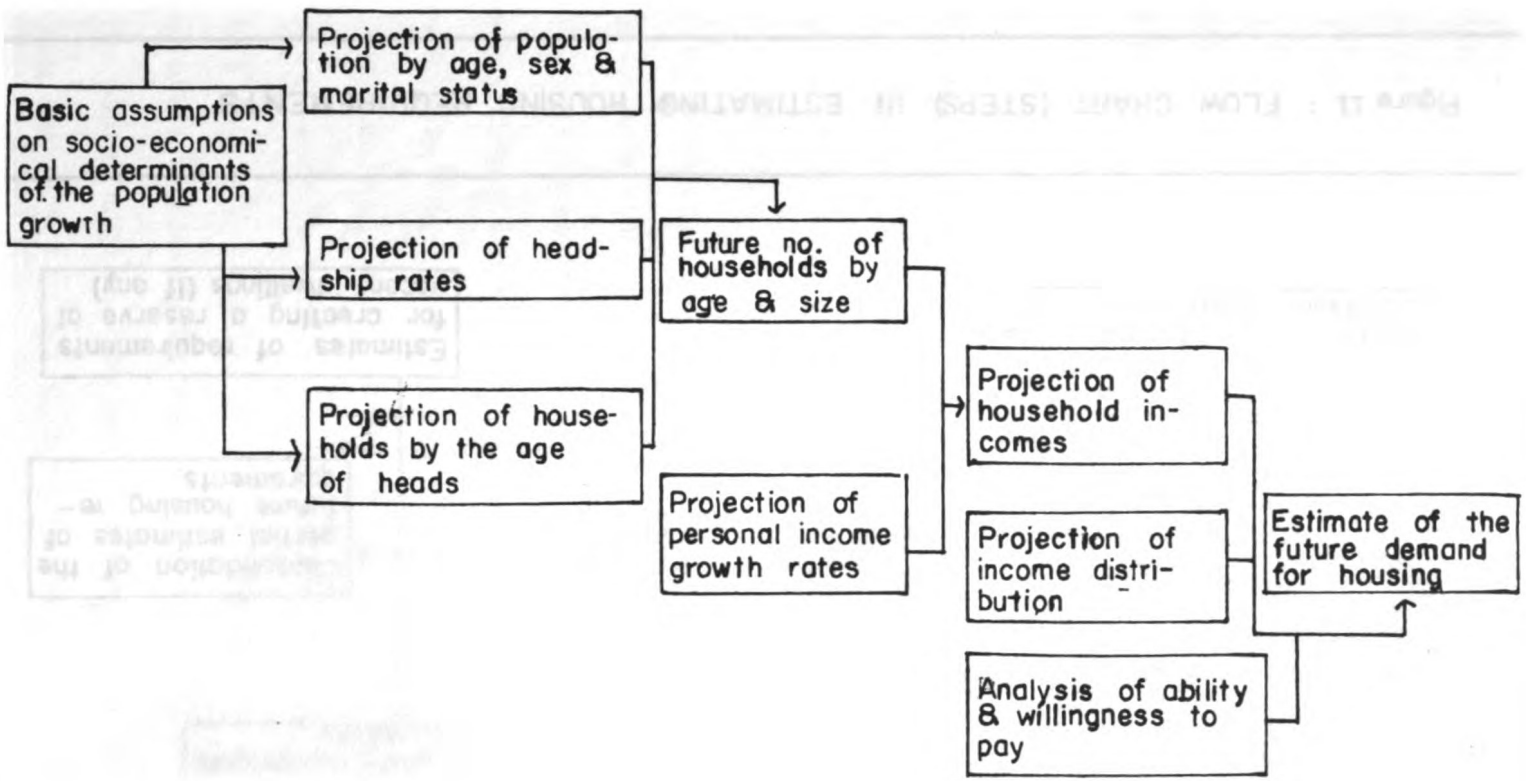


Figure 10: STEPS IN ESTIMATING FUTURE HOUSING DEMAND

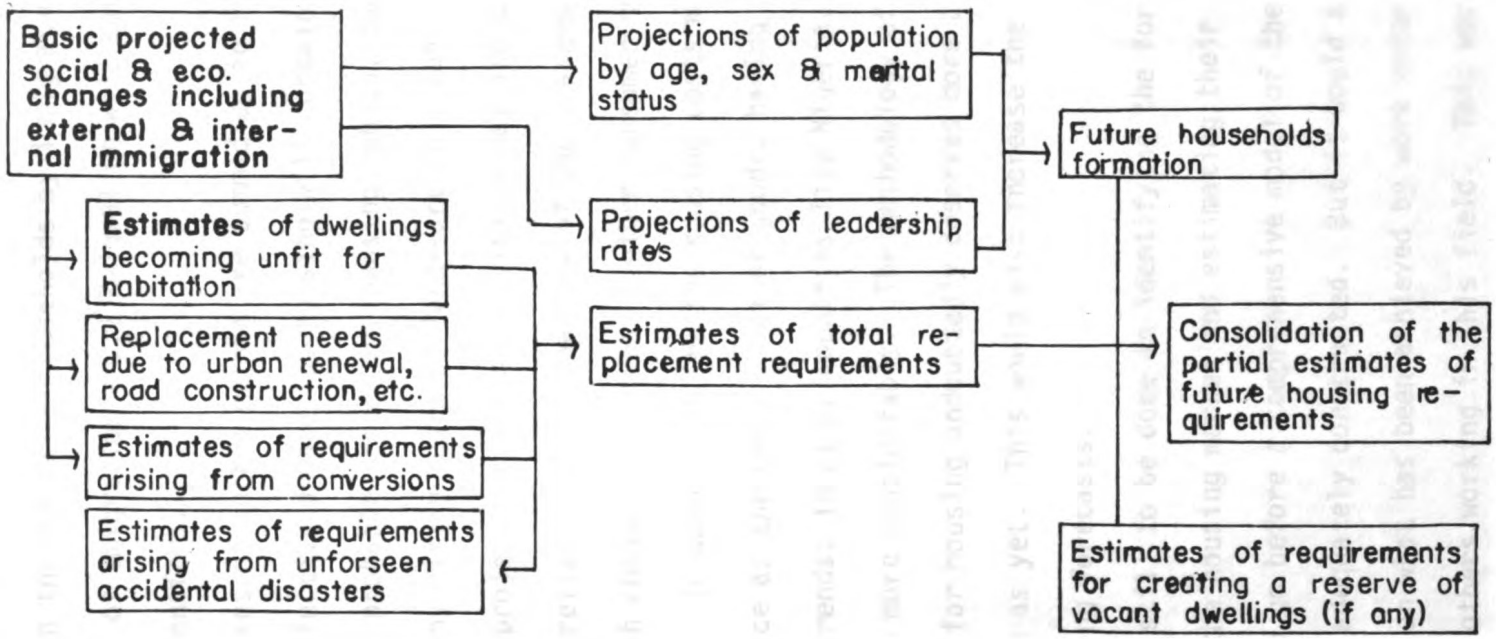


Figure 11 : FLOW CHART (STEPS) IN ESTIMATING HOUSING REQUIREMENTS

2.

3.

ecrease of

ainly of p

The

forecasts

and projec

factors--e

of flux.

effective

costs, as

of income

changed a

general

for hous

projecti

than it

of the e

processe

There is

housing

useful

far by

seem to

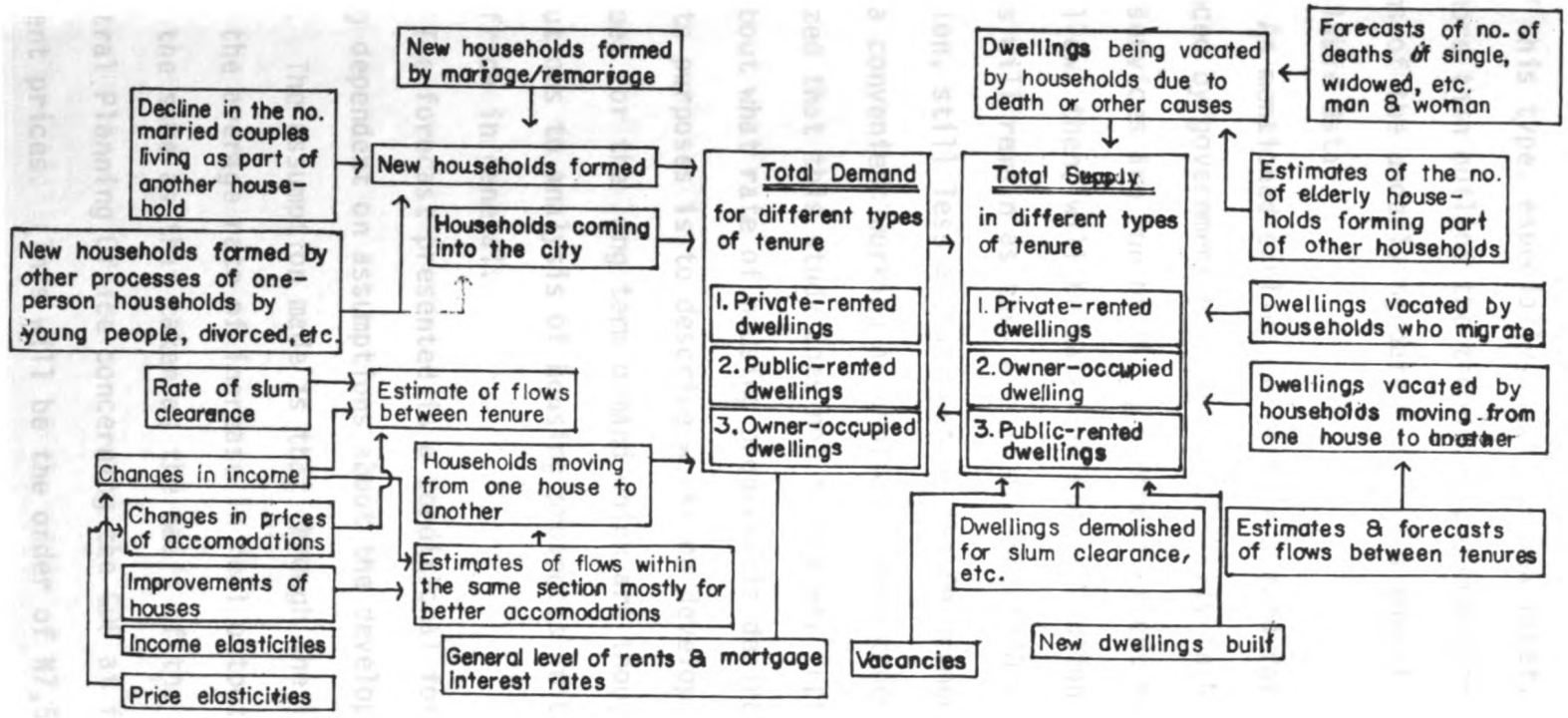
submark

2. The dissolution of households by death;

3. Increase in the number of households by immigration and decrease of the number of emigration etc. Emigration will consist mainly of people on transfers.

The main features of such a method are summed up in Figure 12. Forecasts of future effective demand for housing will contain assumptions and projections of the probable prices for housing, which, due to many factors--e.g. inflation, rising costs of land--are in a constant state of flux. To make the projections of the ability to pay and thus of effective demand more reliable, more knowledge of the changes in housing costs, as compared with changes in prices of other consumer goods and of incomes, is needed. In some countries the housing costs may have changed at the same pace as the costs of other goods, having paralleled general inflationary trends; in other countries like Nigeria, the costs for housing have risen more considerably. The methodology of the projections of prices for housing undoubtedly deserves more attention than it has been given as yet. This would also increase the reliability of the effective housing forecasts.

Much work has still to be done in identifying the forces and processes at work in the housing market and estimating their magnitude. There is a long way to go before a comprehensive model of the Lagos housing market can be adequately constructed. But it would appear useful to report here on what has been achieved by work undertaken so far by the author and others working in this field. This work will seem to offer insights into the operation of the housing market and submarkets and bring out some significant features of future prospects



Figure/2 : BASIC PARTS IN FORCASTING DEMAND FOR HOUSING ACCORDING TO FLOWS OF HOUSEHOLDS AND HOUSES

zat could

work of thi

to do more

problems o

ly availab

As

influenced

social se

that foll

olicies

predictio

nerely a

emphasiz

views ab

among it

techniq

contrib

Black A

of beir

economy

1980's,

will b

the Ce

in cur

beginn

that could not readily be illuminated in other ways. In a pioneer work of this type, especially on the demand facet, it is not possible to do more than outline the techniques, comment briefly on some of the problems of the underlying data and make a modest estimate as permitted by available data.

As mentioned earlier, effective demand for housing is strongly influenced by government policies, especially in Nigeria where most social services are run by the government except housing. The forecast that follows then, will be based on the assumption that the relevant policies will remain as they are in the mid-1970's. This is not a prediction, still less a statement of the Government's intentions, but merely a convenient working assumption. More generally, it must be emphasized that this study does not in any way represent the Government's views about what rate of housing progress is desirable or adequate. Among its purposes is to describe works on developing forecasting techniques for the long term demand which are thought to be useful contributions to analysis of housing prospects in Lagos, Nigeria, or Black Africa in general.

The forecast presented is a conditional forecast in the sense of being dependent on assumptions about the development of the national economy. The assumption made is that through the 1970's and early 1980's, the average rate of increase in real output per man per year will be the same as that taken as the basis of the estimates made in the Central Planning Office concerning the GDP at factor costs measured in current prices. (This will be the order of ₦7,507.6 million at beginning of the 3rd National Development Plan 1975; rise by 8.6 percent

to a

in 19

annua

GDP i

rate

proje

avera

and t

avera

year.

real

assu

buil

a ba

the

data

Sc-e

inst

30,

inte

"ran

ep-

rec

"ran

to a new level of ₦8,151.6 million. When the Plan Period terminates in 1979-80 the GDP should be around ₦12,000.00 million, at an average annual compound rate projected for the period at 9.8 percent. If the GDP is valued at constant 1962-63 factor costs, the average compound rate of growth will be 7.8 percent. A major policy input into these projections being that the oil-producing companies maintain a minimum average rate of crude oil production of 10 percent per annum.)[36]

When taken into account of the growth of the working population and the increase in the number of households, the implied increase in average real disposable income per household is about 2.5 percent a year.[37]

This is an important assumption. If the rate of increase of real income actually achieved were to diverge materially from the rate assumed, a substantially different forecast of the number of houses built for rent would be required. All flows have to be estimated for a base year (1976), and forecast for the future. The estimates for the base year will be pieced together from a large number of items of data from a wide variety of sources of varying compatibility and quality. Some elements of the forecast could be made in formal ways; but in many instances fairly simple projection methods had to be used, often

---

[36]See Guideline For the Third National Development Plan, 1975-80, Government Printer Lagos, 1974, pp. 7-8.

[37]In 1970, the Wages and Salaries Review Commission awarded an interim increase of 4.8 percent, followed in 1971 by a final award ranging from 12-30 percent for all categories of public service employees. In 1974, the Udoji Public Service Review Commission recommended substantial salary increases for most grades of workers ranging from 8 percent to more than 100 percent.

incor

in th

It wi

to se

these

deca

vidu

ter

hous

diff

acqu

occu

hous

con

thro

thes

the

the

sin

is

Mig

new

incorporating an element of judgment. The forecast which is produced in this way will show the total number of new houses to be built annually. It will also relate to the trend level of demand and it may be necessary to sectorize estimates: 1976-1980; 1980-1985. But these forecasts for these years will represent in practice the mid-1970's, the end of the decade and early 1980's. No attempt is made to forecast for an individual year; what happens in any one year would be influenced by short-term economic fluctuations.

The demand for houses in Lagos comes from first renters (new households and existing households formerly occupying dwellings of different tenure) and households that are already housed but need to acquire better houses.

On the supply side part of the demand by first-time renters or occupiers is met from dwellings vacated by people moving to better houses. Other houses come on to the market as a result of new construction, emigration (through transfers and family dissolutions through divorce, death, or old age). Serving as a practical example, these complex patterns are summarized in Table 31.

Estimates for the second development plan period is lower than the first because the Federal Capital is now moved out of Lagos. Since the removal process is expected to last not more than 10-15 years and since construction work is to begin in four years time from 1976, it is assumed that demand and supply of housing will be affected accordingly. Migration to Lagos will abate; Federal Officers will transfer to the new capital, and contractors will move with their construction workers.

Table 31.--Components of Supply and Demand for Houses in Lagos Nigeria.

		1976-1980	1981-1985
Demand			
1.	New households from existing pop.	84,000	90,000
2.	To eliminate overcrowding	17,000	19,000
3.	Immigration of new households	52,000	54,103
4.	Total first-time demand	153,000	163,103
5.	Relocation of displaced households	1,249	1,520
	Total demand expected	154,249	164,623
Supply			
6.	Number of houses completed with official approval	7,919	9,775
7.	Number of houses without permits (estimate)	2,000	3,000
8.	FESTAC--Special Housing Scheme for participants in festival of arts and culture	15,000	--
9.	Houses vacated (by dissolved elderly households, emigrants, etc.	2,000	6,000
10.	Nigerian building society (estimate)	3,200	7,580
11.	LSDPC projects	2,140	3,200
12.	Federal housing scheme, etc.	15,000	15,000
		47,259	44,564
13.	Less demolitions for public works	4,000	6,000
	Total supply	43,259	38,564
	Total expected supply for the 10 year period	81,823	
	Deficit to be expected between demand and supply	110,990	126,059
	Total deficit for 1976-1985		237,049

owever, L

art of th

T

ecessari

able sim

ay be o

purchase

the mark

housing

computa

agnitu

forecas

Metropo

in futu

and co

enough

polita

techn

in Ca

have

Fodel
1965)

However, Lagos will still remain the commercial center of Nigeria and part of the demand will be present.

The forecast of effective demand for new houses does not necessarily follow from the demand and supply sections of the above table simply by subtraction. Some of the houses vacated or newly built may be of a character and in a location inferior to what renters/ purchasers want and can pay for. So they are likely to remain on the market for sometime. But in a place like Lagos with an acute housing shortage, it is doubtful if there would be any such vacancy.

Aggregate Housing Demand and Supply--An Alternative Method

A forecasting model of housing demand based on the preceding computations may produce results with a potential error of substantial magnitude. An improvement on the forecasts can be made by basing our forecast on a model developed and tested for the Los-Angeles-Long Beach Metropolitan Statistical Area, but with appropriate modifications.[38] In future, we can also make similar tests or apply the model empirically and compare "expected" with actual results especially when there is enough data for a computer programming.

An important assumption here will be that in the Lagos Metropolitan Area, most households are renters. The median income and the technical life of the dwellings will be different from what they are in California. Therefore what follows below contains parameters that have been modified substantially. The Original forecasting model

---

[38]Adapted from, Preston Martin, Aggregate Housing Demand (Test model, Southern California), Land Economics, Vol. XLII, No. 4 (Nov. 1966), pp. 503-513.

was set u

strips bet

The varia

related

and pop

and par

it is

Parame

was set up based upon the 1963 Census data and upon several relationships between relevant variables.

The Variables

The original model utilizes several variables functionally related to housing demand. Among these are the following: population and population growth, household size, median income, etc. The variables and parameters used are defined below as follows:

Subscript "K" refers to the base year. In the case of Lagos, it is 1976. Therefore, the K's will be:

K = 5 is 1976; K = 15 is 1985

Subscript "ij" refer to the following brackets

i = 1 is husband-wife households

i = 2 other male-head households

i = 3 female-head households

i = 4 one person households j = age bracket.

Parameters

r = average annual percentage increase in population

ej = estimated survival rate 1967-1969

m_k^{ij} = estimated household formation rate of household type i, from age bracket j, 1967+k

r^1 = average annual percentage increase in real household income

v = estimated vacancy rate 1976-80

dk =

ariables

P_k

P_{k^-}

M_{k}

H_{k}

Y_{k}

O

where

dk = percentage of 1975 housing stock lost through demolitions, conversions, economic development projects through year 1976+K.

Variables

P_k = Lagos Metropolitan Area population 1963 + K

$P_k j$ = population in age bracket j, 1963 + K

$M_k j$ = estimated net migration into the city

H_k^{ij} = number of households formed each year

Y_k^{jj} = median household income

O_k^{ij} = percent of owner-occupied households in bracket ij, 1976 + K

Ok = percent owner-occupied households, 1976 + K

B_k = (100 - Ok) = percent of renter-occupied households 1976 + K

Sk = total supply of housing stock, 1976 + K

Dk = total new housing units demanded

Ik = total new housing units supplied

H_k^y = number of households in income bracket y, 1976 + K

where y = 1

= 2

= 3

= 4

= 5

= 6

(Note: Variable data for K = 0 [1976] are predetermined.)

The Data

In

have to be

population

household

the variab

change an

Population

household

the hous

The Equa

The Data

In order to solve these equations below, demographic data will have to be taken from those presented in Chapter I--those related to: population, number of households, population distribution by age and household types; household income distribution, and housing tenure from the variables above. Rates of change of population growth, real income change and household formation will be modified to suit Lagos situations. Populations and income growth rates will be modified downward and household formation rates raised slightly. It is to be assumed that the household age distribution of Mk would be the same as that of Po.

The Equations then will be as Follows

The model is summarized below in seven equations.

$$Pk = Po\ (1 + r)^k \tag{1}$$

$$P^{\cdot j}_{k} = Po^{\cdot j}(ej)^{k/10+M^{\cdot j}_{k}} \tag{2}$$

$$H^{ij}_{k} = m^{ij}_{k}\ P^{\cdot j}_{k} \tag{3}$$

$$Y^{ij}_{k} = Y^{ij}_{o}\ (1 + r^{1})^k \tag{4}$$

$$\theta^{ij}_{k} = \theta(H^{ij}_{k},\ Y^{ij}_{k}) \tag{5}$$

$$Dk = (H^{ij}_{k} - H^{ij}_{o}) + d_k\ S_o \text{ or} \tag{6a}$$

$$Ik = Dk/(i - v) = \frac{(H^{ij}_{k} - H^{ij}_{o}) + d_k\ S_o}{1 - v} \tag{6b}$$

T

ege, will

year pod

annu. T

in deriv

the appl

per year

year K.

function

to the t

for the

second

estimat

holds w

is take

structu

them to

possibl

has bee

to the

value o

$$\theta k = \frac{\theta_k^{ij} \quad H_k^{ij}}{H_k^{ij}} \times 100 \qquad (7)$$

The distribution of households in 1976 + K by household type and age, will be calculated as the first three equations show. The base year population, Po will be increased at a rate of 4.5 percent per annum. The next three equations summarizes the procedure to be followed in deriving the new housing demand for the period. Equation (4) indicates the application of an average rise in real income medians of 2.5 percent per year. Equation (5) utilizes the distribution of these medians for year K. Equation (6a) and (6b) represent the overall demand and supply functions while Equation (7) sums up the overall tenure types and relates to the total households in 1976 + K.

Therefore, the first equation derives the demand for new housing for the period from the change in households and net demolitions. The second sets out a means for projecting the supply needed by adding estimated vacant new housing to new occupied housing.

An important source of demand for new houses comes from households who demand better accommodation. The demand for better residences is taken to arise from rising real incomes, a slow change in the social structure favorable to additional housing expenditure, thus enabling them to pay more for their next dwelling unit than would otherwise be possible. The effect of rising income on the demand for residences has been estimated by means of an income elasticity, usually applied to the forecast of the rise in incomes and an estimate of the market value of the housing stock. (An income elasticity measures the

relatio

uantit

uch es

cations

end of

that f

percen

term f

form:

where

recor

for c

elast

gives

estir

need

the

vari

feas

relationship between a change in income and the consequent change in quantity demanded, other things being equal.)

The income elasticity for Lagos is estimated at 1.0 and although such estimates are bound to include some margin of error, the indications are that this estimate is more likely to be towards the lower end of the range than to be high. An income elasticity of 1.0 means that for a one percent rise in income, quantity demanded rises by 1.0 percent.

The income elasticity can be estimated for the purposes of long-term forecasts of the demand for housing by fitting a function of the form:

$$\text{Log } P = a + b \text{ Log } Y$$

where P is the price of the house or rent paid for it, and Y is the recorded income of the purchaser or renter. This function is convenient for computation and has the further advantage that provided the income elasticity is the same for all values of income, the coefficient b gives the value of the elasticity. Statistically, the income elasticity estimates for tenants are poorer than those for owner-occupiers.

The Allocative Process for the Housing Stock

In the previous sections we have been able to determine housing needs and demands for Lagos in the next ten years. Let us assume that the government invests enough capital into housing and through its various policies and programs provides the target demand or even feasible demand. The crucial question that would arise will be how

the various households classified according to income groups would be affected by the housing market and its investment constraints.

Changes in households and dwellings and in the way they match up in the housing market manifestly play a central role in any consideration of the housing market dynamics. From a dynamic perspective most housing problems reflect change, or failures to change, in the relationship between people and houses. Over a period of time houses change in quality and price, usually both decline with age. Households change too, not only in the sense that an individual ages and passes through a life-cycle sequence, but also in the aggregate as in the recently increasing proportion of middle-income households and the increase in the per capita income, especially in Lagos. These changes in turn systematically affect the housing market.

Responses to housing problems, the various interventions in the market are equally sensitive to these dynamics. Most of the strategies, for instance, which aim at increasing housing supply depend for their beneficial effect largely on the *hope* that new housing put in the system at the high price end of the spectrum will cause older housing to "trickle down" in price, thus becoming available to somewhat poorer people. The associated trickling down in quality seems often conveniently forgotten. Another example where the dynamics act the opposite way can occur where governments step in to try to arrest the quality decline that accompanies aging in the housing stock or achieve a particular social objective. If successful, the housing may this time "trickle up," leading higher income people to bid out the former occupants. Thus, in the name of improving housing conditions the

housing

examples

influenc

above.

by the r

wide cho

Correctl

opposite

another

Over any

create

Consequ

structi

availab

the siz

demand,

income

increme

the new

exist.

tapers

area, o

terms,

housing situation of poorer people can be significantly worsened. These examples suggest why dynamics of the housing market have such a potent influence on housing problems and their solution.

W. F. Smith (1966) seem to have an opposite view of the pattern above. It is often suggested that low-income groups are not served by the residential building industry, but high-income households have wide choice among new dwellings. Smith sees this as a mistaken impression. Correctly defined, according to him, "the situation is more nearly the opposite of the commonly held view;" but it could not be truer in another place as it is in Lagos Nigeria.

The essential point is that housing demand is incremental. Over any reasonably short period, residential construction does not create a housing stock; it merely expands a pre-existing inventory. Consequently, if there were no income level bias in residential construction and allocation, we would expect that the number of houses available for each of the income groups would equal the increase in the size of the income group. If we abstract here from the replacement demand, new housing stock could scarcely be expected to match the income pattern of the total number of households--only perhaps the increment in that number.

The first of the two following diagrams, Figure 13 illustrates the new housing stock bias which much housing literature supposes to exist. It is felt that demand is great at low-income levels, and tapers off at higher levels. The "deficiency" indicated by the shaded area, occurs at the lower levels. If demand is measured in ineremental terms, however, the second diagram shows the income pattern of demand

No. of
Units

No. o
Unit

F

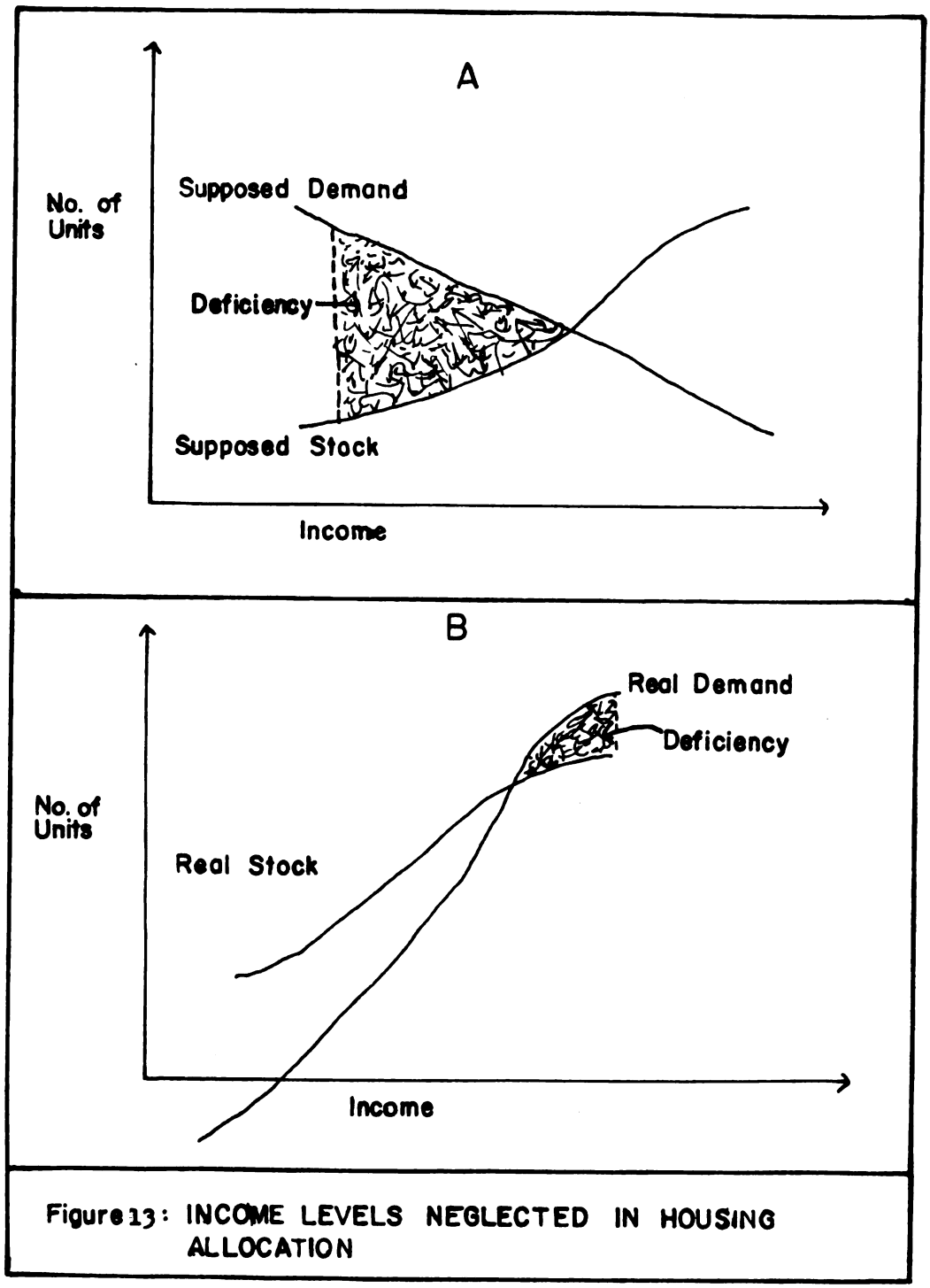


Figure 13: INCOME LEVELS NEGLECTED IN HOUSING ALLOCATION

to be ne

the medi

supposed

tionary

price r

of inco

units a

the inc

Lagos,

and ov

household

by hou

number

spectr

market

and ov

of la

in al

were

betwe

units

appe

to be negative at lower levels, rising sharply as income level passes the median.

The real pattern of housing stock addition will be close to the supposed stock pattern. The deficiency results in apparently inflationary increases in the prices of pre-existing stock, rather than in price reductions to permit "filtering down."

New residential construction seems not to follow the pattern of income distribution. The number of houses or apartment (flat) units available for a given income class appears not to approximate the increase in the number of households in that income class. In Lagos, for example, the homeowning income group in the ₦10,000 bracket and over seems to have increased during the decade by at least 8,000 households and about 7,000 homes built during that decade were occupied by households in that income class. There was a decrease in the number of homeowning households belonging to the next group down the spectrum. The same situation was obtained on the rental side of the market. The number of renter households at the ₦10,000 income level and over must have decreased however as they now constitute the majority of landlords in Lagos. At the same time renters increased tremendously in all the other income groups and the rental units available to them were quite few.

The accompanying chart, Figure 14, will show the divergences between changes in the size of income groups and the volume of new units supposed to be occupied by those income groups. It reflects what happened in the Lagos Metropolitan Area.

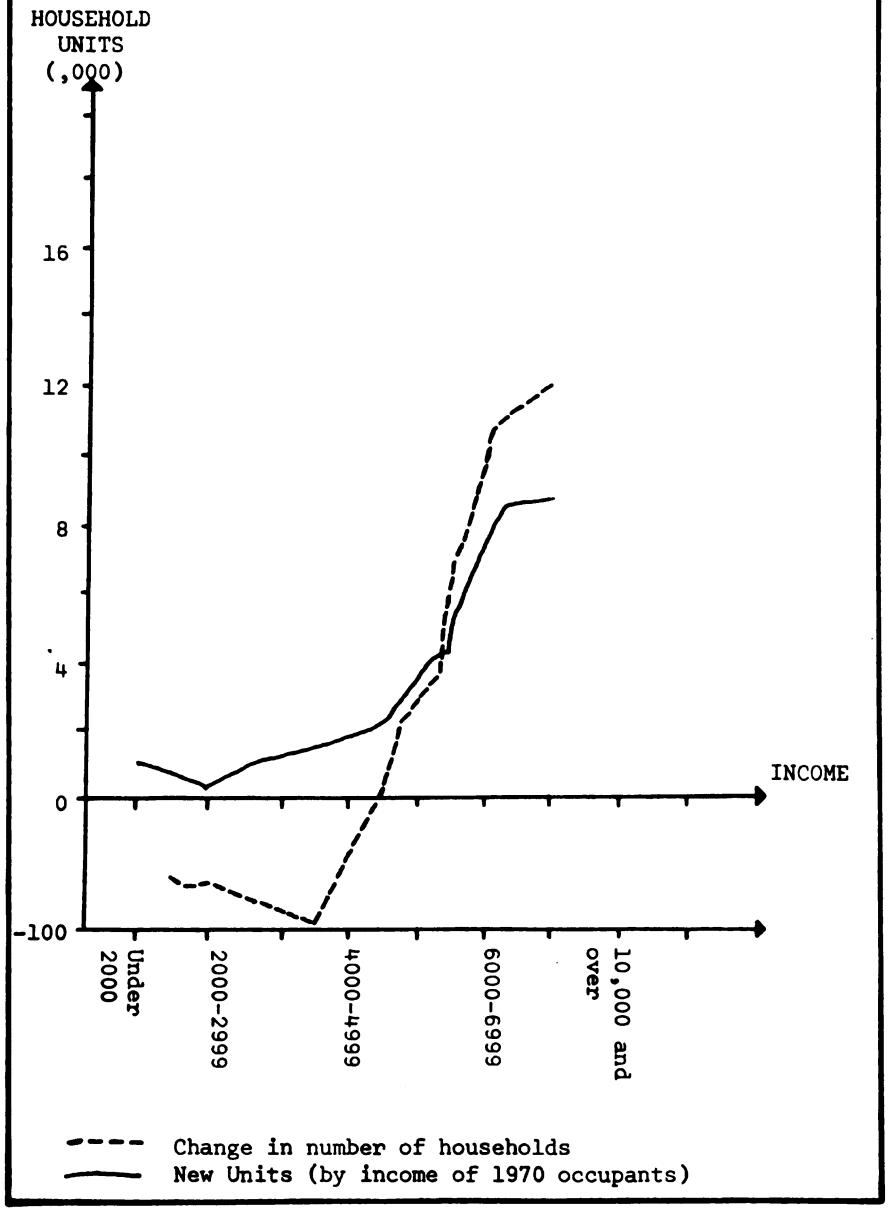


Figure 14.--Lagos, Nigeria--Households and housing units 1970-1975 (approximations).

These divergences clearly indicate that shifts took place in the occupancy of the initial stock of residential units. The ₦10,000 and over income group must have spread into housing units previously occupied by households with lower income, for there were not enough new units to satisfy all the additional demand at this level. Though some units must have been demolished due to road construction or expansion etc. in the Lagos Metro Area, between 1970 and 1975, a substantial inventory occupied by households lower in the spectrum, must have been shifted upward to meet higher income requirements. These shifts, of course, need not all have been physical movements; a household whose income rose but which did not move to a different dwelling would be a part of this shifting process. It is a statistical rather than a physical movement.

Shifts in the occupancy pattern of the initial housing stock, therefore, were complimentary to the pattern of new construction. To *forecast* a pattern of new construction, given some information about the changing income composition and the size of the area's population, it is necessary to introduce certain concepts about the manner in which occupancy patterns in the housing stock existing at present will change. This is the approach of the present section and the detailed analysis that will follow shortly. In effect, we say that the pattern of residential construction is an outgrowth of inadequacies in the housing stock which are created when the number and/or the income distribution of households in the community changes or when the stock obsolesces. The nature of inadequacies in the initial stock of dwelling determines the nature of the new construction response.

Thus one can reason that demand changes first, then the stock of dwellings is seen to be inadequate, so that new construction results. Any group of households, say renters in the Lagos Metro Area anytime around the early 1970's, must be occupying "new" housing to the extent that their number exceeds the number of available older units. In symbols this would be expressed as

$$H = S + N$$

where: H = number of households

S = number of available older dwellings

N = number of new dwellings

or, in numbers of Lagos area from 1970-1975, it would be:

$$342{,}000 = 281{,}000 + 61{,}000$$

where: N = dwellings built since 1966 (10 year period) or 6,000 dwellings per year.

For any subclassification of H, say those households with incomes between ₦3,000 + ₦5,000, we can, ex post, write down values for H and for N, and by subtraction for S, thus

$$H_i = S_i + Ni$$

$$78 = 48 + 30$$

where: i = ₦3,000 - ₦5,000 income.

If we wanted to forecast Ni (supposing a good forecast of Hi had been provided by demographic data) we would find it necessary to make a forecast of S_1, the stock of older (existing) dwellings available

to this income group. No matter, what technique we might invent for forecasting Ni, a prediction of Si would be implicit in our results, and therefore a necessary part of our procedure. Our forecast for Ni thus hinges on producing a value for Si which is both possible and reasonable. Recall that Si consists of any set of dwellings remaining from the total existing housing supply. Consequently, we know that it cannot be a negative number, nor can it exceed the total older supply, S, that is:

$$0 \leq Si \leq 281{,}000$$

This is a wide range, to be sure, and needs to be narrowed further. The next step is to recognize that the sum of Si's for all subclassifications (income groups) of our market must necessarily equal S, the total number of available existing units, that is:

$$\sum_{i=1}^{m} Si = S \text{ for } m \text{ income classes}$$

or $\Sigma\ S1 + S2 + \ldots\ldots + 48 \ldots + Sm^{-1} + Sm = 342{,}000$ for example.

This states that any units which are a part of Si are denied to other groups Sj. The several income categories are "competing" for elements of the existing housing stock, S. Not all those units which make up Si are available to, *nor are they taken by,* any other income category of households. One cannot forecast Si in isolation. One must decide on values for Si, Sj etc., simultaneously.

What is needed is a simple representation of the competitive process which gives portions of the existing stock of dwellings to our several income classes of households. We wish to simulate the competitive process, but the simulation activity must be based on some intuitively logical principle. Such a principle is the concept of a "hierarchical market." By this is meant simply, that a dwelling unit from the existing supply which is wanted by both a lower and higher income household will be taken by the higher income household. In this hierarchical market new housing construction is the result of dissatisfaction with the existing housing supply. The income level distribution of new construction depends upon where in the income distribution of households such dissatisfaction tends to occur. One can carry this intuition further and make a more meaningful analysis as is done in the next section.

Housing Investment Strategy and Analysis in Lagos--An Application of the Stock--User Matrix Model

Prior to 1976, the major proportion of new housing in Nigerian cities has been produced by the variety of financial and construction enterprises which made up the private sector. During 1976, it became evident that an increasing proportion of all new residential housing produced will receive government subsidies of various kinds and degrees. Clear trends indicate that a substantial proportion of all residential housing will soon be receiving some kind of subsidy. For this reason, one of the basic theses of this research is that a systematic, rational, reasonably equitable and objective method should be formulated *to allocate* the new and existing housing stock. Such a method is tested

in Lasog for an illustration and is known as the *Stock-User Matrix*. This matrix has been modified in this research process and adapted to dynamics of the Nigerian economy.

Before analyzing the housing investment in Lagos it is important to tabulate the sources and amounts of investment for housing in order to know what is available and from where. The Lagos State Government will spend a total of ₦10 million on direct construction of new housing units for the low and middle income groups in the metropolitan area during the Plan Period--1975-80. This is only one aspect of the housing program. In addition, the Lagos State Development and Property Corporation (LSDPC) on a self financing basis will be developing a number of new residential lay-outs. Examples of these will be at Amuwo-Odofin, Gbagada, Ogba etc. at a total cost of $252.32 million or (₦157.7 million). If the projects for Badagry and Ikorodu Town Expansion Schemes are excluded, a total of about ₦154.45 million will be spent on residential housing in the LMA for the 1975-80 Plan period. For the purpose of this research. We can double this amount to ₦308.9 million ($494.24 million) to cover the entire projection period of 1976-1985.[39]

A housing investment strategy requires, in addition to estimates of the demand for new housing; some knowledge of the effects of the construction of dwellings on the distribution of the existing housing stock. New dwellings are occupied by households who leave, in many cases, their former residences available to other families of similar

---

[39]See Appendix B for a more detailed tabulation or Third National Development Plan 1975-80, Volume II (Project Summary), pp. 381-383.

or different economic characteristics. Some studies have already been done in other countries on these transfer or filtering effects by means of vacancy chain survey. Another way of studying the redistribution of the housing stock is to apply a linear programming model to housing census data. The magnitude and trend of the housing that will be available to any household will depend on the type and volume of dwellings constructed and on the demographic, economic and social characteristics of the population concerned. Given an investment budget constraint, we could hope to determine the type and volume of dwellings whose construction will maximize the amount of building ensuring at least minimum housing for the poor. But in practice, the volume and direction of housing construction remain subject to public policy, yet poorer households cannot outbid richer ones for housing of given quality in the total stock.

The basic tool of analysis to be used here is a *Stock-User Matrix* which uses data from a housing census and family income and expenditure surveys. For the Lagos case, since there are no data of this type, the author has used his own estimates derived from field work. The matrix will classify households by levels of income in the rows and type of dwelling in the columns. In other words, it is a table with rows of households or users according to monthly income and with columns dividing stock by value--it is like a programming technique. It allows us to trace the net movements of households in the housing stock, as changed by the construction and removal of dwellings. According to Strassmann (1976), "housing policy based on stock-user programing avoids the piecemeal (dabbling) by setting priorities in terms of the entire

changing housing stock and urban population over a decade or two. It avoids the grandiose (regulation) by accepting whatever investment constraint fits a country's income level and other spending needs. Finally, it defers ideological issues by working with whatever changes in income distribution are forecast by prevailing economic conditions."[40]

The Stock-User Matrix is always based on certain general assumptions. The principal assumptions are, first, that the consumption of housing services must ultimately be paid by the occupants, not subsidized by the government, except in extreme cases. Second, for the sake of housing policy, an additional dwelling that a poor household is willing to pay for, although smaller, is no better and no worse than a more elaborate or expensive house occupied by an additional well-to-do family. If sufficient investment is possible (and carried through), an optimal housing policy would let each household occupy a dwelling and plot (lot) worth about 100 monthly payments equal to 1/8, 1/5 or whatever share of income according to its preference.

Another important assumption is the principle that the long-run demand for housing is determined mainly by household formation, household income and dwelling replacement needs. Other variables such as interest rates exert their influence more significantly in the short run. Dwelling construction costs are taken into account in the investment constraints which represent a certain percentage of the gross city product. Given that low income households do not have access to the private financial markets (like the Nigerian Building Society) a

---

[40]See W. P. Strassmann, Optimal Programming with Housing Stock-User Matrix Projections (unpublished paper delivered at the UN Conference on Human Settlements, Habitat Forum, Vancouver Canada, June 1976).

constraint indicating a minimum number of subsidized dwellings may be introduced.

In Table 32, the columns give only the values of the housing structure (reduced to rent indices),[41] and omitting cost of land or plot. The range of values for the columns should be set in accordance with the income elasticity of demand for housing services. If that elasticity is unity, housing value doubles when income doubles, and if it is higher, say 1.25, housing value or rent would rise by an additional fourth. An optimal housing policy with sufficient resources would show all households on the northwest-southwest diagonal of the matrix. With insufficient resources, it would bring households as close as to the diagonal as possible. This means that since the stock-user matrix is symmetrical, we can consider all households are well housed when they occupy a dwelling located on the matrix diagonal. Above, they would be paying more than desired, below they would consume less than they want and can afford. They are not at the point where their indifference curves intersect their budget constraint at the highest possible level.

In practice the strategy in a place like Lagos, with limited resources, means building as much minimal and low-cost housing as poor families are willing to buy or rent with long-term but subsidized loans. Remaining funds are allocated to middle and upper income family housing in a manner that minimizes the number of households that must occupy a unit initially worth only half or a quarter as much as they would prefer to pay. With a housing shortage, as is the case in Lagos,

---

[41] See Appendix C.

Table 32.--Household Income Levels, Dwelling Values (Based on ₦1.00 = US $1.6 for 1976).

Household Groups		Dwelling Types	
Fi	Household income/month (₦)	Hs	Average value (₦)
F0	₦ 0-50	H0	₦ 1,500
F1	51-100	H1	2,250
F2	101-200	H2	4,500
F3	201-400	H3	9,000
F4	401-800	H4	18,000
F5	more than 800	H5	35,500

Note: The F's represent household categories while the H's represent dwelling categories.

actual payments will, of course, rise to what ever price level will clear the market. In effect, new construction priorities (meaning credit allocation) should anticipate this process in such a way as to minimize the amount of or "raiding" or upward filtering of low cost housing.

This principle seems more obvious if stated somewhat differently. The objective function of a housing policy that attempts to put everyone as close to the diagonal as possible is to *maximize* the sum of the number of units built plus the number of units filtered downwards. Obviously maximization of downward filtering is the same as minimizing upward filtering. Therefore, if it is assumed that all households who occupy dwellings on the diagonal are maximizing their utility we can formulate a housing program whose objective is to increase the percentage of such households during the Development Planning Period. Additionally, a housing policy can specify that all new households, who appear during the planning period say in Lagos, will be well housed. These last options require special constraints which, obviously, interfer with the assumption of free filtering, upwards or down.

The mathematical derivation of the situation described is given below.

Optimal Matrix Model[42]

The housing construction and transfer process may be described algebraically. The assumptions are that higher income groups will not go unhoused but acquire whatever housing is available even if upward

---

[42]See Paul Strassmann, Housing Strategy in Developing Countries: Costs and Simulated Consequences, mimeograph paper.

transfers result. Downward transfers occur when newly constructed housing exceeds the number needed for replacement and new households at any income level, i. A sufficient number of transfers from a higher level to i will also cause this income group to transfer dwellings to the next lower level i-1.

The following symbols will be used:

H_{jo} = the initial housing stock of category j.

D_j = new construction of housing type j.

R_j = housing of type j that will be removed from the stock.

ΔF_i = net addition of households of type i.

i = subscript for any income level.

i-1 = subscript for the next lower income level. $F_{i-1} = bF_i$, $b < 1$.

j = subscript for the housing type initially preferred by income group i. If $H_j/H_{j-1} = b$, then ihe income elasticity of demand for housing is 1.0.

T_j = number of dwellings that income group i transfers to i-1. If negative, it means the number acquired or "raided" from i-1. In case of a great housing shortage this number may exceed the number of households in an income level because dwellings acquired from i-1 may in turn be bid away by households i+1. Households F_i may have to live in dwellings D_{j-2} or worse. This is the typical case in Lagos.

For the highest income level, n,

$$T_n = D_n - \Delta F_n - R_n \tag{1}$$

At the next level,

$$T_{n-1} = D_{n-1} - \Delta F_{n-1} - R_{n-1} + T_n$$

$$= (D_{n-1} - \Delta F_{n-1} - R_{n-1}) + (D_n - \Delta F_n - R_n) \tag{2}$$

After that,

$$T_{n-2} = (D_{n-2} - \Delta F_{n-2} - R_{n-2}) + (D_{n-1} - \Delta F_{n-1} - R_{n-1}) + (D_n - \Delta F_n - R_n) \quad (3)$$

If the number of dwellings transferred from (or to) all levels is added, we have,

$$\sum_{j=1}^{n} T_j = n(D_n - \Delta F_n - R_n) + (n-1)(D_{n-1} - \Delta F_{n-1} - R_{n-1}) + \ldots + (D_1 - \Delta F_1 - R_1) \quad (4)$$

We may take the number of new households, ΔF_i, and the number of housing units that have to be replaced, R_j, as exogenously determined for the next 10 years. All ΔF's and R's are given and can be collected in a single constant term, A, that is unaffected by the two variables, the number of dwellings built, $\sum_{j=1}^{n} D_j$, and the number transferred, $\sum_{j=1}^{n} T_j$.

$$\sum_{j=1}^{n} T_j = nD_n + (n-1)D_{n-1} + \ldots + D_1 - [n(\Delta F_n + R_n) + (n-1)(\Delta F_{n-1} + R_{n-1}) + \ldots + (\Delta F_1 + R_1)] \quad (5)$$

$$\sum_{j=1}^{n} T_j = nD_n + (n-1)D_{n-1} + \ldots D_1 - A \quad (6)$$

We assume that a household F_i is equally well off if it receives a new dwelling D_j or an old dwelling H_{j+1} via filtering from above, or T_{j+1}. For a household F_{i-1} a new dwelling D_{j-1} is as much of an

improvement as a D_j for F_i. A D_j would be too expensive to maintain and to finance for F_{i-1} and would not be constructed. Housing is improved the most when the sum of new units built and old units transferred downwards is maximized. With a great shortage, the number of units transferred upwards must be minimized. This goal is reached by choosing the optimal levels for new construction, given the investment (and other possible) constraints. What that level is will not be intuitively obvious because of the tradeoff between expense and the amount of filtering generated (or upward transfers prevented). A D_1 costs only b^n as much as a D_n, since $b < 1$, but it leads to only $1/n$ times as much filtering. What must be maximized is the following, and linear programming methods can be used:

$$\text{Maximize } Z = \sum_{j=1}^{n} T_j + \sum_{j=1}^{n} D_j \tag{7}$$

$$\text{Maximize } Z = (n+1)D_n + nD_{n-1} + \ldots + 2D_1 - A \tag{8}$$

Among the constraints is that only old dwellings can filter down:

$t_j \leq H_{jo} - R$ or, using equation (1),

$D_j \leq H_{jo} + \Delta F_i$

The investment constraint is that the total cost of construction, I_g, must be less than some amount, possibly derived as a share of national product. If it is assumed that the upper income groups will, one way or

another, acquire suitable housing for themselves, the constraint may be applied only to the remaining groups. c_j = cost of constructing one D_j.

$$\sum_{j=1}^{n} c_j D_j \leq I_t$$

Other constraints could dictate that a minimum number, N, of certain housing types D* must be built regardless of transfer consequences. Perhaps some of all types must be built to prevent an excessive or unequal amount of deterioration in housing conditions for any income level.

$$\sum_{j=1}^{n} D_j^* \geq N$$

Further Explanation of the Model

If one assumes only market forces as operative, one will not come up with the same result as will the proposed method, because the market would not rate two ₦5,000 dwellings better than one ₦10,000 dwelling. In the model above, if a new ₦10,000 unit causes the transfer of a similar existing unit to a middle-income household who, in turn, leaves an older ₦5,000 dwelling to a poorer household, the total process would get a rating of three. Three households have improved their housing. It would be three-quarters as good as building two or more small units if those cause no filtering. The role of the market is to change prices to reallocate whatever housing stock has come into existence to those most able to pay. As in most developing countries, this pressure of the "highest bidder" is almost irresistible, short of

drastic price controls. Unfortunately, the present political, social and economic situation in Nigeria is not favorable for applying drastic controls as shown by the failure of numerous rent control edicts in Lagos.

To illustrate the effectiveness of the above approach to housing policy, it is often necessary to ignore those market forces that may lead to the conversion of large to small units through subdivision and the upgrading of small units to better categories through additions. The difficulty with these processes is not one of principle, but of data. The same applies to the assumed constancy of construction costs over the planning period. A plausible variation that will be incorporated, however, is the assumption that households on salary scales Levels 12 or over, that is, earning ₦7,000 or more annually, can somehow arrange for private financing of appropriate dwellings in addition to the investment constraint for the total program. Their demand for housing is more volitional.

In order to quantify the goal of reaching the diagonal, a weighted index is usually used. A household on the diagonal gets a rating of 100. A household in a cell to the left and occupying a unit that costs half as much to build is rated 50; one to the left of that as 25; etc. Households in the lowest income category (that is, salary scale 01 or ₦720-₦870 per annum for Lagos) and occupying inadequate one-room units, or altogether homeless, are not counted in the index.[43] In a country like Nigeria they may constitute about ten percent of the

---

[43]The attached blank chart illustrates the positions of the diagonal line and cells that maximize housing allocation.

Dwellings / Households	H_0	H_1	H_2	H_3	H_4	H_5	Σ_F	Index
F_0								
F_1								
F_2								
F_3								
F_4								
F_5								
Σ_H								
Remaining H_j								
Build, D_j								

ppulation o

about 4.5 pe

.33 on and a

of 83. If

housing (wi

here, the

would have

Applicatio

St

Ridha Ferc

Strassman

of 100,00

national

The same

of "cult

case or

Lagos N-

data, e

in full

any of

Dwellin
(unpubl

in Five
Univers

population of Lagos urban area. If there is a rate of investment of about 4.5 percent of gross city product, it will typically have put .33 on and about .66 just off the diagonal, giving an overall index of 83. If the same investment has been redirected toward low-cost housing (without subsidies) in accordance with the method suggested here, the index could have approached 90. In other words, 80 percent would have been on and 20 percent just off the diagonal.

Application of Model to Lagos

Stock-user matrix programing has been applied to Tunisia by Ridha Ferchio[44] and to Mexico by Jesus Yanez Orviz.[45] Quite recently, Strassmann has refined it more and applied it to two simulated cities of 100,000 households. The Tunisian example was applied at the *national level* where data aggregate are easier to obtain and manipulate. The same could be said of the Mexican case which has an added advantage of "cultural infections" from the US. In this study, the hypothetical case or the simulation is to be applied to an actual situation--i.e., Lagos Nigeria. This City is perhaps typical of Black Africa--lack of data, extreme shortage of residential housing, the market mechanism in full force, and the housing market dynamics more confused than in any of the cases above.

---

[44]Ridha Ferchio, 'New Construction, Subsidies and Filtering of Dwellings in Tunisia: A Vacancy Chain and Linear Programming Analysis" (unpublished Michigan State University Ph.D. dissertation, 1975).

[45]Jesus Yanez Orviz, "Optimal Allocation of Housing Investment in Five Mexican Cities 1960-70, 1970-85" (unpublished Michigan State University Ph.D. dissertation, 1976).

It will be pertinent to recall here that for the 1975-80 plan period the Federal Government of Nigeria to build 60,000 housing units (later increased to 200,000 units) for the entire country. No one knows how many of these will be eventually built in the Lagos Metropolitan Area. But from all indications, it will not be more than 15,000 units; yet a total of N154.57 million is allocated for housing during the plan period. In actual fact, the greater problem is not that the number is woefully inadequate, but the system of allocation among the various income groups, deprives lower-income groups of potential housing. The best method so far was the one announced recently, that "low-income houses are to be shared out by ballot" (by drawing lots), on owner-occupier basis, (with a few exclusionary clauses).[46] Yet the government aims at a goal of "an egalitarian society." The government also accepts as part of its social responsibility (however lately) to participate actively in "the provision of housing for *all income groups* and will, therefore, intervene on a large scale in this sector during the Plan Period."

The aim is to allocate especially subsidized new housing in a way as to bring relief especially to the low-income groups who are the worst affected by the current acute shortage. How can this be achieved? By ballot? Yet it is the objective of the policy to employ a combination of measures to achieve within the next decade a housing situation in which the average urban worker would not be required to pay more than *20 percent* of his monthly income in rent.[47] How can this

---

[46]See: Daily Times, Lagos, March 16, 1976, p. 40.

[47]Now he pays 30 percent.

aim be achieved in Lagos where demand outstrips supply by 4.5:1; so that for every one household accommodated, about five are demanded?[48] Therefore there is an urgent need to establish a system of allocation of the few public housing coming into the market and the stock-user matrix is a step in the right direction.

The Stock-User Matrix model is applied under various alternatives or options, such as:

a. Investment Share and GNP Growth Rates: The objective function is maximized within a certain investment constraint. This corresponds to the percentage of GNP invested during the planning period, for housing. For Lagos we would use an optimal allocation of 4.5 percent of Gross City Product (GCP) to housing construction. The purpose would be to estimate the amount needed to raise the percentage of households living on the diagonal and to provide adequate housing choice for all new households coming into the market. In Nigeria, the GNP is assumed to have grown at 6.6 percent for the 1970-74 Development Period (because of the oil boom). For the 1975-80 plan period it is supposed to reach 7.8 percent.

b. Demographic Growth: It is assumed that the population of Lagos will continue to grow in the next ten years. The growth rate has already been discussed in Chapter I. However, if the Federal Capital is removed to the new Federal State site near Abuja (phased to last 10-15 years) and with the creation of more states and the

---

[48]See Table 31 on Forecast of Effective Demand p. 217.

attendant diminishing of migrants, it is likely that the growth rate will be slower.

c. Income Elasticity of Demand for Housing: Income is the most important determinant of housing. At the household level, it determines the housing a household can afford. In national terms, it reflects a country's capacity for housing its population at standards which will not distort other investment allocations. The distribution of income among households determines the number of poor families and the extent of their poverty. The spatial distribution of income affects the housing characteristics of a city.

But what matters more is the ability of the households to pay for reasonable housing. Extending the factor of income elasticity as discussed on pages 222-224, In this situation, the income elasticity is of primary importance. Knowing the income elasticity of demand for housing will help one to predict activities in the housing market. When a households income increases by a certain percent, by what percent does that household increase its expenditure on housing? This question is important here because we are committed, among other things, in predicting future housing demand. However, it is a very difficult question to answer; answers vary widely and are unreliable indicators.

Many scholars have made estimates of the income elasticity of the demand for housing; scholars such as: Morton, Reid, Clifton, Lee, etc.[49] These economists have mainly estimated the income elasticity of the demand for housing in US cities. They found that the value on

---

[49]These are US economists and housing experts who have done considerable work on the relationships between housing demand and income elasticity.

the income elasticity varies drastically, however, depending on the method used to measure income or housing expenditures. A. E. Holmans (a British writer) estimated it to be 0.7 for Great Britain.

The first basic problem is what measures of income should be used. Some have used "permanent" or "normal" income. Others have used the current reported annual income; while still others have used the as income a battery of measures related to the ability to spend. The second basic problem is what measurement of housing expenditure should be used. Some use the owner's estimate of the value of his home. However, this measure sometimes ignores certain housing costs (taxes, insurance, maintenance). Another problem is how to compare the housing expenditures of owners and renters; and for this determination the use of a "transformation function" is required. Therefore income elasticity has not proved to be a useful index.

For Lagos, the Federal Office of Statistics has carried out irregular studies on housing consumption and expenditures of the different households for about twenty years. From these one can estimate an income elasticity of the housing demand. It defines as "housing expenditures" all those that include rent, housing taxes, operating costs (water, light, etc.), maintenance cost, costs of buying a new dwelling, and all other expenditures related to housing. Income is usually considered as the total household expenditures, or it assumes that saving is equal to zero. In this study, rent will be taken as a function of income. The lowest income household spends at least 30 percent of its income on rent. The income elasticity of housing demand has been put at 1.0. The coefficient for rented units

seems

allow

about

accou

varia

natur

somet

Lagos

carri

house

and p

housi

ahead

grows

4.0 p

assum

the s

with

share

all

seems to be larger than that for owner-occupied dwellings, but if one allows for the "downpayment" by its opportunity costs,[50] that also is about 1.0. The estimation is incomplete since one has only taken into account the income of the household. Income is the most explanatory variable, but other variables such as education, age, downpayment, loan maturity and repayments period, size of households and locations are sometimes significant. A complete analysis of demand for housing in Lagos is necessary and more work than has been done here needs to be carried out in order to better understand the behavior of the different households on the housing market, which is needed for building new programs and policies.

d. Household Income and Growth Rates: To determine future housing requirements, household population and income are projected ahead for ten years. We could assume that the number of households grows at annual rate of 4.5 percent while household income grows at 4.0 percent for all income levels. A different growth could also be assumed for the different income groups but we ignore this here for the sake of simplicity. See Table 34 for precise income levels.

e. Housing Expenditure: The initial housing stock is estimated with the assumption that the income elasticity of demand is 1.00. The share of household disposable income spent on housing is 30 percent at all income levels. The values of dwellings are taken as equal to 60

---

[50] Opportunity cost may be defined as the value of the benefit that is foregone by choosing one alternative rather than another. This is an extremely important concept because the "real" cost of any activity is measured by its opportunity cost, not by its outlay cost.

Table 33.--Share of Gross City Product (GCP) Needed to Attain Various Housing Goals in Ten Years with Assumptions about Income Level, Income Growth, Household Growth and Income Elasticity of Demand.

City of Lagos, Growth Pattern and Income Elasticity of Demand for Housing	Percentage Share of Gross City Product Needed in Order to Attain the Following Housing Goals			
	1 Same as the Base Year (1976) for Each Income Level	2 Households on Diagonal of Stock-User Matrix	3 All on Diagonal Plus all Fo's in Hi's	4 All on Diagonal Plus all F1's and Fo's in H2's
1. Modal Income =				
N100 monthly				
per household.				
2. Growth Pattern				
a. Household =				
4.5 percent				
b. Income/ Household =				
4.0 percent	4.5			
c. Income Elasticity =				
1.00	6.3	8.0	9.0	10.0

nonthly

but due

one-thi

payment

stock-u

the dia

descri

about

utilit

that i

standa

than

₩4,50

rooms

with

type

abo

and

hig

and

pa

of

monthly payments not including payment for site (see Appendix C, p. 386). But due to housing shortages, at each income level above ₦50 monthly, one-third of households must live in structures worth only 30 monthly payments. Monthly payments are however the same for both periods. On stock-user matrices, they may be seen as one category to the left of the diagonal.

f. The Housing Stock: From the rate of expenditures just described, one can find the number and value of the housing stock. About 10 percent of households live in rudimentary levels without utilities mostly found in slum and shanty areas (the "Abete" type), that is Ho; and 25 percent live in utility-supplied housing of sub-standard quality, H1. It would be worth about ₦2,250 and have not more than five rooms. The minimal house will correspond to H2, costing about ₦4,500 and having two kitchens and two bathrooms and about six or seven rooms. About 30 percent of the households live in this type.

The value of housing in the higher categories rises in accordance with the income elasticity of demand. H3 will be equivalent to medium type in which about 20 percent of the households live and it is worth about ₦9,000 and much better than H2. The H4's are worth about ₦18,000 and ten percent live in them. They are good with all facilities. The highest category will be H5, these are luxurious, worth about ₦35,500 and over and are occupied by about five percent of the household.

The rate of annual replacement of dwellings, r, depends on the past growth of the housing stock, g, and the average life expectancy of dwellings, L, in the following manner:

$$r = (L[1 + g]^{L})-1$$

Assu

befo

exce

Life

Ann
Rat

Rep

aft

tre

rat

Lag

iss

wi

re

up

s

b

a

u

Assuming that the housing stock grew at an annual rate of three percent before the base year (1976), the replacement rates for various life expectancies will be as stated below.

	Substandard H1	Minimal H2	Low-Cost H3	Good H4	Luxurious H5
Life Expectancy Years	20	25	30	40	50
Annual Replacement Rate, percentage	3	3	2	1.5	1.0
Replacement Factor	.0276	.0191	.0184	.0137	.0134

With these rates, what the existing housing stock will be like after 10 years can be estimated. No newly built houses, breaking the trend, will have to be replaced during this period. Changes in vacancy rates and household size are ignored in these projections, since in Lagos there are hardly any vacancies and household size is a complicated issue.

Investment Needed for Reaching Housing Tragets

Since what the number of households and existing housing stock will be after ten years is known, the amount of investment needed to reach any housing target can be found. We shall abstract from any upgrading and conversion for the sake of simplicity and because statistics are not available on these two activities. Perhaps it may be assumed that upgrading rarely lifts dwellings from one category to another of double its previous value. Conversion could be subsumed under longevity and the net need for replacements.

The f

.33 o

they

infor

types

of co

the s

there

incon

rema

perce

(see

GCP

in e

In t

as w

incl

Plan

serv

smal

is .

Vari

Investment needs are estimated for two possible housing targets.[51] The first aims at no deterioration in housing conditions, meaning only .33 of households in each category consume or occupy less housing than they wish. The other .66 are on the stock-user matrix diagonal. This information and projection of the surviving housing stock tell what types must be built during the next ten years.

Some additional data or assumptions are needed: an assumption of constant real costs per dwelling unit will not be unreasonable. For the share of total housing investment in gross city product (GCP), there is a need to an estimate of the latter, as it grows with household income and productivity. If it is assumed that gross city product remains larger than city disposable income, one can see that about six percent of GCP needs to be invested to keep housing conditions unchanged (see Table 33, Column 1). Approximately an additional two percent of GCP will be needed if all households are to be "appropriately" housed in economic terms, that is, on the diagonal of the stock-user matrix. In this study, the share of housing investment in GCP rises accordingly as we try to improve the housing situation of the poorer income groups.

This share is probably more than most underdeveloped countries, including Nigeria, could allocate to housing. In fact for the 1970-74 Plan period, only 1.6 percent of GCP was allocated to housing and allied services in Lagos. Usually, the implied share of GNP is likely to be smaller than that of GCP. Suppose that gross urban product for Nigeria is .75 of GNP and that .9 of housing will take place in cities. Then

---

[51] See Table 33, Share of Gross City Product Needed to Attain Various Housing Goals in Ten Years.

the share of all urban housing investment in GNP will be only (.75) X (1.1) or .83 as large as the share of urban housing investment in GCP. In other words, six percent of GCP implies only five percent of GNP.

If we put everyone in economically appropriate housing on the diagonal, it still leaves the poorest families in substandard housing. In column 3 of Table 33, we will have the total of Fo's in the Hi housing type, and column 4 shows the investment share with both Fo's and Fl's in H2's or minimal low-cost housing.

Optimal Allocation with Investment Constraints

An optimal allocation of given investment funds for housing maximizes the sum of units built plus units filtered from richer to poorer categories of households. In practice, this aim is likely to involve a minimizing of the number of units filtered upward or raided by the richer from the poorer households. This criterion seeks to resolve judgments and attendant conflict by treating a new or improved dwelling unit for any category equivalent to one for any income category although prices will differ widely.

What matters is that for each income group the price is in accordance with its income elasticity demand for housing. For this optimal allocation process one has to assume that housing policy is not the chosen instrument for income redistribution. Also one has to assume that a market operates to such an extent that poorer groups are not likely to keep better housing than richer groups for long. Each group can trade its housing for amounts of other goods with higher priority and vice versa.

However, income or housing stock redistribution is not ruled out, but it may take place merely to the extent that new buildings plus filtering is raised by preferring new housing construction for one group over another. Such preferences remain optimal as long as they lead to a composition of the housing stock that allows more households to be closer to or on the matrix diagonal than any other composition. If households are put far above the diagonal it will mean giving them houses that they believe they cannot afford to maintain and that are likely, therefore, to deteriorate to the "appropriate" diagonal level. This apprehension does not apply to substandard or minimal housing that poor households may be able to preserve and improve (in case of home-ownership).

The choice of dwelling type for priority construction can be set up as a linear programming problem with the sum of new buildings and filtering as the objective function. If however, investment funds are the only constraint, the solution will depend entirely on the income elasticity of demand for housing. Cost per dwelling unit rises geometrically with that elasticity, while the number of units filtered rises by just one for each highest income level chosen. An elasticity of unity implies indifference between Hi's and H2's as soon as no more households remain homeless or in temporary substandard housing. For double the price one loses half the units built but gains an equal number of vacated old H2's for filtering. Unless the elasticity is substantially below unity, dwellings of type H3 or better, will not be built as long as households with incomes below F1 remain unhoused.

Stock-User matrix (optimal linear programming result) for the 10th year for Lagos is summarized in Tables 34 and 35 and 36 with uniform growth rates and unitary income elasticity of demand for housing with an investment constraint of 4.5 percent of GCP. Table 34 shows Option I with an index of 77. The second option, Option II, shows an improved index of 85 where F1's have old F2's filtered to them; therefore the housing condition of all income groups is better. In this case, the total number of dwelling units that are transferred downwards and the total new dwelling units that are properly allocated are maximized. By this matrix method, it is possible to allocate as equitably as possible, government subsidized housing units coming into the market.

Summary and Conclusions

The purpose of this chapter has been to review and evaluate the ways in which housing requirements are assessed. It has been possible to point out the possibilities to improve and change existing methods. Some of the methods recommended by the UN studies have been actually applied to this specific case. The estimation of the need and demand for housing has been arrived at, based on the demographic, economic and other parameters. From this we can realize that past methods have underestimated the requirements, hence policies have not proved effective.

In the last part of the chapter, it has been the purpose to demonstrate a technique for optimal allocation of housing investment. The technique is sufficiently simple so that for policy decisions it can and should be repeated with the demographic projections, the income-levels, distributions, growth rates and the costs and demand elasticity

Table 34.--Housing Stock-User Matrix for Lagos Metropolitan Area in 1976 (Base Year) Income Elasticity of Demand is 1.0 Value of Dwelling Excludes Land and Infrastructure (N1.00 = US $1.6, 1976).

Dwellings Value N / Households Monthly Income N	H_0 1,500	H_1 2,250	H_2 4,500	H_3 9,000	H_4 18,000	H_5 35,500	Σ_F	Index
F_0 50 or less (Average N37.5) $M/Y = .350$	35,000						35,000	--
F_1 51-100 (75) $M/Y = .150$	29,000	58,500					87,500	83
F_2 101-200 (150) $M/Y = .317$		35,000	70,000				105,000	83
F_3 201-400 (300) $M/Y = .303$			23,333	46,667			70,000	83
F_4 400-800 (600) $M/Y = .286$				11,666	23,334		35,000	83
F_5 over 800 (1,400) $M/Y = .275$					5,833	11,667	17,500	83
Σ_H	64,000	93,500	93,333	58,333	29,167	11,667	350,000	83
Remaining H_j								
Build, D_j								

Note: M/Y is the share of monthly payments in personal disposable income for housing. Value of the dwelling without land and other services equals 60 monthly payments. Aggregate personal disposable income for the initial year 1976 is N90,125,000, i.e. total household income. If this amount is 78 percent of Gross City Product (GCP), the total GCP for 1976 is N115,545,000. Values are based on Nigerian Naiva N; 1976 conversion is: N1.00 = US $1.60.

Table 35.--Stock-User Matrix for LMA After 10 Years of Uniform Growth. Optimal Allocation of 4.5 Percent of Gross City Product to Housing Without Subsidies to any Income Group. Option I.

Dwellings	H_0	H_1	H_2	H_3	H_4	H_5	Σ_F	Index
Households Monthly Income	1,500	2,250	4,500	9,000	18,000	35,500		
N50 or less F_0		14,900					14,900	--
N51-100 F_1		74,100					74,100	100
N101-200 F_2			137,000				137,000	100
N201-400 F_3			52,700	87,800			140,500	81-2
N401-800 F_4				88,700			88,700	50
Over N800 F_5				27,600	25,100	10,100	62,800	47
Σ_H		89,000	189,700	204,100	25,100	10,100	518,000	77
Remaining H_j		67,694	75,506	47,600	25,148	10,100	225,900	
Build, D_j		21,400	114,200	156,500	None	None	ΣD292,100	

Note: H_j = 60 Mi Mi/Yi = 30 percent Other assumptions are that the number of households grows at an annual 4.5 percent and income per household at an annual 4.0 percent for all income groups. Income elasticity of demand for housing is 1.00. Aggregate personal disposal income has risen to N1,970,352,000 from total household income of N90,125,000 (78 GCP) in 1976.

for housing in other cities of Nigeria, of Black Africa, or, in fact, other developing countries.

There are two other elements of an urban housing policy--land and finance. These are omitted from the model employed here. The high productivity and consequent opportunity cost of good sites in large cities like Lagos and Ibadan raises the cost of low density dwellings and makes the extra expense of high rise flats worthwhile. For each large city, one has to determine whether or not these higher costs change the physical components of the dwellings, i.e. rooms, space, utilities, other facilities, that each income group will demand. Each Hj may have a different value from that prevalent in smaller cities. The essential problem of matching gradations of dwellings with a hierarchy of households remains. The curcial question is: How can deficiencies in housing (in Lagos) be minimized by building for the right levels and anticipating probable stock redistribution? Reliable answers to this question has been supplied as data here permitted.

Details of finance at this point of discussion have been omitted. The steps between the monthly shares of income for housing and the acquisition of a flat or dwelling worth sixty payments, in addition to about fifteen payments for the site are ignored here. Obviously, more than 75 months will be needed to pay for the dwelling since interest and insurance are likely to increase the cost substantially. One would not rely on subsidies in order to make a realistic plan. In fact, the purposes of subsidies are so twisted in Nigeria that only the high echelons who need it the least get it. At each income level the households are presumed to be their own ultimate source of finance,

and outside funds are needed only to bridge the time between higher initial construction outlays and the rising return flow of monthly payments. Absence of subsidies means that this initial capital, diverted temporarily from non-housing uses, must receive the going rate of interest.

An inadequacy of the housing stock at current income levels, in purely economic terms means that households are willing but unable to contract mortgages that cover the opportunity cost of capital for the dwellings they seek. Imperfections in the capital market help to create the problem of housing shortages, hence, the *need to choose priority groups*, as analyzed here, when some share of GCP becomes available. If one decides to improve financial institutions in terms of actual patterns of income distribution, one should not regard this as a call for subsidies. A possible case can be made for subsidizing the housing of Fo's and Fl's, and possibly F2's, but that is not stressed here. Therefore the optimal solution arrived at in this study still leaves up to four percent of households in substandard or temporary hovels. Without subsidies, such Fo households earning ₦50 monthly or less can only improve their housing situation by acquiring filtered Hl's and H2's that have lost their values, or, where appropriate, through sites and services as was done during Surulere Resettlement Programs.

From the projections of income distribution in the Lagos Metropolitan Area and acknowledging the constraints and assumptions, one can probably risk the following central policy conclusion. If luxury buildings can be avoided, or at least frozen for a few years,

about 4.5 percent of GCP should go for housing for 10 years in order to approach improved levels of housing that will be easily within the means of all income groups. If optimally allocated, taking filtering and raiding into account, this amount can assure that all middle income households, F2's and F3's earning between ₦101 to ₦400 monthly will be appropriately housed. Some richer households will have to settle for the same types of moderate housing, meaning in most cases inability to leave moderate housing for something better as income rises. By contrast, thousands of vacated H2 and H1 dwellings will become available to families earning less than ₦100, allowing them to live in something better than financially appropriate new housing. Financial institutions must be adapted to help facilitate these transfers of old housing with suitable mortgage instruments (See Table 36).

By investing 4.5 percent of GCP as an optimal investment program, it is not suggested that there should be an exclusive concentrations on low-cost housing. If the assumptions about growth rates and income elasticity demand are changed the outcome may not greatly be affected. Perhaps to conform to practicality, may relax the assumption that all dwelling construction will be assigned by housing authorities or agencies. The market may later reshuffle the occupants among the stock. If rich F5 households are allowed to compete and if they are in a position to build without subsidized or controlled long term credit, they should be allowed to do so. It may be both economically and politically unrealistic to assume that F5's will not get the type of houses they want.

In the next chapter the required related infrastructure will be estimated. Such an estimate will ensure that housing units are

matched with adequate community services and ensure the livability of neighborhoods.

CHAPTER IV

ESTIMATION FOR INFRASTRUCTURE

In a comprehensive contest, housing can be regarded as a product and a process. The product is not only the shell or structure of dwellings but their design, the amount and allocation of space, and, particularly, the basic built-in equipment: the lighting, sanitary and food preparation facilities. It is also the layout and facilities of the neighborhood--open space, play space, streets, walks, utilities, nursery and elementary schools, shops and other neighborhood facilities. All the above are part of the "housing package" which could be described loosely here as "infrastructure." One would therefore think of housing as a bundle of services performed by both the structure and the site on which it is built. The price per unit of housing is the expenditure needed to obtain a composite bundle of services of site and structure.

Therefore, the availability or absence of these essential services elevates or downgrades the housing situation in any city or country. Elsewhere in this study it has been stressed that the housing problem in Lagos is aggravated by the inadequacy and often total absence of essential infrastructure. There is probably not a single major city in the world without some form of housing problem. That of Lagos has become proverbial; more so because, in addition to much shortage of dwelling units, the quality of much of those available is deplorable.

Accessibility is a big problem; domestic water, light or power are woefully inadequate; sewerage and storm drainage collection and disposal methods are nothing but rudimentary.

One of the major theses in this study is that any estimation of actual dwelling units must be accompanied by a component of infrastructure. It is not intended here to go into the semantics of what is infrastructure or its scope. All that is attempted is to, make simple summary estimates about domestic water supply, power supply and consumption and circulation, sewerage and other wastes removal facilities. So that when investments are set aside for housing, an appropriate percentage should be allocated to the provision of these services in order to improve the livability in most sections of Lagos. In other words, what level of per capita consumption and supply will improve the housing quality or the sanitary situation? The facilities discussed here are the most crucial elements of infrastructure to ensure minimum health and safety standards in any urban settlement.

Domestic Water Supply

The amount of water to be supplied per head of population is obviously a crucial variable in the planning and design of any domestic water supply system. From Table 37 one can see that Lagos compares very unfavorably with most other cities in Nigeria in relation to water supply targets. This should not be so, since Lagos has the largest population among all the cities in Nigeria.

Usually in calculating the required extent of expansion to capacity, the methods used to find a per capita supply figure are:

Table 36.--Stock-User Matrix for LMA After 10 years of Uniform Growth. Optimal Allocation of 4.5 Percent of Gross City Product to Housing Without Subsidies to Any Group: Option II.

Dwellings	H_0	H_1	H_2	H_3	H_4	H_5	Σ_F	Index
Households Monthly Income	1,500	2,250	4,500	9,000	18,000	35,500		
N50 or less F_0		14,900					14,900	--
N51-100 F_1			74,100				74,100	200
N101-200 F_2			137,000				137,000	100
N201-400 F_3			116,100	24,400			140,500	58.7
N401-800 F_4				88,700			88,700	50
Nover 800 F_5				47,600	25,100	10,100	62,800	47
Σ_H		14,900	327,200	140,700	25,100	10,100	518,000	85.2
Remaining H_j		67,694	75,500	47,600	25,100	10,100	225,900	
Build, D_j		251,700	93,100	--	--	--	Σdj344,800	

Assumptions: Hj = 60 Mi; Mi/Yi = 30 percent F1's have old H2's filtered to them. Number of households grows at an annual rate of 4.5 percent while income per household grows at an annual rate of 4.0 percent. Income elasticity of demand for housing is 1.00. Σdj = N1,970,352,000; this maximizes ΣTj and ΣDj. Any other plan has more off the diagonal.

(1) acceptance of World Health Organization (W.H.O.) standards, i.e. 40 litres or about 9 imperial gallons per day for standpipe provision which assumes 20 litres wastage; (2) standard engineering practice; (3) extrapolation of present per capita consumption.

For Lagos Metropolitan Area, the problem of water supply is compounded. Not only are supplies inadequate and intermittent, but they are not well-distributed geographically. It is only with the larger scale, centralized urban systems like Lagos that we have to consider the problem of distribution. Because of this situation, a Master Plan and Feasibility Study was done for the Lagos Water Supply Expansion. For the 1966 to 1975 decade the project was estimated to cost ₦23,867,200 ($47,414,000.). In this period it was predicted that the population will rise to 2,100,000 and water demand to 84 million imperial gallons (381.4 million liters) per day average.

For the 1975-1980 Development Plan Period the following investment targets for water supply have been made for Lagos Metropolitan Area: (1) Consultancy Engineering Services fees--₦4 million--to raise distribution from 100-200 million gallons (454.6-909.2 million liters) per day at Iju Water Works; (2) Water Supply Phases II and III Expansion Scheme development at Ogun and Owo Rivers to produce 100 million gallons (454.6 million liters) per day; (3) Lagos Water Metering--to instal meters to monitor water consumption and avoid wastage, ₦2.5 million; (4) Federal Government Grant for Water Supply in Metropolitan Lagos Area, ₦33.3 million (Third National Development Plan 1975-80 Volume II, Project Summary, p. 366).

The proposed construction to serve the design population of 1975 included an on-stream impoundment on the Ofiki River, 84 miles, (135.2 kilometers) north of Lagos; construction of new raw water intakes, pumping and transmission mains; enlargement and modernization of the treatment plant pumping transmission and storage facilities and the provision of additional capacity to the gravity distribution system. Ofiki River Dam: An impoundment with a storage capacity of 11,470 million gallons (54143.7 million liters) was proposed for construction approximately 3 miles south of Igangan. Construction of this impoundment would have stabilized the safe yield of the Ogun River at Akute at approximately 1000.1 million liters per day based on a drought periodicity of one year in 50 years. This dam impoundment is required since the total safe yield of the Ogun and Iju Rivers without regulation will be exceeded during the dry season by the predicted 1970 demand of 381.8 million liters per day.

Raw Water Intakes, Pumping and Transmission

Since the ultimate capacity of existing and previously planned raw water capacity is only 181.8 million liters per day (mld), additional intake structures, pumping station and transmission lines are proposed to increase the capacity of the total raw water system to 409.1 mld by 1970 and 572.8 mld by 1975. Additional construction to meet the 1985 demand of 927.4 mld is planned. Treatment Plant: It was proposed that the treatment plant capacity be increased to 409.1 mld, maximum, in 1970, and 572.8 maximum mld in 1975. None of these targets was achieved. Additional increases, also of sufficient magnitude to meet maximum day

demand, are set for the 1985 demand of 954.6 mld. Distribution System Improvements: In the first 5-Year Plan the existing storage of clear water at the head of the system was to be brought up from 29.5 to 111.3 million liters. Immediately following on this stage, was a second 5-Year Plan involving an extension of 56.8 million liters capacity ground storage. The next ten years following these two phases called for installations of additional 113.6 million liters capacity at the head of the system. These objectives were not achieved.

Major features of design, involved in the Master Plan for 20 years are as follows:

Gallons/Liters, etc.

Item	1965/70	1970/75	Total First 10 Years	1975/85	Total 20 Years
Additional Storage at Shaga	18 ml. (81.8 ml)	12.5 ml. (56.8 ml)	30.5 ml. (138.6 ml)	25 ml. (113.6 ml)	55.5 ml. (252.3 ml)
Transmission	18288 m	19812 m	38100 m	18288 m	56388 m
Mains	152.4 cm	121.9 cm	152.4/121.9 cm	152.4 cm	--
Feeder	29108.4 m	9601.2 m	39928.8 m	33528 m	73456.8 m
Mains	12-122 cm	12-61 cm	12/122 cm	18-122 cm	--
Elevated Storage (gallons) (liters)	2,200,000 (10,001,420)	1,950,000 (8,864,895)	4,150,000 (18,866,315)	2,500,000 (11,365,250)	6,650,000 (30,231,565)
Meters	20,000	50,000	70,000	50,000	120,000

Industrial Water Consumption

Lagos has the greatest concentration of industrial enterprises in Niteria. There were 268 enterprises employing ten or more persons listed in the 1964 Industrial Directory. By 1969, there were more than 230 manufacturing industries employing up to one hundred persons or more in the Greater Lagos Area. The implications of the growing number of industries in the Lagos area are that industrial demand for water starts to compete with domestic use and furthermore, industrial concentration means population concentration and more demand for domestic water. Later in this section, we shall analyze the volume of non-domestic use of water.

Extent of Water System and Population Served

In 1964 the existing system was limited in capacity to 18 mgd by the capacity of the water treatment plant. Additional, more localized limitations were imposed by inadequate distribution system capacity in proportions of the system such as Apapa. In general, service has continued to be inadequate.

The estimated population of LWS service area was 370,000 in December 1952, and 800,000 in May 1962. The implied rate of increase during the period was approximately 8.5 percent per year compounded annually. The estimated rate of natural increase was between three and four percent per year. The apparent rate of net migration to Lagos between 1952 and 1962 averaged between 4.5 and 5.5 percent per year, which is extremely high compared to other urban areas of the world. These rates have since been surpassed (see chapter on demographic

Table 37.--Physical Targets of Major Urban Water Supply Projects--Selected Cities in Nigeria.

Cities	Population Estimates 1972	Population Estimates 1980	1972 Total Existing Daily Water Supply (ml gallons)	1972 Gallons Per Head Per Day	1980 Projected Addition Output During Plan Period (ml gallons)	1980 Total Daily Water Supply	1980 Gallons Per Head Per Day
Benin	201,000	314,000	1.5(7.8)[a]	7.5(34.1)	8.5(38.6)	10.0(45.4)	31.8(144.5)
Calabar	119,000	185,000	0.7(3.2)	6.0(27.2)	3.3(15.0)	4.0(18.2)	21.6
Enugu	227,000	429,000	5.0(22.7)	18.0(81.8)	10.0(45.4)	15.0(68.2)	35.0(159.1)
Ibadan	893,000	1,301,000	24.0(109.1)	27.0(122.7)	N.A.	24.0(109.1)	18.4(98.2)
Ilorin	297,000	439,000	3.0(13.6)	10.0(45.4)	12.0(54.5)	15.0(68.2)	34.0(154.5)
Jos	130,000	201,000	1.0(4.5)	7.5(34.1)	19.0(86.4)	20.0(90.9)	99.0(450.0)
Kaduna	232,000	387,000	11.5(52.3)	50.0(227.3)	18.5(84.1)	30.0(136.3)	77.5(352.3)
Lagos (Metro)	2.1 mill.	3.6 mill.	35.0(159.1)	16.6(75.5)	65.0(295.5)	100.0(454.6)	27.0(122.7)
Maiduguri	191,000	274,000	1.3(5.9)	7.0(31.8)	4.7(21.4)	6.0(27.2)	22.0(100.0)
Port-Harcourt	214,000	387,000	7.0(31.8)	33.0(150.0)	8.0(36.4)	15.0(68.2)	38.8(176.4)
Sokoto	139,000	215,000	2.5(11.4)	18.0(81.8)	4.5(20.5)	7.0(31.8)	32.6(148.2)

Source: Third National Development Plan, 1975-80, Vol. I, p. 301.

[a]The figures in brackets represent liter equivalents of the gallons.

analysis). By 1964 the Lagos Water System (LWS) served one million persons located in the Lagos Metropolitan Area.

The population forecast for LWS planning was one million for 1965, 1.5 million for 1970, 2.1 million for 1975; and 3.5 million for 1985. It is expected that the maximum range for actual population in 1975 was between 1.8 and 2.4 million and in 1985 will be in the range between 2.7 and 4.6 million. The estimate for water has always been based on high population estimates, yet the taps go dry most of the time. A look at the trend for a twenty year period will show that supply has been increasing slowly per capita (see Table 38) and part of Appendix D.

It is unlikely that LWS will be able to meet the demand for water while most consumers have unmetered water service at low subsidized rates. Domestic consumers with unmetered water service have no incentives to reduce waste and uneconomic use of LWS water.

For 1966-1976, and projections up to 1985, see Appendix D: Lagos Metropolitan Area, Projections of demographic factors and infrastructure consumption, column 5. It is recommended that LWS install a predominantly metered system charging an unsubsidized rate which is estimated at 25 Kobo (US 40¢) per thousand gallons. If LWS does not install water meters, the demand per capita will be much higher than is estimated in this study, perhaps by 100 percent and it will be necessary to invest in very extensive capital improvements in excess of the investments recommended, to obtain, process and distribute the additional water.

Table 38.--Per Capita Water Use in the LWS Service Area.

Fiscal Year	Daily Average of Water Supplied (Gal.)	Estimate Population	Per Capita Water Use Imperial Gallons (Liter per capita/dy)
1956-57	31,477,196	490,000	63.5 lpcd
1957-58	36,077,849	532,000	67.7 lpcd
1958-59	38,650,942	577,000	66.7 lpcd
1959-60	42,387,836	626,000	72.2 lpcd
1960-61	49,334,277	680,000	77.2 lpcd
1961-62	53,483,539	737,000	80.0 lpcd
1962-63	67,878,868	800,000	85.9 lpcd
1963-64	71,543,455	864,000	87.7 lpcd
1964-65	81,306,998	916,000	88.6 lpcd

Only the approximate magnitude of domestic demand in the future can be estimated from the data available. The LWS statistics refer to total water use in a period when the supply was inadequate. There is no way to accurately estimate the losses in transmission and distribution. There are no records of water consumption by unmetered consumers. Domestic water use per capita under present conditions for selected sample groups in Lagos has been estimated to assess the potential impact of changes in the LWS.

In the sample groups with private water connections, domestic use of LWS water varies from 72.7 liters per capita per day (lped) to 331.8 lpcd and is related to standard of living. In the sample groups without private water connections, domestic use of LWS water varies from zero to 27.2 lpcd and is related to the degree of inconvenience

and expense required to obtain LWS water. The per capita water use data in the sample groups are summarized below in tabular form.

The Report on Lagos Housing Inquiry indicates that, in June 1961, six percent of the households in the Federal Territory had water in the house, and 35 percent had water on the compound. The remaining 59 percent went outside the compound to get water from public tap, a shallow well, or from another house. Of these households, seven percent had water closets on a shared or exclusive basis, 88 percent had other latrine facilities, and five percent had no latrine facilities. Comparable data for the parts of LWS service area outside of the Federal Territory probably would indicate less households with water connections and water closets. It was estimated in 1964 that 30 to 40 percent of Lagos residents had a water connection in the house or compound where they live and most of these do not live at the high standard of living of the sample group at Palm Grove Estate. The sample at Ikeja Estate is also above the 1964 average standard of living.

It is estimated, based on the per capita water use in the study sample groups in Mushin and Ekeja Estates, that beneficial domestic water use of 113.6 lpcd would be sufficient to make a significant improvement in the standard of living and health in Lagos. There would be sufficient water to provide private water connections to most residents and to facilitate central sewage treatment; in most parts of Lagos. This measure will improve the quality of housing, especially in the slum areas, and some of the houses that were being avoided would attract higher income people who would lobby for the upgrading of those slum areas. If most water connections were metered and the water rate remained 25 kobo per thousand gallons, there would be a restraint on

Table 39.--Domestic Use of LWS Water In Selected Income Group Areas.

Residential Area	Description	LWS Water Use
Palm Grove Estate	Upper income, low density; metered	331.8 lpcd
Ikeja Estate	Middle income, single family bungalows; high density	113.6 lpcd
Mushin	Low and middle income, multi-family apartments with private water connection; metered	72.7 lpcd
Ebute-Metta	Low income; high density; households dependant on public stand pumps	27.2 lpcd
Maroko Village	Low income, medium density; shallow wells extensively because LWS water is extremely incovenient and relatively expensive; unplanned settlements	2.3 lpcd
Bariga	Low and middle income; most residents use wells and have no access to LWS water	Zero lpcd

waste and uneconomical use of water, but the cost would be within the means of Lagos residents. A 20 gpcd for example, would cost approximately ₦0.8 per capita per year.

Non-Domestic Demand

Total non-domestic water use is estimated at approximately two million gallons per day. Non-domestic water users have metered water service and pay 25 kobo per thousand gallons except for the railroad which pays 20 kobo. The table below summarizes the main users for non-domestic water and their sources.

Table 40.--A Summary of the Main Users for Non-Domestic Water and their Sources.

	Enterprise	Liters of Water Used Per Month in Thousand of Imperial Gallons	
		From Lagos Water Supply	From the Lagoon And Boreholes
1.	Nigerian Ports Authority	61826.9[a]	None
2.	Nigerian Railway Corp. (excludes domestic use)	51370.9	None
3.	National Electric Power Authority (NEPA)	26367.3	Quantity Not Known
4.	Nigerians Brewery Ltd.	23639.7	NA
5.	Guiness Nig. Ltd.	18184.4	45.461
6.	Nigerian Bottling Company	11819.8	None
7.	Nigerian Textile Mills	454.61	22730.5
8.	Lever Brothers Ltd.	8637.5	Not Known
9.	Dunlop Industries Nig. Inc.	454.61	8182.9
10.	Clay Industries Nig. Ltc.	None	est. 18184.4
11.	Asbestos Cement Products	454.61	6819.15
12.	Subtotal: Major Water Users	203,210.6	55962.4
13.	Estimated Use by other industrial enterprises, ships, Govt. and other non-domestic users	78647.5	None
14.	Total Non-Domestic Water Use	281858.2	

Source: LWS Accounts and Interview with Enterprices named above.

[a]Figures rounded to nearest 100,000 liters.

Water Management in Cities

So far the provision of water in terms of per capita demand and supply in Lagos has been considered and projected to 1985. The next and vitally important subject for consideration is the whole question of the implementation of water investments. Clearly the administration of water in a city like Lagos, or any other city in Black Africa, will involve the establishment of policy objectives, and which should be formulated on the basis of knowledge, not on the basis of habit. While policy decisions must be linked to research into finding the demands for and the benefits of water, decisions cannot be delayed until all information is available.

The management of water provision must be planned on a united basis throughout the country or even throughout a region. At the city level the most critical relationships are between the authority responsible for water provision and those that provide housing, sewage removal facilities, transportation or other urban infrastructure services. The link between water supply and the sewage facilities is obvious. When per capita water consumption rises much over 40 liters per day, a waterborne sewerage system becomes inevitable.[52] For Lagos, as for any unit of human settlement, it is axiomatic that whenever a new neighborhood or complete community is created, sewerage and water supply infrastructure must be designed simultaneously.

Apart from this obvious need for co-ordination between the water and sewerage authorities, a link between planning housing and water provision is crucial. Housing standards, densities and layout patterns

[52]Infrastructure Problems of the Cities of Developing Countries, Koeniggberger, et al.

will affect the cost of water supply systems, and may determine the applicability of low cost technologies. Low density, low income housing may well mean that distribution by pipeline becomes prohibitively expensive, due to the length of piping required. However, such densities may mean that there is sufficient space for individual or community rainwater catchment tanks. Conversely where land is very scarce, high density low income housing, may result in pipeline distribution being the most economic method of supply.

These problems of co-ordination of water supply and other municipal services, underscore the necessity for an administrative structure concerned with the overall planning of urban infrastructure services. One further point on the relationship between water provision and housing conditions concerns the supply of water to unauthorized buildings and squatter communities. Authorities deny water and other services to squatter or unapproved communities in the fear that the illegal occupation will be made legimate. Hence, such districts of Lagos like Maroko, Bariga, Ajegunle, etc. lack piped water. However, existence of these communities cannot be ignored indefinitely. Some solution to the provision of services problem must be found--comprehensive planning, legal subdivision and other controls should be enforced from the start.

Sanitary and Storm Sewers

Removal and Treatment of Solid and Liquid Wastes

The demand for efficient and hygienic removal of domestic wastes in developing countries is not an individual demand. It a demand by the

community and, most importantly, a demand that is a direct function of residential density. The removal of wastes in a dispersed settlement present fewer problems of hygiene or resource priorities. Systems such as borehole latrines, dry latrines coupled with simple compost production are adequate in rural conditions. However, the mere scarcity of land renders such economical solutions invalid in urban settlement of most kinds.

A second characteristic of the demand for organized removal of wastes is the correlation between length of stay in the city of a newcomer and the demand for sanitary services. This, one might say, is a demand created by adaptation to urban culture. At this point only does demand for removal of wastes become an individual demand--directly as a result of adaptation.

Thirdly a point arrives in overall urban density at which the residential and job density (including industry and offices) create a sudden powerful demand for very capital-intensive highly technological solutions. This aspect of demand for removal of wastes is as easily predictable as is the growth of the cities themselves.

In Europe a household of three will produce between 11 and 17 kilograms of refuse per week, the great bulk of which is ash, paper and putrescible organic matter. No reliable statistic are available for Lagos or any other city in the developing countries on either the amount of refuse produced, nor on the proportions of ash etc. It may be assumed, however, that the putrescrible content of the refuse in Lagos will be high and the ash and paper content low (see sections on drainage and sanitation in Chapter III).

This high proportion of putrescrible matter makes it necessary that refuse be stored in covered containers through all stages of passage from the home to the disposal centre and that it is removed at frequent intervals. A daily service for the collection of refuse need not necessarily be more expensive than a less frequent service provided that Lagos householders cooperate by contributing to some extent their own labor. One system is to provide conveniently situated communal bins, *of sufficient capacity* for the needs of those served. *A daily* collection of the communal bins, by vehicles fully utilized, can be provided an extended to all sections of Lagos at no greater cost than a less frequent and haphazard collection service as obtains now.

Even as simple a system as that described above cannot be implemented without reliable figures on the quantity of refuse in Lagos. This will have to be established to allow the capacity of transportation vehicles to be determined. To avoid refuse from encroaching to the streets, well-sited and capacious covered booths should be provided--not toyish incinerators built during the colonial days.

It is essential that a program of education in matters concerning personal and public hygiene should go hand in hand with the implementation of a sanitary service. With an appreciation of the advantage to health which a clean urban environment brings, the establishment of a satisfactory sanitary service based primarily on a self-help basis could be expected to develop into a more labor intensive service and ultimately to more capital intensive schemes as the economy of Nigeria strengthens. When this is achieved, the sanitary conditions of residential houses in Lagos will improve appreciably.

It is important to mention here that the Federal Government of Nigeria and City officials in Lagos are aware now of the importance of waste disposal and even storm sewers. For the 1975-80 Development Plan Period the following allocation has been made for this purpose.

1. Federal Government special subvention for Sewerage and Drainage Schemes in Lagos Metropolitan Area will be ₦52.5 million. The subvention is meant to enable the Lagos State Government to undertake the construction of modern sewerage and drainage schemes in Lagos Metro Area.

2. The Lagos State Government on its own will invest the following:

a. Lagos Sewerage Scheme--₦30 million. The project is aimed at collecting sewerage through sewer lines and treating the waste materials before discharging them into the recipient waters. Phase I of the project will cover Victoria Island, while Phase II will cover central Lagos.

b. Lagos Storm Water Drainage Scheme--₦30 million. The project aims at solving the problem of flooding in metropolitan Lagos by constructing an integrated system of covered drainage pipes with outlets into the sea. The project covers approximately 140 square kilometers in Ebute-Metta, Yaba, Shomolu, Ikeja, Mushin, Oshodi, Surulere, Iganmu and Apapa.

c. Septic tank for individual houses to phase out the pail system--₦10 million. The aim is to replace the pail system with modern septic tank system.

The above investment target is very laudable indeed. The successful implementation of the projects will be the real tasks. It is not unknown that such investment and development projects phase out without achieving even one-quarter of the aims.

Sewerage Collection, Treatment, and Disposal as an Engineering Service

In Lagos, services are usually provided for roads, drainage, water, electricity, refuse and sewage disposal in housing estates and Government Residential Areas. A central waterborne sanitation system which is to-date the most effective and satisfactory method of collecting, treatment and disposing of sewerage is usually not provided. Instead, each building developer installs a septic tank and soakaway system for dealing with the sewerage originating within his own premises.

Relative to the other community services waterborn sanitation is very expensive both in initial and operational costs. An analysis of the costing of the proposals for the sewerage, storm drainage and refuse disposal in Metropolitan Lagos which were placed before the Federal Government in 1966 showed that the proposals would cost ₦356 million for an estimated population of 4.35 million in the year 20005 AD. This works out at ₦82 per capita for sewerage, sewage disposal and refuse disposal. Refuse disposal however was estimated to cost only ₦2 per capita leaving ₦80 per capita for the collection, transportation, treatment and disposal of sewage in Metropolitan Lagos.

Limited Waterborne Sanitation Facilities

A further analysis of these proposals shows that 71 percent of the estimated cost would go into the sewerage system alone and that the

treatment, the pumping equipment, the buildings and the composting plant for the refuse would all cost only 29 percent of the total cost. Schemes in which the sewerage component is reduced to a minimum are therefore likely to result in lower capital costs. Indeed this explains why the septic tank-soakaway system is employed so extensively in Lagos since the sewerage component is practically eliminated but for the short length of sewer between tank and the soakaway. The septic tank-soakaway system however suffers from a number of disadvantages which no longer make it acceptable in a modern city.

In spite of the unfortunate fact that in an existing city like Lagos, the benefits of the central sewerage system are denied the vast majority of the population, there are property developers who can afford and are willing to stand the expenses of waterborne sanitation facilities within their individual development areas. They can be supplied with limited facilities subject to a few conditions. Firstly, land development should be under single control. Secondly, building development should be under a single control and buildings preferably under single ownership. Thirdly, the development area should be compact. Fourthly, development should follow an acceptable planning layout.

The above conditions are usually satisfied in universities, secondary schools, hospitals, military barracks and other public institutions. Authorities in a number of such institutions in Lagos and other large cities in Nigeria have taken advantage of these conditions to install in them a number of sewage treatment plants to cater for their individual institutions. Institutions in the Lagos Area known to have installed such plants are: the University of Lagos,

the Military Government for the Nigerian Army at Ikeja, the Southern Police College at Ikeja and the Ikeja Industrial Estate. In addition, a good many of the primary schools and health centers in Lagos have treatment plants of the package type.

Prospects for Waterborne Sanitation

Housing estates in Lagos satisfy the criteria mentioned above. It is considered therefore that a proper waterborne sanitation can be made to replace the existing septic tank system.

There is generally sufficient set-back in estates to accommodate a public sewer to which the private sewer bringing the sewage from the water closet, bathroom and the kitchen can be connected. The problem will be with the older districts where setbacks are very narrow. For the newer estates, and given average gradients the maximum flow would not be excessive and sewer sizes even at the entrance to treatment works would not be prohibitively large. The cost of materials and labor in the construction of such small size sewers would be relatively small.

Because of the long lines in municipal sewerage it becomes necessary to install pumping stations to avoid the need for deep excavations and working at depths below the water table. Such pumping stations contribute to the high cost of the central sewerage system. They would however, be rare in a housing estate sewerage system.

The capital investment in septic tanks in an existing estate may well make the authorities reluctant to change over to a proper sewerage system. Points for consideration will no doubt include whether or not the maintenance of the tanks and soakaways together with the

inevitable periodical disludging operations is less expensive than the cost of a sewerage system. Health authorities would wish to see sewerage systems replace spetic tanks wherever possible.

Sewage Treatment Plants

Two of the sewage treatment plants installed in the institutions in the Lagos Area mentioned earlier use the Trickling Filter while most of the others are "Oxigest" packaged plants which are based on the contact stabilization modification of the Activated Sludge Process. Either the Trickling Filter or a suitable modification of it could be used in housing estates. Indeed, as far back as 1966, an "Oxigest" plant was installed by the former Lagos Executive Development Board to cater for part of one of its housing estates at Surulere. At that time the plant received the raw sewage from a group of 45 buildings covering an area of 29 acres. The capacity of the plant was 200,000 gallons ($910m^3$) per day. The capital cost in 1966 was £61,000 (₦122,000) which worked out at £12.2 (₦24.4) per capita of the design population of 5,000.

The Oxidation Pond is a proven low-cost method of sewage treatment and disposal. It has been fairly used extensively in Southern Africa and America. It's efficiency is quite high in tropical climates: it, however, requires relatively large land areas and is therefore unsuitable where land costs are high.

The Biodise Process is another low-cost method of sewage treatment which is new relative to both the Trickling Filter and the Activated Sludge Process. It is cheap both in initial and operational costs and all indication from the results of experiments with a laboratory scale model in the University of Lagos, is to the effect that the process will

do well in Lagos Area or Nigeria. The problem with sewage in Lagos is how to install a comprehensive or integrated system for the whole metropolitan region.

Storm Sewerage

A dilemma in planning a storm sewer system for a drainage area is that it has to be done in reverse. If main trunk lines could be installed last--after an area is fully built-up and necessary local and collector drains installed--there would be little doubt about size, design, location or financing. In practice, however, the trunks must be in place first, to receive the discharge from a local system; otherwise damage to downstream residential areas and property will inevitably occur.

In Chapter III, the existing condition of storm drainage in the LMA has been clearly outlined and analyzed. Part of the environmental problem in Lagos is due to the fact that there is no efficient system (either natural or artificial) for surface run-off. Moreover, the metropolitan area is flat and low-lying. The maximum elevation is only about ten meters (35 feet) above sea level and as a result there is little natural drainage. Most of the streets are not paved; those that are paved are worn out and full of pot-holes. The available storm drainage channels are shallow, open and not lined with masonry. Therefore during periods of heavy rainfall, kneedeep flooding is frequent.

Planning of a Story Drainage System for Lagos

Because a storm sewer system is actually a replacement for a natural drainage system, the concept of a drainage area is commonly used

when planning for urban surface runn-off. When urban development occurs, the natural drainage is disturbed--the hydrological cycle as it formerly operated is changed substantially. Much of the water (rainfall) that would have been absorbed runs on the impervious surface of the ground. Thus curbs and gutters, storm drains, retention basins, and other such facilities must be built.

These channels may be open ditches, dug to an adequate depth, with sloping sides and sufficient gradient to permit the water to flow; or they may be covered pipes, usually clay tile but sometimes plastic into which excess water can seep and be carried off. More important than the drainage channels is the matter of internal soil drainage. In many naturally swampy areas, it is not difficult to build the conduits on the surface or underground, but internal soil drainage will be so poor that the excess water cannot be carried away from the land and drainage is a partial or total failure.

Required Data

Storm drainage planning requires data about the physical situation: The volumes of water that are likely to require removal, sometimes data on the salt content of the water, soil character, land slope, character of the channels into which the drainage water will be discharged, and sometimes other matters. Hydrologists and engineers have devised various formula for computing the amount of run-off. Obviously, if drainage is to remove unwanted water, the physical works, must be adequate to do the job. Drainage planning also requires economic data: construction cost of the drains, maintenance costs, effect of drainage on land productivity and hence the benefit-cost ratio of the proposed

drainage project. Drainage planning also requires attention to administrative arrangements: what organization is going to maintain them and how the costs are to be repaid. Frequently, some agency of some unit of government constructs the drains, directly or by contract with private firms; sometimes the same agency is responsible for their maintenance, but often not.

Steps in Planning Storm Drainage

Although the planning of a storm drainage system is complex, a number of suggested steps can be taken. Obviously, these do not reflect the amount of detailed engineering and statistical analysis that must be made before a plan is completed. The steps are as follows:

a. Determine boundaries and areas of watersheds. This information can be determined from topographical maps.

b. Compile data on storm and flood frequency. This information is essential to determine the "design frequency" for trunk storm drainage facilities. Thus, if a system is designed so that it handles a five-year storm interval the storm sewer will operate at capacity once every five years.

For example, the bigger storm, which may occur once every ten years, will cause flooding because the storm drainage system, designed for a five-year storm cannot handle it. For Lagos it will be important to construct the storm drainage system in such a way that flooding which is frequent during the rainy season can be taken care of. Determining the proper storm interval is extremely difficult and requires the advice of an expert hydrologist. Naturally, the economic implications of various designs may help to determine the proper choice.

c. Map soil characteristics in the drainage basin. Soils vary in their drainage characteristics and these characteristics must be known in order to calculate the rate of run-off.

d. Estimate future growth in density of population within each drainage area. The comprehensive plan can be useful at this point if it goes into sufficient detail.

e. Inventory and map existing facilities and determine new trunk sewer construction needed. To adequately handle total run-off from tributary watersheds, several trunk lines may be necessary.

f. Plan new trunk line construction needed both in built-up and new areas. Locations, relation to existing drainage facilities and a schedule of recommended priorities should be indicated.

Traditionally, sewerage system planning is treated merely as an engineering problem with only a token effort being made to shape urban growth patterns. The typical pattern has been to provide for past, unmet needs and to extrapolate present development trends; little attention has been paid to alternative policies concerning design, location and timing of utility systems to guide new growth in a pre-determined direction. What has been known intuitively for sometime has been substantiated by research: that the provision of utilities often acts as a triggering advice influencing the direction and rate of land development.

Domestic Power Supply and Consumption

The economic allocation and utilization of electricity resources to meet a measurable demand requires accurate forecasting. In the case of supplying electricity, the forecasting of demand is often difficult.

One is likely to be serving a number of inter-related markets (of which the urban domestic market will be one) with an existing pricing policy. Also, because of the long gestation period for new plant and the capital-intensive nature of the many possible supply solutions, the planning period for which forecasts have to be made is likely to be long, a factor which increases the uncertainty attached to overall and aggregate forecasts of the demand for electricity.

The above condition also increases the cost of inaccurate answers. The faster demand is expected to grow, the more appropriate a capital - intensive solution and probably the less flexibility in the timing of new capacity. If the forecast is too low in the event, some demand remains unsatisfied--if too high, fixed resources are left idle.

The supply authority (NEPA) will be concerned not only with the overall level of demand but also, of course, with its distribution during the day. Because electricity cannot be usefully stored it will have to establish the size of likely demand peaks. Whether it is worth meeting these peaks and accepting that generating capacity will be underutilized for the rest of the day will depend on a number of factors. A pricing policy which to some extent irons out the peaks, by forcing the consumer to face the full cost of meeting his demand, is of course possible. Regulation of demand through pricing, however, may not always be thought desirable for every class of consumer.

Whether domestic urban demand is being looked at in isolation, or as part of the overall demand for electricity, it may not be very costly in real terms to adopt simple forecasting methods. Such methods include the extrapolation of past trends, which ignore factors such as

consumer's attitudes towards interruption and variability of supply. Domestic demand is affected by a number of social and economic factors, which have ramifications in associated sectors and are affected by these sectors. For example, the pattern of home ownership may mean that tenants are discouraged from installing their own appliances.

Power Supply and Demand in Lagos Metropolitan Area

As mentioned elsewhere in this study, domestic electricity in Lagos is mostly used for lighting in the homes; only a small fraction is used for cooking and operating other electrical appliances. It has also been observed that NEPA supply of electrical power to homes is very much intermittent. Some districts suffer the interruption more--like Ebute-Metta, Yaba, Ikorodu etc. As of 31st March 1975, there were about 127,032 domestic consumers for the Lagos area. This figure is very much on the high side when compared with cities like Ibadan (44,924), Enugu (14,763), Kano (22,924) and Kaduna (17,714). These numbers do not in any way reflect the number of dwelling units that consume electricity--in the older homes, there are usually one central meter for the entire house, while houses built in flats and are quite new have one meter per flat or household.

The aggregate number of consumers are not evenly distributed throughout the districts. A careful examination of Table 41 will reveal the points being made above.

The unequal distribution is evidenced when one matches the estimated population with average consumption per month. Surely the high-income areas of Ikoyi, Apapa, etc. consume more than their population

Table 41.--Residential Electricity Consumption in Selected Districts of Lagos: Monthly Average.

District	Number of Consumers	Energy KWH Sold	Average KWH Consumed	Estimate Population ('000)
Ijora	2,539	1,122,029	1,197	20
Apapa	3,780	8,089,273	7,547	50
Ikoyi	4,560	7,472,641	4,877	80
Ajengule	2,454	2,235,752	2,522	150
Surulere	27,682	9,906,689	1,470	265
Ebute-Metta	7,636	4,008,949	2,060	240
Yaba	7,920	4,083,663	4,988	230
Igbobi	1,117	424,880	1,334	40
Ikorodu Rd	3,899	2,179,225	1,250	50
Shomolu	8,602	3,048,540	2,982	75
Lagos Island				270
Idi-Oro				50

warrants. However, these are the areas where more of electrical appeliances are used. But it is important to increase the supply in other districts.

Circulation

Cities are an accumulation of different development patterns. Each of these patterns is influenced not only by the previous form of the city and by its site, but also by the contemporary economic, social, political and technological systems of the settlement. Much of the present difficulty in moving people and goods in Lagos resulted from various elements of the circulation system being called upon to fulfil functions for which they were not designed. It is therefore important to understand the appropriate functions of different elements to prevent misuse and failure of the system.

In this section we don't intend to discuss the whole transportation system of Lagos. It will suffice to examine the adequacy or otherwise of residential streets--local, collector or arterial streets--as they affect the accessibility to residential areas. The main concern will be with local streets which perform a variety of functions. Their principal purpose is to provide access to property abutting the public right-of-way. Moving traffic is a secondary function of the local street. The local streets serve as an easement for all types of utilities, such as sewers, water lines, gas mains, electric and telephone conduits and poles. Aesthetically, they function as an element in urban design while also serving as open spaces between buildings to provide light and air to adjoining properties and even as fire breaks.

Apart from considering transport from the performance standpoint, it will be quite meaningful to look at its cost to urban families, especially those in the lower income group. Urban land resources are fixed and must be used where they are found. The movement of persons and goods from one point to another always involves a cost. Where the urban poor live is of equal and at times greater importance to them than the conditions under which they live. Accessibility to job opportunities is at least as vital to the casual worker and the underemployed as it is to the regular employed low-income worker.

Many otherwise acceptable housing projects have foundered because they were badly located. More important still is the ability to search for and find employment and other income-earning opportunities--to the extent that they exist. Among the low-income groups there are often several workers in one household, and household income is derived from a variety of jobs. Typically, the location of these jobs within urban areas is also varied, including manufacturing, trade, the service sectors, domestic service and part-time casual labor.

Since the issue of housing location involves the entire urban area and not merely a few sites, the severity of the transport situation of the low-income group is determined primarily by city size. The cost of long bus trips or long walking or cycling time strictly limits access of the poor to employment. If they live on the priphery and thus must travel long distances, they may not be able to afford daily work trips unless they can find employment at an intermediate location. As a result some are effectively shut off from employment in the city center; others walk up to two or three hours each way to work. Many opportunities

for supplementary earning by primary earners and almost all opportunities for secondary earners may be ruled out. If large numbers of people are housed at a given location, their transport demands may be more easily met, with a beneficial impact on the operation of the transport network.

In the LMA, much of the problem lies with insufficient road network to the residential areas especially to the new suburban districts which are developing without adequate control measures. The length of roads has only grown from 259.0 kilometers in 1959 to only 516.5 in 1969. This represents an annual road building capacity of 10.0 percent in a city with a density population of 50,000 persons per square mile. From 1963 to 1968 the number of vehicles have grown from 16,195 to 22,491 (see Table 42).

The importance here is not necessarily the length of roads constructed or not, nor the number of vehicles that ply these roads. Of greater importance to housing and their occupants are the conditions of the street surfaces, the performance of the public transport services and modes (buses, cars, motorcycles, bicycles, minibuses) all of which struggle for the narrow streets often with more potholes than the number of vehicles that use them. For the urban workers the positions of the bus stops in relation to their dwellings become critical. Most of the streets are flooded and impassable after any rainfall. While private automobile usage is relatively low, it is increasing very rapidly. But no carports or garages or parking spaces are usually provided for these and other vehicles, with the result that the local streets (where they exist) are often suffocated with vehicles lying on

Table 42.--Length of Roads in Kilometers--LMA.

Year	Roads Maintained by: Local Authorities	Govt. In Township	Road Surface: Tarred	Gravel or Earth	Total
1959	215.6	43.4	202.7	57.9	259.0
1960	271.9	20.9	246.2	46.6	292.8
1961	271.9	20.9	246.2	46.6	292.8
1962	271.9	28.9	254.2	46.6	300.9
1963	283.2	28.9	271.9	40.2	312.2
1964	300.9	28.9	294.5	35.4	329.9
1965	304.1	28.9	300.9	32.7	333.1
1966	304.1	28.9	383.0	37.0	420.0
1976	328.2	91.7	383.0	37.0	420.0
1968	712.9	93.3	442.5	363.7	806.2[a]
1969	365.3	151.2	214.0	302.5	516.5

Source: Annual Abstract of Statistics, Federal Office of Statistics Lagos, 1971--Table 8.7.

[a]1968 is a peculiar year--with the creation of Lagos State, most of the roads which were not recognized by the city officials were taken over by the government; see length of dirt roads.

both sides. In short, low standards of efficiency have manifested them in different ways.

While roughly 90 percent of the metropolitan population has some access to public transport routes for the larger intraurban journeys, the routes do not penetrate the heart of the city, nor is there a detailed local network in the urban area. Public transport traverses Lagos Island and the urban complex on the major roads only, primarily on a north-south axis. The vertical orientation of transportation

routes creates serious problems in the outer portions of the urban complex, where development is of necessity spreading out at greater distances from the main roads. Residents who live off the main roads must walk considerable distances in order to use mass transportation.

The total number of municipal and private buses--about 230--is insufficient for traffic demand. The obvious results are overcrowding, discomfort, poor scheduling, and slow speed, particularly during the peak hours, when people are packed in the buses, sardine-like, pushing and being pushed after waiting for long periods of time. Long journeys to work are the rule, more than two hours each way for thousands of people. A trip from Surulere to Apapa only a few miles, can take two hours during the morning peak period. Moreover, in some cases, 10 to 15 percent of the household budget is spent on transport fares. Delays are encountered in every form of goods and passenger movement in Lagos. Pedestrian and motor vehicle accidents occur with high frequency due to lack of traffic lights, safety islands, and guard rails, as well as to scant prosecution of driving violations.

While the municipal bus services could be vastly improved, it is clear that demands cannot be met by merely increasing the number of buses and improving their operations. It is highly doubtful that more buses could be accommodated on present roads, even with substantial improvement in traffic control. In addition to deficiencies in the transportation "infrastructure," there is very little coordination among the existing modes of transportation as to schedules or routes. Each agency operates with a considerable degree of autonomy and tends to take

a narrow view of the transport needs of Lagos, depending upon its own responsibilities.

Although the Federal Government plays a major role, its transportation activities are fragmented among the Nigerian Railway Corporation, the Ministry of Transport, the Ministry of Works, the Inland Waterways Board and until recently the Ministry of Lagos Affairs. The only real effort to bring service changes has come from an agency that has no direct responsibility for transportation: the Ministry of Labor and Social Services. This was as a result of protests by the labor unions, and their demand for higher wages linked to transport fares and difficult journeys to work. As a result of these pressures, the Ministry of Labor and Social Service has requested the Lagos City Transport Service and private employers to work out a scheme for special passes at reduced rates for low-income workers.

A Working Committee on the Provision of Cheap Transport for Workers has been established lately. The Federal Office of Statistics is now processing and evaluating data assembled from a research questionnaire on the subject. Alternatives under consideration include:

a. Discount tickets to be used during specific hours of the day; or

b. Blue tickets entitling holders to minimum fares at any time they utilize public transport facilities.

The argument is made that there are valid economic and social reasons for departing from the principle of self-financing for families to work, given low wages and rising costs of living. Unless the priviledge is granted only to workers and not their families, a serious inequity

would result by comparison to other segments of the population, for example, the unemployed and traders. Following the same line of argument, the first method would appear more just than the second, in that it subsidizes the journey to work per se rather than a group of persons.

There are no articulated government plans for transportation development in the LMA. Without general policies pertaining to the various transportation modes and relating them to land-use patterns and without planned commitment of funds, inertia prevails. Significant improvements in the system are not taking place. New housing and industrial parks have been created in LMA without corresponding extensions in transportation services, apart from ad hoc extensions of already crowded bus lines into the major settlement areas.

Summary

So far in this study the requirements for infrastructure has been dealt with rather comprehensively. There has been a clear emphasis on the fact that provision of urban housing must be accompanied by related facilities in order to improve the housing conditions. In order to develop a basis for a more specific approach to these matters, the scope of the facilities that were discussed in this chapter were defined. However, further distinction should be made between basic utilities which are ancillary to the housing that is built or improved during a given period of time and the general community facilities which are built to serve the population of a neighborhood or city as a whole (parks, shopping centers, schools, etc.).

As in the case of estimating dwelling units, the determination and calculation of standards, goals and targets for such facilities as

water, surface drainage, sewage collection and disposal, electricity and access lanes or streets will vary with time and place. Their measurement is more difficult since it is less likely to be a continuous variable than a discrete one. A minimum housing space standard might be easy to quantify and compute; but standards for such elements as outlined above are not easily measurable. Standards for them are more likely to relate to the presence or absence of a given utility or service. The actual levels at which each of these facilities can and should be provided cannot be specified with much reasonable precision.

Such factors as health, custom, climate, function and cost should be taken into account in setting tentative minimum standards for all housing built. The cost of providing the tentative minimum standard of utilities per household should be related to typical household incomes and the cost of amortization or renting the minimum standard dwelling itself. The next step might be to estimate the extent of the failure of existing residential areas to meet the tentative minimum standards set, and the cost of providing them with whatever they now lack to bring them up to the desired level.

By this method, priorities can be set, priorities can be set, plans formulated, and programs scheduled for forming the framework for a set of realistic goals, targets, and standards. If these have been carefully thought out, related to one another and to the entire housing system, it should be possible to use the available resources to achieve the desired goals with a minimum waste.

As population grows, as technology becomes even more advanced than at present, and as higher living standards are achieved by an

increasing proportion of the population, public expectation will demand more and better facilities of an increasingly wider variety. The rarity of today may well be the commonplace of tomorrow. An increasing public concern for the proper provision and coordination of these facilities, coupled with a growing sense of governmental responsibility for the attainment of a properly coordinated range of facilities, may result in more government control of the environment, or in the assumption by government of responsibility for the provision of services that can thereby be made available more satisfactorily than under private efforts.

CHAPTER V

HOUSING POLICY OPTIONS FOR LAGOS METROPOLITAN AREA

The Nigerian Government now accepts as part of its social responsibility active participation in the provision of housing *for all its income groups* by a commitment to intervene on a large scale in this sector during the Third Plan period 1975-1980. The aim is to achieve a significant increase in supply and bring relief with priority to the low-income groups who are the worst affected by the current acute shortage. It is the objective of government policy to employ a combination of measures to achieve within the next decade a housing situation in which the average urban worker would not be required to pay more than 20 percent of his monthly income in rent.[53]

Can Nigeria's housing goals be so simply and easily stated? However, there are other possible objectives for a national or local housing policy. To put the question of goals in the context of this study, the text of the earlier chapters has described the operation of the housing market in Lagos and indicated some of the imperfections in that market. But how does a society move from a perception of these imperfections to a set of public policies and goals which seek to correct them? Should an emphasis be placed on building new housing or on saving what exists? In other words, to improve the housing quality per household in Lagos, should the government build at least average

---

[53]Third National Development Plan for Nigeria, p. 308.

quality dwellings and reduce the number of unauthorized dwellings and homeless households? Are housing subsidies necessary, and if so, what are the criteria under which they should be disbursed? What role in public policy should be played by the private market in capital funds for public housing; and by the market in urban land? Answers to these questions have not been systematically pursued in the Nigerian context. Using Lagos as an example, some of the variables that must be considered in making these policy decisions should be examined.

Housing policy in any society, including Nigeria, must operate within a larger economic policy which limits, directly or indirectly, the resources that can be placed into housing. Several developed and some developing countries have been able to provide the bulk of their populations with housing that is economic and yet meets the reasonable welfare requirements. But in Nigeria,--with low incomes and limited resources--housing is nearly an intractable policy area. The interaction between land availability and servicing of land and the provision of housing makes a high degree of government involvement inevitable even if most of the housing market remains in the hands of private enterprise. Fortunately, there are a wide range of models on which to draw in designing housing policy. Moreover, improvement in policy can contribute substantially to better housing without a major commitment of additional resources. In this chapter, the elements of a housing policy in which public action is regarded as complementary to private initiative will be outlined. By this recognition a translation of the theoretical analyses of the previous chapters into policy and action-oriented programs are made.

Housing Supply System in LMA

Any discussion of housing problems of necessity spotlights the supply system. Responses to housing problems and proposals for their solution concentrate in a way on the problems of the supply system. Here one has to consider the factors involved in homebuilding and some of the institutions on the supply side of the market. The purpose is not to discuss the "housing industry" and all its ramifications. Neither are the detailed phases of the housing construction process to be comprehensively described.

It is, however, important to recognize summarily the following phases of the process by which housing is supplied:

1. The *preparation phase*: potentially developable land is identified and plans are developed.

2. The *production phase*: financing is arranged; the site is prepared, and the housing unit is constructed.

3. The *distribution phase*: the house or flat is marketed. This recurs throughout the usual lifetime of the structure.

4. The *servicing phase*: the housing unit is repaired and maintained. This continues until the end of its economic or physical life.

Housing is a heterogeneous good, producing a flow of services to households over time. It consists of a series of components that may be produced in various ways and with different costs, standards, and financing options. None of these aspects of supply operate independently. Together, they determine the total cost of the dwelling.

The result is a wide range of housing types that emphasize the substitutability of one component for another.

A rise in the price of a particular component prompts a search for ways to economize on it. When land costs are high, for example, construction becomes denser to reduce land costs per dwelling unit. If cement is scarce, other building materials may be substituted in the production process. The ensuing discussion of the components starts with land and highlights ways in which standards dealing with space, materials, and services help or hamper the performance of the housing market and the provision of housing to low-income group in Lagos.

Land

The supply of land appears to be relatively finite; dwelling structures are fixed to land and enmershed in infrastructure. Yet the supply of land effectively to metropolitan centers like Lagos could be in fact quite inelastic. New land can be created by filling swamps and water areas. But how much vacant land is there in Lagos for housing and where is it located? Today, the shortage of land for housing is one of the most serious problems. The proportion of total housing costs attributable to land depends on three factors: the price of raw land, the cost of land development and the amount of raw land used per unit of housing.

To all urban families, land for housing is essential for access to employment, infrastructure, and social services. To low-income families in particular, a piece of land on which basic facilities are provided is its foothold in the urban community. To the city as a whole,

a smoothly functioning land market may improve the spatial relation of residential locations. Provision of land for housing is complicated by the fact that land has many uses other than for shelter and access. Among productive uses, housing competes for land with industrial, commercial, institutional, administrative and recreational uses. Land may be greatly valued for prestige purposes or to provide a sense of family stability and security. Some landowners may hold vacant land off the market in anticipation of larger gains later. This aspect of land hoarding, whether termed speculation or savings, may restrict the supply of land for development and therefore raise land prices. Land price is a major factor in determining the use of land for housing.

It is not surprising that land can make up a high proportion of total dwelling cost. Cost breakdowns for middle- and low-income housing in a city like Lagos would demonstrate that land would make up to 12 to 46 percent of total cost for single-story detached public housing units and from 2 to 15 percent for multi-family units. Unless they are densely grouped, single-story dwellings are economical only when built on low-cost land. Capital gains taxation and public acquisition of plots in advance of need are among the tools used to appropriate increases in land value for public use. Such measures can help make serviced land available at more reasonable prices.

How To Provide Land For Housing In Lagos.--The tendency in Nigeria to neglect land as a factor in planning for housing purposes leads to failure in the actual implementation or realization of housing policies. The situation in Lagos or any city in Nigeria may be rectified

if the governments build up major *land banks*. In effect, government can acquire enough unused lands in close proximity to the metropolitan area. For this purpose it is recommended here that land be acquired from the following areas adjacent areas of Lagos: Maroko, Ilado, Maryland, West of Amuwo-Odofin towards Ojo, west of Isolo Road towards Eggan (see Figure 15). What is being discussed here concerns the availability of land for building new dwellings and the location of those sites.

There are many issues that affect decisions about the location of new dwellings in a metropolitan region. In relation to overall urban structure there are at least three distinct types of site theoretically available for housing development: a dormitory suburb, a reconstructed central site and a complete new community. Usually, they are considered as "alternatives" simply to highlight their respective problems and implications and there are different viewpoints which tend to emphasize one or another. Almost any urban area might, however, find all three types of development going on concurrently.

Traditionally, most new housing is added on piecemeal at the edge of present built-up areas. This is still the easiest and most "natural" location for the construction of middle-class homes by private builders. But if thousands of additional dwellings are added in this way, it means an endless continuation of the "sprawl" and still greater distance from central districts or places of work. This is not good for Lagos. The wholesale clearance and reconstruction of slum and blighted areas offers a second major choice for the location of new homes. Based on the experience in the 1950's of slum clearance in

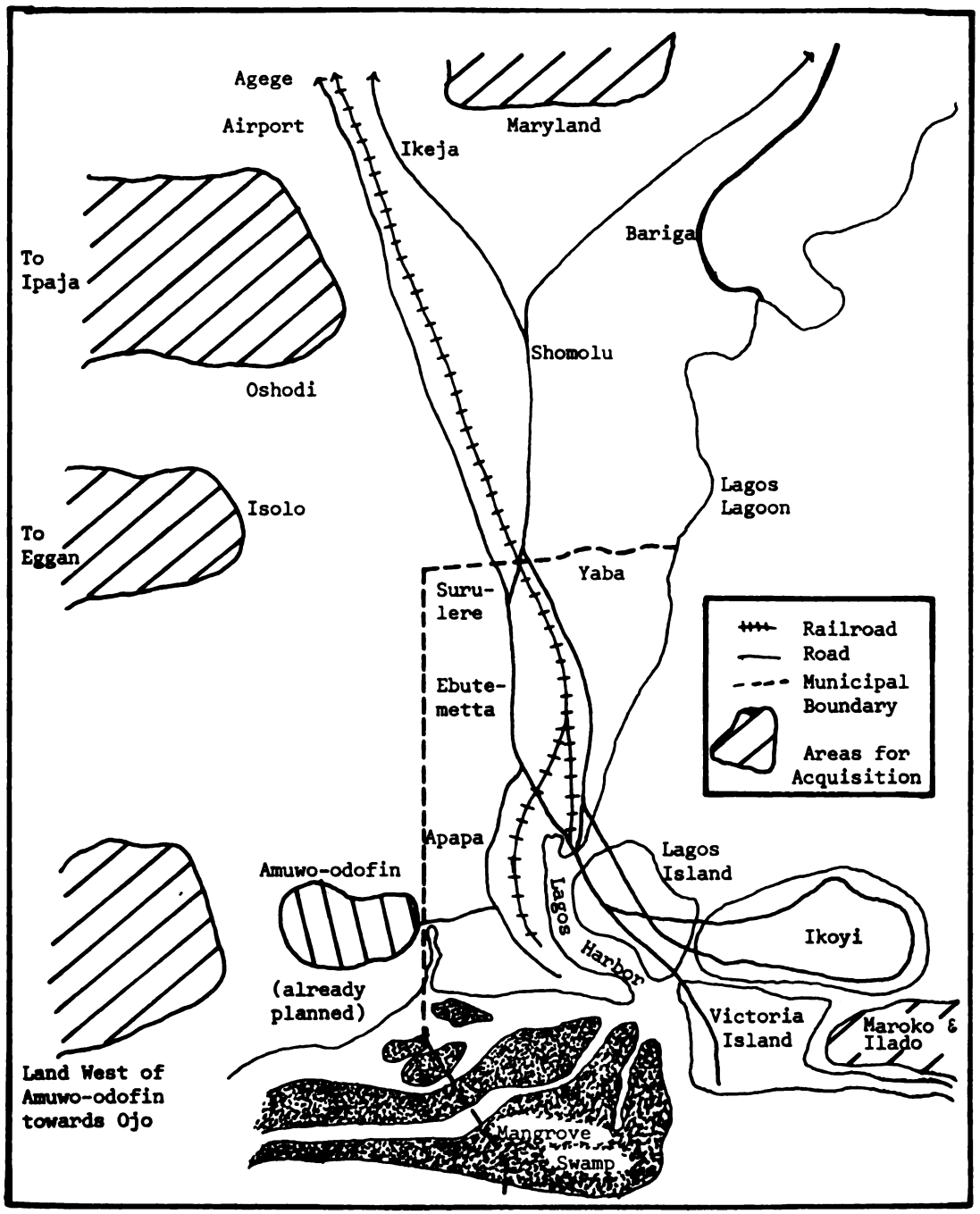


Figure 15.--Potential areas for land banking and acquisition for housing projects. Scale: 1cm to 1km (approximately).

central Lagos, the workability of this alternative is very doubtful. The program raises more problems than it tends to solve: conflicting goals to be solved, and basic decisions about urban form and function and welfare issues.

The third possibility, is to group varied types of housing, industry, etc. together to form a new and relatively self-sufficient urban entity. The hypothesis of these "new towns" assumes that further decentralization is inevitable, if only to relieve central congestion, but that it can be better handled than by piecemeal attachment to the older urban fabric. The new community would be large enough to support adequate civic services and cultural facilities and provide varied employment. But it would be limited in size and permanently protected from other built-up areas by a greenbelt of farms or parks. It might still be located, however, so that people could travel to the city or other communities with relative ease.

In Lagos, this alternative has been given little official attention until recently. But pressure for industrial decentralization and general dispersion is rapidly bringing it into public focus. The LSDPC has initiated some of these programs and they are described below to illustrate their scope.

Amuwo--Odofin New Town.--Amuwo-Odofin New Town is located about 10 kilometers northwest of Lagos Island and less than three kilometers west of Apapa-Ajegunle and at the junction of the Apapa-Ikeja and Lagos-Badagry Expressways. The Lagos-Badagry expressway which forms the main east-west regional highway axis, has not only opened up the vast area of undeveloped land lying north and south of the expressway, but has

also made the LMA accessible to the small villages and towns located between Badagry and Lagos. The new Town therefore already has regional links with Ojo, Badagry and the rest of Lagos State and hence with other parts of the country.

Covering over 2,400 acres of land, Amuwo-Odofin New Town is designed to accommodate a population of 100,000 persons. Of the total area, 40 acres are being used to provide housing units as part of the Federal Housing Scheme. Apart from allocating plots of land to individuals to build according to their own design, provision has been made to site a number of industries on the adjoining lay-out. The LSDPC is also to put up 400 housing units for allocation to members of the public.

Ogba Housing Scheme.--Ogba Scheme is situated on Ogba Village--on the outskirts of Ikeja. Bounded on the south by the Industrial Estate and east by the Residential Estate of the Western Nigeria Housing Corporation, the total acquisition covers an area of 559 acres. Out of this, 168 acres has been allocated for the siting of industries, whilst 280 acres had been allocated to individuals either on freehold or leasehold bases for private residential development. However, 90 acres is for mixed development which will accommodate low, medium and high income members of the community (see the Lay-out plan, Figure 16).

The Ogba Housing Scheme is in two phases. The first phase consists of different types of houses--all in flats and four storys with the exception of the ones provided for the high-income group. Covering about 40 acres, the first phase accommodates 600 units made up of 416 for the low-income group, 160 units for the medium-income group and 24 units for the high-income earners. For the low-income group there

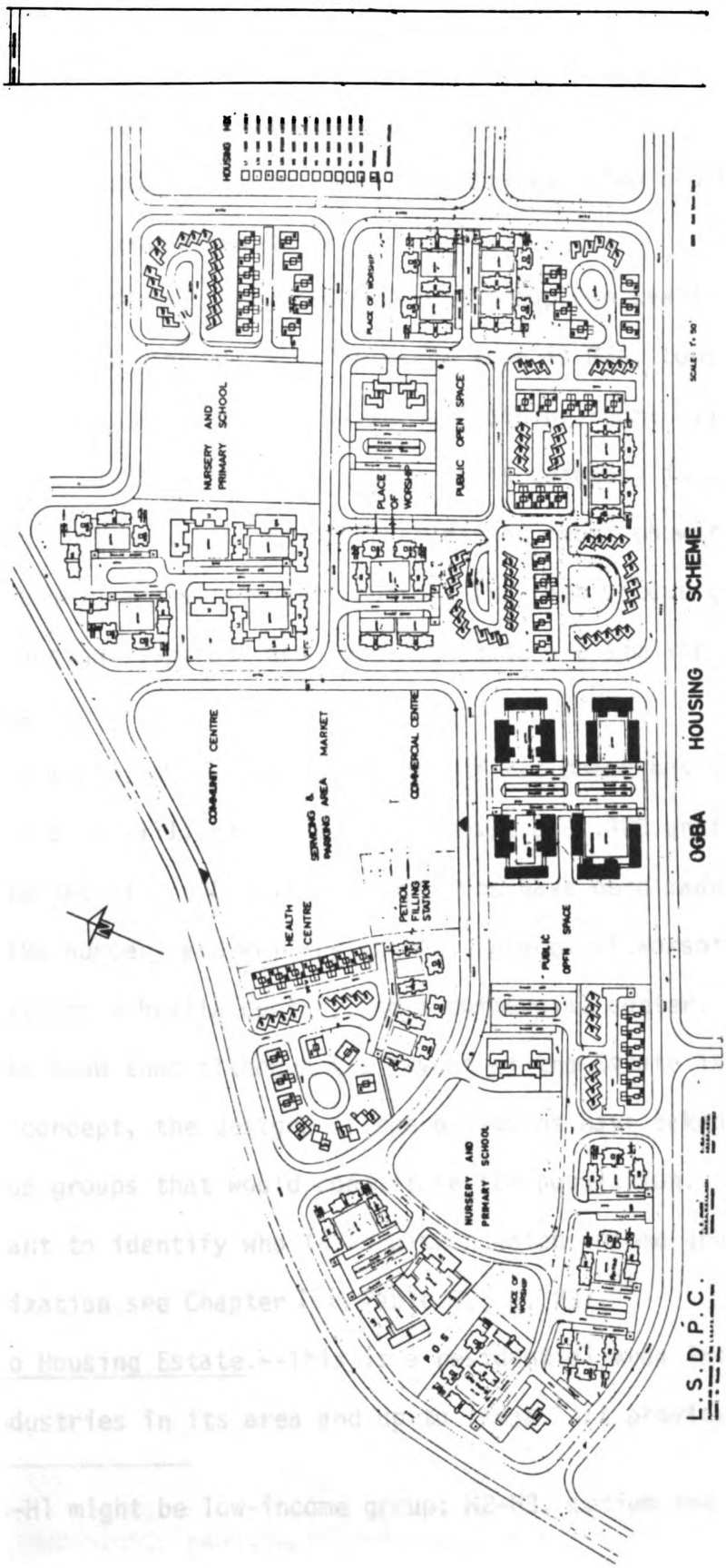


Fig. 16. The Lay-Out Plan of Ogba Housing Scheme.

are two types of designs. Type L1A is a flat made up of one bedroom, a sitting (living) room, with separate bath and toilet and a common kitchen for the occupants. Type 2A is essentially a two bedroom apartment with kitchen, shower and store.

On the other hand, the medium-income group can avail themselves of three types of housing units. The first type is M3A, consisting of three bedrooms in addition to the living and dining room. Type M3 has the same concept as M3A. The last type in this category is Type M4--a four bedroom flat, plus the living room/dining room, shower and bath. Because of the unique position they occupy, the high-income group has two types of design--Type H3A and Type H5. Both are similar in design and are duplex.

On the whole, Ogba Housing Scheme's first phase has cost almost ₦6 million (US $9.6 million). The second phase of 1,400 units would make up the target of 2,000 units. Provisions have been made for social facilities like Nursery and Primary schools, places of worship as well as petrol station; a health center, and a commercial center. It is interesting to know that although the layout of the Estate is of neighborhood concept, the designs of the buildings have taken cognisance of the various groups that would constitute the population. Of course it is important to identify who falls within which income group. For this categorization see Chapter III, Table 32, p. 237.[54]

Isolo Housing Estate.--This is a residential area intended to serve the industries in its area and up to Ikeja. It provides for low

---

[54]Ho-H1 might be low-income group; H2-H3, medium and H4 and H5 high-income.

and medium rental housing and some three bedroom flats with or without shops on the ground floor. Provision is also made for servants quarters. The pilot project consists of 48 units of four bed-sitters with kitchens, showers, W.C. and storage; another 48 units each of two one-bed-room with living room, kitchen, showers, W.C., and storage; 32 units of two bedrooms, sitting/dining, kitchen, etc. There are also bungalow blocks of six terrace housing and then four units of three bedroom flats (detached). The whole scheme also provided for schools, open spaces, community center and shops.

Overall Land Policy.--Even with the implementation of all the reforms and programs being proposed here, housing development may still be frustrated if the complex problems posed by the existing system of land tenure are not solved. Land availability for housing has become a critical factor in Nigeria's development. Most public agencies charged with the execution of development programs have cited time and again, difficulties in land acquisition as the most intractable factor which often delayed the implementation of their projects. If land can constitute such a constraint to development in the public sector, which can and does acquire land compulsorily, its stultifying effect on housing development, which has remained largely a private sector activity, must be considerable.

In the words of the Third Development Plan, "individual ownership of and speculation in urban land has led to considerable and continuing increases in the price of land." This trend has been accentuated by the application of the principle of equivalence in land evaluation. Moreover, fraudulent land transactions and endless legal

tussels over title ownership have combined to stiffle housing development with consequential and significant escalation in the prices of rented accommodation.

In order to remove the bottleneck that land now constitutes to the housing expansion and development in general the author believes that a comprehensive national policy on land needs to be put into effect as a matter of urgency. If such a policy is to be effective it should at least include the following basic provisions:

a. All future transactions in land will require the approval of the State or local government having jurisdiction in the area according to rules and regulations to be nationally determined.

b. All future transactions on land will be on a leasehold basis.

c. The Government will have power to acquire for public use, at reasonable costs, all land needed for national, state or local projects. The Government will have power to acquire land not necessarily for immediate public use; but in order to ensure that the community obtains the maximum benefits from rising land values.

d. For all land acquired by government for whatever purpose, appropriate compensation will be paid to those who may be displaced and arrangements will be made for their resettlement.

e. Restrictions will be introduced on a nation-wide basis on the allocation of plots for private residential purposes.[55]

In furtherance of the last objective above, it is recommended that all State capitals, other major towns and cities and the areas

---

[55]Most of these proposals correspond to those of the Anti-Inflation Task Force as contained in its First Report, October 1975.

immediately adjoining major industrial projects, roads, educational institutions, etc. should be declared "designated areas." In all such areas, no adult citizen should be allowed to lease more than one plot for the purpose of building residential accommodation. In other words, henceforth, the policy on the leasing of land should be "one person one plot." This policy should be qualified in three ways. Firstly, care should be taken to give low priority to a second application for a plot in special high class areas (e.g., Victoria Island) from the *same family*. Secondly, a three-tier preference system could be set up in allocating land in a particular designated area so that first preference will be given to the indigenes of the area, second preference to those who live and work in the area and third preference to those who neither live nor work in the area but who merely wish to own plots in that area.

It is recommended further that the system should be operated in a flexible manner so that a beneficiary of an earlier allocation in a designated area is given a new allocation provided that he divests himself of the first allocation. This will enable young men and women to build fairly small or modest homes at the beginning of their career, dispose of such houses later and move into bigger and more comfortable homes comensurate with their incomes and status.

A comprehensive policy on land is one of the essential foundations of social policy and it is recommended that a special department made up of urban planners, estate officers, economists and statisticians be established which will monitor and execute the various policies on land. This will also have a computerized data bank on land transactions all

over the country. Such a facility will be able to supply up-to-date information within a very short time on any adult citizen or business concern whose application for land may be under consideration.

Construction Cost and Cost Components

The proportion of housing cost allocated to construction varies considerably as a result of differences in the cost of materials and labor, construction techniques, the size of the structure and the cost of other housing components. This together with the fragmentariness of cost data and the uneven increase in recent construction costs, makes a meaningful analysis of construction costs primarily difficult.

Cost Components.--Available data suggest that in 1970 the cost of construction in most African countries ranged from $30 to $40 a square meter. Of more importance is the relative cost or share of raw land, land servicing, and basic construction costs in the total cost of dwellings. Basic construction cost makes up the major proportions of total cost of low-income housing by the private sector in cities of the developing countries including Lagos, whereas land servicing--roads, paths, street lighting, curbs, storm drains and the like--accounts for minor portions of the total cost.

Cost per square meter is useful as a general measure of cost differences, but it depends partly on the size of the dwelling unit and the amount of common space in multi-family dwellings. The fixed costs of staircases, passages, and related common features are similar for small and large dwelling units, which implies that large units will tend to have lower construction cost per square meter.

There is evidence that construction cost per unit of floor area rises with the height of the building.[56] Cost increases sharply, especially for high-rise structures, because of the need for elevators; higher structural cost for foundations, beams, and columes; and increases in wage rates for more skilled work and for work at heights. In contrast, the cost difference between mid- and high-rise structures tend to be smaller in developed countries and in countries with high-rise building experience. Although unit costs tend to rise with building height, they may be virtually be the same for buildings similar in construction but differing in height by only one or two storys. In deciding on house design for Lagos, these factors discussed here become very relevant considerations. Viewed in a dynamic sense, construction cost components vary with conditions in each construction industry and in industries producing substitute and complementary goods.

For residential housing supply in Lagos, it is necessary to determine if the housing industry can respond to the housing requirements of the next decade. Can the costs of housing production be significantly reduced? Do the housing producers have the capacity to expand their production levels by say, 50 percent in the next few years to meet production goals being advocated in this study? Will the housing producers be willing to serve the low-income market?

It is doubtful if Nigeria has the entrepreneurial ability and management talent to achieve the housing goals in the National Development Plan. There is need to determine, therefore, as accurately as data

---

[56] W. P. Strassmann, "Industrialized Systems Building for Developing Countries: A Discouraging Prognosis," International Technical Cooperation Center (ITCC) Review, Vol. 4 (Jan. 1975), pp. 99-113.

allows, what dynamics and resources are needed to produce, say 1,000 housing units of a particular type in Lagos. Then one can do calculations for other types. After the apprisal, it will be easy to decide on the capacity to produce, then program what can be produced annually. It is this type of analysis that has been done in Chapter IV. The author is of the opinion that the housing producers in Nigeria, especially in Lagos, if mobilized through the proper incentives and if the necessary resources (land, manpower, financing, and material) are available, they should be capable of producing the needed housing.

The problem is that Nigerian investors are not told how, when, and where to invest in housing. They are left to their own devices, and lacking guidance through the National Plan, decide on what appears the most profitable course. Houses are built for foreign firms, embassies and other wealthy clients. The middle and lower-income groups are left to help themselves as well as they can. There is no systematized, streamlined policy.

Reduction in Cost of Producing Houses.--The methods by which reductions of the kind being asked for here can be achieved are an important issue. First, and most simply, reduced building standards can lower the dwelling cost to each household. Indigeneous materials and traditional building methods can be substituted for higher-cost materials, and a lower quality of finish can be accepted. Second, lower service levels--the sharing of latrines, kitchens, and other facilities, for example--can have an important impact on cost. Substantial savings can also result from reducing the land area devoted to each dwelling; for example, by constructing row houses that share walls on both sides or

four to six story walk up apartment buildings. Alternative methods for cost reduction involve trade-offs between single-family and multi-family structures; and between self-halp methods to use labor with low opportunity cost and multi-story formal construction to use land more efficiently and reduce its weight in total dwelling cost. In each case though, sanitation should not be sacrificed.

These trade-offs have to be taken into account in housing decisions. Because the full range of data for such decisions are not available, all the options cannot be detailed here. But an illustration of what could be accomplished through the selective reduction of various costs can be provided in a schematic exercise (using data from the cities studied by the World Bank) and varying the assumptions about space standards and quality of service.[57]

Four features that can be affected by public policy have been isolated for analysis: livable space per household, land area per household, public service levels, and location. The range of variation of each feature is as follows:

1. Livable Space Per Household
   + 20 square meters
   + 10 square meters

2. Service Levels
   + individual (individual water supply, sewage disposal, toilet).
   + shared (cooking, toilet and other services shared among *small family groups*)
   + basic (centrally located water, minimal security lighting and site preparation)

3. Land Area Per Household
   + 75 square meters, single-family detached dwelling (compare with recommendation in Chapter IV on Standards).
   + 15 square meters, share, four-story walk-up

---

[57] Orville F. Grimes, Jr., Housing For Low-Income Urban Families (A World Bank Research Publication) (Baltimore: Johns Hopkins University Press, 1976), p. 74.

4. Location
   + center of city (CBD, commercial property)
   + intermediate zone
   + periphery

These comparisons take as their point of departure the actual costs of the cheapest single-family and multi-family housing units currently built in most cities of the developing countries. Hypothetical reductions in the costs of these units are calculated on the basis of the following assumptions. First, that interior livable space would be reduced to 20 square meters per dwelling unit; second, that gross densities would be increased by associated changes in land-use standards; and third, that reductions in the cost of services and construction would follow three different service level standards: individual, shared and basic. The results are presented in Table 43. Not all the elements of this matrix will, of course, necessarily be practical in Lagos. Nevertheless, it is desirable to present all permutations for exposition of the full range of public housing alternatives based on costs.

The data presented in Table 43 point up the crucial weight of land costs in the total cost of a dwelling and hence its affordability. Land costs add substantially to the costs in medium or low density areas. Construction costs can be lowered to the extent postulated by a reduction of livable space and a sharing of services.

Building Materials.--The cost of materials makes up slightly more than half of total construction costs for both single-family detached units and apartment building. Materials constitute roughly one-third of total project costs, including land and other non-construction

Table 43.--Estimates of Cost of Housing Units of Various Standards and Locations and Percentage of Household Unable to Afford Them--Lagos Metro Area
(Cost in Naira N1=US $1.6 1976)

Type of Housing	Cost 1976	Percent	Cost 1985 (25% Increase)	Percent	Cost For 1,000 Units 1976
1. Present cheapest housing unit	1,200	60	1,500.	65	1,200,000
HIGH DENSITY (e.g. Yaba, Ebute-Metta, Shomolu)					
2. Single family, individual services	1,162.5	66	1,453.125	71	1,162,500
3. Single family, shared services	978.75	59	1,223.47	64	978,750
4. Single family, basic services	795.0	52	993.75	57	795,000
5. Multi-family, individual services	1,147.5	65	1,434.77	70	1,147,500
6. Multi-family, shared services	935.0	58	1,168.75	63	935,000
7. Multi-family, basic services	722.5	47	903.125	52	722,500
8. Single family, individual services	1,542.5	72	1,928.125	78	1,542,500
9. Single family, shared services	1,358.75	69	1,698.477	75	1,358,750
10. Single family, basic services	1,175.0	66	1,468.75	72	1,175,000
11. Multi-family, individual services	1,223.75	67	1,529.68	73	1,223,750

Table 43.--Continued.

Type of Housing	Cost 1976	Percent	Cost 1985 (25% Increase)	Percent	Cost For 1,000 Units 1976
12. Multi-family, shared services	1,011.25	61	1,264.06	67	1,011,250
13. Multi-family, basic services	798.75	52	998.47	58	798,750
LOW DENSITY (e.g. Ikoyi, Victoris Island)					
14. Single family, individual services	11,831.25	95	14,789.06	97	11,831,250
15. Single family, shared services	11,647.5	95	14,559.77	97	11,647,500
16. Single family, basic services	11,467.75	90	14,334.68	94	11,467,750
17. Multi-family, individual services	3,281.25	89	4,101.56	91	3,281,250
18. Multi-family, shared services	3,068.75	87	3,835.97	89	3,068,750
19. Multi-family, basic services	2,856.25	86	3,570.31	87	2,856,250

Note: (a) The above calculations are based on actual housing unit costs as estimated by the author. Estimates are based on repayment period of 15 years, 6.5 percent interest rate, no down payment, 20 percent of household income devoted to housing. (b) Multi-family housing units have 20 square meters of livable space and 15 square meters shared of land in four-story building. (c) Single family, individual services--single family detached housing with 20 square meters of land. Services include individual water, toilet and kitchen. (d) Shared services will include communal water supply, sewerage, and other services; and site preparation and lighting.

expenses. Because the cost of building materials has an important effect on the cost of housing, the efficiency of the industries that manufacture and distribute them warrants attention.

Although, cement is now imported into and manufactured in Nigeria without import or excise duties, the same is not true of other building materials which, taken together, account for a higher proportion of housing costs than cement.[58] Such materials include iron rods, roofing sheets, ceiling boards, nails and washers, plumbing materials such as pipes and sanitary ware, paints, and flooring materials such as terrazo and PVC tiles. The existing rates of import and excise duties on these items range from 10 percent for paints and iron rods to 66.6 percent for roofing and flooring tiles. It is recommended that these duties should be reviewed with a view to further reduction or even total abolition.

A substantial part of recent increases in the prices of building materials is traced to the phenomenal rises in transportation costs. These are in turn linked with high costs of commercial vehicles such as tippers trailers, lorries, trucks, delivery vans etc. It is claimed, for example, that an empty tipper with five cubic yards capacity now costs from ₦90 - ₦100 per day to hire in Lagos as against ₦40 - ₦50 two years ago. This high cost charge has combined with an increase in turn-round time as a result of traffic congestion, to push up the price of local materials such as sand.

---

[58] See Table E-1: Prices of Selected Building Materials at Ibadan--comparable with Lagos.

In consideration of this analysis, it is recommended here that import and excise duties on commercial vehicles and their spare parts be reviewed with the aim of abolishing them altogether, not only for the 1976-77 financial year, but till 1980. As in the case of building materials, the main assemblers, importers and distributors of commercial vehicles should be consulted and agreement reached on new and lower prices after tax concessions.

Timber

The popular technology for housing construction in Nigeria puts a very high premium on cement. Even so, timber-based products such as planks (for frames, roofing and ceiling) and plywood (for doors, wardrobes, cupboards, etc.) still account for a high proportion of the total costs of residential buildings. Until recently, such wood products were produced in abundance both for export and for the domestic construction industry. However, on account of the ever rising demand from many foreign countries for timber, especially hard woods, the rate of forest exploitation has accelerated.

Given inadequate investment in forestry in the past and the long gestation period of forestry investment, the government in Nigeria decided to slow down the rate of exploitation of the forestry resources. It has sought to do this by limiting the number of sawmill licenses. This device has had the desired effect.

The production of sawn timber now lags behind the requirements of the booming construction sector with consequential and considerable increases in the price of wood products. This has, in turn, exerted

upward pressures on the costs of housing. Meanwhile, Nigeria continues to export timber while the domestic economy suffers from an acute shortage of wood-based products required in construction.

In the light of foregoing analysis the following recommendations are offered for Government consideration:

1. The exportation of timber, sawn or unsawn, should continue to be abolished.

2. With the introduction of the export ban, licenses for saw-mills should be more freely granted. This should not pose any unacceptable danger to the nation's forestry resources since most of the new saw-mills that will come into existence will, in the main, be processing the timber that would otherwise be exported abroad. Control of forestry exploitation should henceforth be confined to the licensing of companies and individuals engaged in the felling and trucking of timber.

Government Housing Policies and Programs--An Overview

In the light of the great need and demand for additional, adequate housing in the LMA, it is important to observe what is being done to meet the housing shortage. The first fact that becomes evident is the inadequacy of existing systems to meet either the present or the projected requirements. Nevertheless, it is worthwhile to review these systems briefly. The varied approaches made by the Nigerian government toward solving housing problems have depended mainly upon the specific situation encountered, the resources it could command, and the general attitudes toward housing.

By implication, the Nigerian government has maintained that housing should be an integral part of economic development plans, while encouraging the private sector to be the main source of investment in housing. In this way, housing improvement has been made an important part of national development planning; and it was assumed that the housing situation would improve as general economic conditions improved, especially in the major urban centers. It may be noted here that Lagos has been the main locus of the success or failure of the Nigerian housing programs.

An earlier development was that there was a growing recognition of governmental responsibility for assisting some proportion of the population to acquire housing and for providing housing for the even larger proportion still unable to help themselves. Another is the clarification of the place of housing as part of the larger framework of social and economic changes needed to bring about improvement of general living conditions.

As a United Nations survey indicated: "A housing program cuts across many fields that it is not surprising to find housing responsibilities associated with a variety of ministries and government functions. Housing needs are inseparable from other community needs, such as pure water supply, sanitary disposal facilities and adequate roads. Some housing projects have expanded into comprehensive community development projects, and community development programs commonly include housing as an essential aspect."[59]

---

[59]United Nations, Bureau of Social Affairs, International Survey of Programs of Social Development, New York, 1955, p. 45.

The question then is: what is the situation of community development projects in Nigeria, particularly in the LMA? In other words, what is the nature of government activities and programs in the field of housing in Nigeria and to what extent are such activities and programs adequate and appropriate in the light of the nature, scope and dimension of the housing problems as evidenced in Lagos? The purpose of this section is to review all the government's roles or activities and programs in the area of housing. In a way it is intended to characterize the foci of past and current activities, the achievements of these activities, and the areas of housing requirements that are hitherto neglected or given low priority. Towards the end of this chapter broad general proposals which the government may use to orchestrate its effects and improve programs in the area of housing policy, programs, and even research will be outlined.

History of Government Housing Activities and Programs in Lagos

The history of government activities and programs in the field of housing in Lagos and Nigeria at large can be conveniently divided into three phases: the colonial era (period before 1960), the first ten years of independence (1960-1970) and the era of relatively rapid economic development (1970 to present).

Government Housing Activities in the Colonial Era.--The colonial era can be described as that of "housing reservations." All the housing activities and housing policy of the government were focussed on the provision of housing quarters to expatriate staff of the government. To this end, the idea of housing reservations (Government Reservation

Areas or GRA) was initiated and implemented in Lagos and in the regional and provincial capitals throughout the country. They were exclusively inhabited by the whites, few of whom paid even a very minimal amount as rent.

In all respects, the houses contrasted very sharply with other houses in the community occupied by Nigerians. By default or by design, the reservations meant or suggested many things to the Nigerians; for example, that only the best is good for Europeans, and only the expatriates deserve and need public housing assistance. As far as housing was concerned then, the Nigerian colonial government felt it should cater for the needs of only the foreigners.

One housing scheme that was introduced to benefit Nigerians during this era was the African Staff Housing Scheme. It was a token effort. Under this Staff Housing Scheme qualified indigenous senior civil servants could be granted housing loans of up to five times their annual salary. The conditions for funding the scheme were not substantial; and, in all, only a few officers benefited from it.

Government Housing Policy and Program in the Second Era.--During the first ten years after independence (1960-70), the government activities and housing programs assumed a new dimension. The era marked the transfer of many of the government housing reservations and quarters from the colonial masters and administrators to the Nigerians who had then become the new political and administrative elites--senior civil servants, ruling politicians and political appointees to government and quasi-government corporations, boards and offices. These elites

enjoyed the same housing rights and priviledges as those formerly enjoyed by the colonialists.

Because of the tremendous growth of the civil service after independence, senior civil servants that qualified for subsidized housing were more than the number of government quarters available. Moreover, the government housing schemes had little or no impact on the housing stock and therefore on the housing problem. One of the positive impacts of the government housing reservations is that the modern types of houses on the reservations raised the horizon of housing expectation and values of the newly emerging cadre of middle and upper class Nigerians.

Living in the government reservations or owning a house similar to those in the GRA became a symbol of success, an indicator of higher status and therefore a goal to be pursued. In a sense, the government housing created a new type of housing need. It raised the quality of housing; indirectly increased the rate of housing demand and somehow increased the housing problem in a place like Lagos.

During that decade, the Federal Government of Nigeria continued to implement the African Housing Scheme. The criteria and the conditions for granting the loans remained the same. The potential beneficiaries continued to be Federal civil servants living in Lagos while the actual beneficiaries continued to be the senior civil servants.

The Nigerian Building Society (NBS)

About this time the NBS was established as an institution to satisfy a part of the country's housing needs. The society was set up

in 1956 with an advance of share capital totaling ₦2,250,000. The Colonial Development Corporation (CDC) held 60 percent of the shares, the Federal Government held 31 percent and the remaining nine percent were owned by the then Eastern Nigerian Government. The CDC made additional funds available to the society through long-term credits at the interest rates of seven and quarter to ten and one half percent. The society had had two main functions:

a. to provide mortgage loans at reasonable interest rates (8.5 to 9.5 percent) to Nigerians and,

b. to encourage Nigerians to save particularly for housing investment.

The savings scheme was not heavily patronized. The mortgage loans were heavily demanded, the resources of the society were sufficient to meet only a very small proportion of the demands. In spite of the achievements of the N.B.S. it did very little in solving the housing problem of either Lagos or the country. The loans favored only the upper and the middle class people: the low-income workers did not benefit from the N.B.S. operations. This means that the government financial contributions to the "society" did not benefit a very high proportion of Nigerians.

Term on Which Mortgage Loans are Made

In spite of its shortcomings, NBS has continued to help provide homes for Nigerians by lending the purchaser or builder part of the cost of the house. Because it does not lend the whole cost of the house, the balance will have to be found by the applicant somehow (this would

correspond to downpayment). Since only a part of the price is loaned, the loan is based on the lower of the surveyor's valuation or the total cost of the house and land. The applicant's income must be proved and must in the opinion of the N.B.S. be fully sufficient from the point of view of mortgage repayments. The general terms of loans are given in the figures below.

	Normal (or basic) Loans Are	
Up to ₦6,000	Cost/Value	80% Loan
₦6,001 - ₦20,000	" "	75% "
₦20,001 - ₦30,000	" "	60% "

Advances up to 95 percent can be agreed upon in some cases when additional security is available. Some employers have their own guarantee schemes, and N.B.S. also has its own special scheme to enable higher percentage loans to be made. Repayment of loans can be arranged over a number of years, up to a maximum of 20, by equal monthly instalments.

Table 44.--Table of Monthly Repayments: 61/2% Loans.

	₦200	₦1,000	₦2,000	₦4,000	₦6,000	₦8,000	₦10,000	₦12,000
10 Yrs.	₦2.32	11.60	23.19	46.38	69.57	92.76	115.94	139.14
15 Yrs.	1.78	8.87	17.73	35.45	53.18	70.90	88.63	106.36
20 Yrs.	2.52	7.57	15.13	30.26	45.39	60.52	75.65	91.78

Source: Nigerian Building Society, 11 Breadfruit Street Lagos (Figures include both principal and interest).

Although repayments are constant, the division between principal and interest changes as loan reduces. The title to the land must be acceptable to the N.B.S. solicitor, and the plans must be approved by the N.B.S. surveyor. No loan can be made to a person under 21, and loans should be arranged so that redemption will occur before the applicant's 55th birthday.

Insurance

Insurance for comprehensive risks will be arranged by the N.B.S. who pay the premium. This will be charged to the applicant's account and he will be informed of the amount. Other insurances can be arranged to cover contents of the house and loss of rent. The N.B.S. Insurance Department advises on problems of such losses and is able to arrange additional mortgage loans to enable single-premium life insurance to be effected. Such cover matches the reducing loan and ensures that it is paid off in the case of death, leaving beneficiaries with a debt-free house--assuming the account has been correctly maintained.

N.B.S. Target Savings

Recently, the N.B.S. has stepped up its efforts to encourage savings. There has been the following saving terms:

a. 3-Year Term Savings: On a Term Savings Accounts N.B.S. pays interest at the high rate of five percent interest per annum. The minimum deposit is to open an account is ₦200.00. After this level one can invest further capital in amounts of ₦100 or multiples of ₦100. After three years one can reap the benefit, or can renew and the money will continue to grow.

b. There is also the N.B.S. Popular Savings: One can start with as little as ₦5.00. Then to this is added from time to time as much as one likes. All the time the money will earn four percent interest. Withdrawal has no restrictions except that it will not exceed ₦400 per month. For larger amounts one month's notice is normally required.

c. 4-Year Target Savings: For this one has to be accepted. After this, one has to make a banker's order for his payments, or arrange for his employer to pay N.B.S. out of his salary (pay-roll deduction). The interest is four and one-half percent per year.

The following are choices to suit various plans:

To Secure	₦104	In 4 Years	₦2	Each
Approximately	210	you pay	4	month
	314		6	
	524		10	
	1,050		20	
	2,100		40	
	4,200		80	

Mortgage Bank and Housing Corporations

Apart from direct allocation for housing construction, an important element in the present Government strategy for alleviating the housing problem includes an expansion of mortgage lending. This involves the transformation of the N.B.S. into a Mortgage Bank, with a capital of ₦150 million. This it is hoped will enable the society to lend more, not only to individuals building their own homes, who are at present its main customers, but also to provide loans to new

classes of borrowers, such as State Government Housing Corporations and private real estate developers building to sell.

The establishment of Housing Corporations was part of the post-independence efforts. A similar institution, the Lagos Executive Development Board (LEDB) was established by the Federal Government to cater for parts of Lagos Metropolitan Area. The Housing Corporations and LEDB are statutory public authorities charged with these responsibilities:

1. undertake the development, construction and management of housing estates; and
2. grant loans to people wishing to build houses on their land anywhere in Nigeria.

The conditions under which the LEDB and the Housing Corporations operated are the same as the N.B.S. Except that, under the loan scheme, loans can be granted to applicants whose current and regular monthly incomes are four times the amount of the monthly repayments of the loan. The condition as to age, maximum loan, interest rates and guarantors are the same.

There is no doubt that a wide gap exists between the Housing Corporation's requirements and the amortization capabilities of prospective applicants for house loans. A great percentage of the people cannot secure loan from the corporations because of one or a combination of the following reasons:

1. inability to afford the necessary downpayment;
2. low income, or low earning power, which makes it impossible for the people to afford the monthly repayment rates;

3. inability to provide a reliable guarantor acceptable to the finance institutions;
4. age limitations and
5. absence of loan for sufficiency lengthy amortization period.

The loan schemes were out of reach of the poor; thus they became available only to middle and upper income classes. The rules guiding purchase of the Corporation-built houses on estates are equally stringent and restrictive. The conditions of amortization are almost the same. All evidence points to the fact that the estates are meant equally for the middle and upper income-groups to the total exclusion of the low-income groups which form the majority of urban residents of Lagos and other Nigerian cities. The Corporations were set up to provide houses mainly for the low-income workers. Some of them like the LEDB officially declared a part of their houses as meant for low-income workers. Unfortunately, what one discovers is that these houses are actually occupied by middle income and some high income people who turn around and sublet them at fantastically high rents to the low income group. The objective for the exercise is thus defeated.

After reviewing all the activities of the Government during the first ten years of independence the following conclusions have been arrived at:

1. The main concern of the Federal Government in the realm of housing was confined to Lagos. Even at that, the concern was limited to the provision of housing for the senior civil servants, or the very

important personalities in the various arms and bodies of the Federal Government.[60]

2. The Government allocated some money to the African Staff Housing Schemes and the Nigerian Building Society. The amount provided for these two schemes was grossly inadequate to meet the housing needs that these institutions were expected to meet. In general, the two schemes benefited only a very minute proportion of the Nigerian citizens and the few who benefited fall within the upper and the middle income groups. The low income people, that is, the great proportion of Nigerians, were neglected.

3. During this decade, the government did not effectively shoulder its housing responsibilities. Its performance in most cases was token. A wide margin existed between what was planned or intended or budgeted and what was actually achieved.

Government Housing Activities 1970-1975

The past five years is a new era in the history of housing in Nigeria. The tremendous increase in revenues as a result of the oil production led to a change for the better in the Federal Government housing policies and programs. A series of actions, programs, re-organizations and institutional creations which had constructive and progressive impact on housing marked this period. These include:

---

[60]An attempt by the Federal Government to divest itself of responsibility for housing its staff in the 1960's could not be carried through (see staff mimeo, Council of Ministers [CM 60] 3rd Meeting, Conclusion 3).

1. The National Council on Housing was established in 1971. It was the Council that adopted the idea of a Housing Mortgage Bank and recommended that the National Provident Fund, Insurance Companies, Commercial Banks, the Federal Government and possibly the State Government provide funds for the Housing Mortgage Bank.

2. In 1972 the Federal Government acquired the Commonwealth Development Corporation's 60 percent shares in the NBS, increasing its shares in the Society to 91 percent. Moreover, a substantial amount of money was granted to the NBS during the period with a view of making it an effective "instrument of government housing policy."

3. The same year, the Federal Government established the Government Staff Housing Board. The duty is to grant advances to members of the public service (who hold pensionable or confirmed office; who are below 50 years in age for the purpose of:

a. building a residential house in Nigeria for use of the applicant or his family or,

b. purchasing a parcel of land in Nigeria on which such residential house is to build; or

c. purchasing a residential house in Nigeria for the use of the applicant or his family; or

d. improving or extending a residential house in Nigeria for the use by the applicant or his family being a house owned by the applicant and to which he has a valid and good title acceptable to the Board. According to these regulations, the Board is empowered to grant as loans "an amount equal to five times the applicant's annual salary or ₦20,000 whichever is less.

4. The most striking of the actions taken during this period was the declaration that 59,000 housing units (later revised to 200,000) will be built for the low-income group in the various state capitals of the country. 15,000 of these will be in Lagos and 4,000 units will be in each of the states.

In summary, the last five years is an era of Federal Government active intervention in housing. It is a period when there is a national commitment to housing; when national programs were introduced and implemented; when a substantial amount of money was allocated by the Federal Government for the provision of housing in Nigeria. In fact a foundation was laid for a national housing policy and the philosophy of public housing program was drastically modified. It was the first time in Nigerian history that specific housing programs were introduced for the low-income workers in Nigeria. A solid foundation was also laid and an elaborate preparation was made during this period for a massive housing program for the Third Development Plan period 1975-1980. However, the approach to the problem has a number of weaknesses.

In many respects the approach to the housing problem has been reactionary and ad hoc. Policies that anticipate problems are not adopted; reaction to the problems occur only when they become overwhelming and crippling. The approach has been housing policy by newspaper headlines. The implications and ramifications of public policies are not considered before they are pronounced; the tendency is to put the cart before the horse.

As a result, measures are, in many respects, not comprehensive, uncoordinated, misdirected, illplanned and poorly executed. Hence the

problems get worse instead of improving. Government conception of its responsibilities has been nothing more but conservative. There is no effective institutional machinery to coordinate all housing activities and programs. Many departments or ministries are directly or indirectly responsible for housing and the multi-bodies work at cross-purposes resulting in inefficiency, waste of resources and duplication of efforts. Finally, we have no housing policy that can be regarded as adequate and appropriate both at the national or local level. In short, there are programs in search of a policy; what is needed are *comprehensive housing policies and the means of administering them* both at the national and local levels.

Towards a Comprehensive Housing Policies

Professor D. V. Donnison, a leading English housing expert, has outlined three general approaches to housing policy taken by European governments: (1) the assisted free market approach; (2) social housing programs combined with free market production; and (3) comprehensive housing policies.[61] The first he identifies with countries in the early stages of urbanization and industrialization, the second with more advanced industrial societies, and the third with countries, while no more advanced industrially, have passed through the social housing policy stage to deal comprehensively with housing problems.

The goal of the assisted free market approach is to increase total production. By way of incentives and institutional reform, government attempts to channel more funds into housing without concern

---

[61] D. V. Donnison, The Government of Housing (London: Pengium Books), pp. 93-112.

for the distribution of the new housing produced. Techniques such as income tax subsidies, mortgage insurance schemes, the creation of special mortgage lending institutions, and even direct government lending, rebound to the benefit of those who need help least. Because of the type of housing problem existing in Lagos, this policy approach is not applicable.

Under social housing systems, the state continues to rely on an unregulated private market to serve those who can afford it and intercedes only to help those who cannot. The government's role and its operations are designed to meet particular needs and solve particular problems. Whether they consist of building, lending, subsidy, rent controls or other measures, these operations are regarded as exceptional interventions--often temporary--within an otherwise "normal" system and thus will not be an adequate measure for the magnitude of the housing problems in Lagos or Nigeria in general within the national development goals and objectives.

Relying on the market to set the nation's housing goals, with government intervening only to help those who are not strong enough to help themselves has relegated social housing programs to a second class status. That status is responsible for the defects described in the program reviews. Poor locations, poor designs, inadequate facilities, insensitive management by landlords, all result from an attempt to engraft social housing programs on a profit-making production-oriented mechanism in which the producers conceive of housing as an artifact to be produced rather than a service to be rendered. Nigeria must abandon the myth of the market place as the efficient medium for the distribution

of the society's resources. The basic value judgments about what constitutes the equitable distribution of society's housing resources must be made before the market functions are called in to play.

There must be established the goals of Nigeria's housing policies. Then the present situation and the action which must be taken to meet them can be analyzed. The author joins the few who share his concerns to urge the government to see that the nation's housing objectives must be clearer and more explicit. The curcial political task is the definition of the goals of the national housing goals (embracing local goals) and the monitoring of the economic and social systems and evaluation of programs to ensure that those are met.

As an initial statement of housing goals, the author proposes:

1. Providing equal access to decent housing for all Nigerians;
2. Controlling housing price inflation;
3. Improving the environmental quality of all housing;
4. Conserving and upgrading the existing stock;
5. Maximizing the freedom of choice of the individual housing user; and
6. Creating a decision-making process that is both open to user input and whose focus of authority is as close to the user as possible.

All these goals pertain also to the Lagos Metropolitan Area.

If the above general goals are integrated with what appears to be specific national objectives and policies as referred to in the introduction to this work can the housing problems in the LMA be solved? The solution will depend on how effectively some or all of the goals

can be achieved. To do this, the author has the following recommendations to make under the measures discussed below. The measures will amount to what has been described as "Social Housing" by the International Federation for Housing and Planning at its seminar in the Netherlands in 1974. Though the notion of "social housing" is not yet very clear, it would correspond to Article 25 of the Declaration of Human Rights by the United Nations in 1948 that: "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and so on."

In the above statement we have a universal goal for housing policy. This will include: to honor the right of everyone to live in a decent home; to accommodate the supply of dwellings to the needs of the people; to transform the housing need of the people into an effective demand; to realize a fair distribution of the housing stock. These suggest that there must be strong instruments in the housing market policy with regard to the production and distribution of housing services. These instruments or measures will involve the following as far as Lagos is concerned:

1. Income Redistribution.--To state the obvious, the primary cause of the housing difficulties especially of the low income households is inadequate incomes to purchase basic needs. The structure of income distribution has remained unchanged for two decades or more in Nigeria, notwithstanding the variety of government activities aimed at income redistribution. What the government has done is to achieve some token success in salary adjustments by the various salary and

wages review commissions. Direct redistribution of income for housing assistance purposes takes one or two forms.

a. *Production and operation subsidies*, aimed at reducing the cost of providing housing. Unit subsidies will have the effect of ensuring that all low income households are able to acquire decent housing for an expenditure which represents a reasonable proportion of their low incomes. However, it is simply too difficult, both politically and administratively, to attach the necessary subsidies to the thousands of units advocated to be built in Lagos this year or in ten years. But it is more justified than subsidizing only the upper income groups leaving the poor at the mercy of the market forces.

The alternative is to expect low income households to remain in the existing stock and to increase their incomes and thereby reduce expenditure burdens. Of the building-related subsidies, production subsidies in the form of lower interest rates and capital grants have been most frequently used in European countries and the United States. In Nigeria we can try this as the last alternative. Instead, a better thing would be the payment of "shalter allowance" to low income households.

b. *Shelter Allowances*.--The difficulties of making a building subsidy program work leads to the recommendation of a shelter allowance program as the better alternative. It would allow an immediate reduction of the housing expenditure burden of low-income households in Lagos to acceptable levels. Such a program would not be required if a guaranteed annual income or other general income maintenance program were in focus. Politically and economically Nigeria cannot afford guaranteed

annual income. A shelter allowance would serve as an interim, less expensive measure, to be meshed in the future with a general income maintenance program. After all that is what the government is doing now by giving every senior civil servant a monthly rent allowance of N40! But who needs this allowance most?

Shelter allowance consists of a government contribution towards shelter costs, aimed at reducing shelter-to-income ratios for all households to say 20 percent, or in the case of households with children, to some smaller percentage varying with income and family size. It would bridge the gap between ability to pay and housing cost.

There are many variations such assistance could take. It could be a rent certificate (coupon), a rent rebate, a generalized allowance. It could be payable only in case of tenancy but not for ownership. It might be payable to an individual or to his landlord. It might be payable only to households with children and to the disadvantaged. It might vary with income, size of family and size of city. It could be part of income tax reduction package.

If one could abstract the experience of some half dozen European countries, a shelter allowance might be described as a rebate payable in arrears, depending on claims made by households heads for the difference between the amount actually spent and a "fair rent." Some European countries treat the allowances primarily as housing supplements to low income families--the German scheme was set up for that purpose.

The basic policy choice appears to be between those two forms, between generalized shelter allowance payable to all households within a certain income band, and a system of payments only to those households

in fact paying excessive amounts for shelter. A general allowance might be established which pays to all eligible households an amount equal to the difference between one-fifth of average annual income for households within that income group and the rental cost of an average adequate unit for a household of that size. Payment could be made in advance, on receipt of proof of income by way of tax receipt. The virtue of this approach would be its administrative simplicity, low administrative cost, lack of controls, and universal participation. It would easily be converted into a guaranteed annual income scheme when a decision is ultimately taken that we can afford it.

The above simplicity is also its major drawback. It may not have enough apparent connection to housing to be justifiable politically. There may be concern that the allowance will not be spent for housing. Most important, it would deal in averages and thus only rough justice from a housing expenditure perspective, though not from an income point of view. The more refinements one puts into an allowance scheme, the closer one comes to a rebate system.

Rebates

A rebate system would be less concerned with redistributing incomes to equalize purchasing power than with reimbursing those who pay a disproportionate share of their incomes for shelter. Rebates would be equal to the difference between an acceptable percentage of incomes and the amount actually paid for housing (up to an acceptable maximum). Rebates would permit the allocation of funds to those for whom housing expenditures constitute the greatest burden.

These apparent advantages would not be costless. A new bureaucracy would have to be created to check proof of cost and administer payments. It might also be felt necessary to determine that the household is not purchasing an excessive amount of space and that would also require inspections; although these could be prevented by limitations on maximum allowable rents. With individual unit rebates, increased controls are likely as is increased contact with government officials as a condition of assistance.

The traditional argument against shelter allowance program (whether in allowance or rebate form) is "leakage." The proposed transfers will leak out of the hands of the recipients into the pockets of their landlords. Rent increases may follow this types of measures which may swallow up most of the shelter allowance. There is the risk therefore that in some cases, conditions of housing shortage, coupled with the lack of mobility of some low income households, will leave some tenants prey to large rental increases.

The above problem can be resolved by increasing the supply of stock available to low income households--not necessarily by providing new stock directly to them, but by increasing the flow of housing to moderate income households. A situation is then created in which the filtering process can work: moderate income households vacating reasonably priced dwelling units for newly built ones leave the vacated units for low income households with shelter allowances.

Filtering from the top of the income pyramid to those at the bottom does not necessarily work. The flow is short-circuted by middle income households which, with increased earning ability and demand

requirements block the filter. Directing new stock to those in the middle, however, moves the filter downward to increase the choice of households at the bottom. If substantial amounts of that new middle income stock are provided, with controlled rents and rising incomes, much of it should be available to low income households within a relatively short period of time.

If rents do increase and there is substantial slippage it may be necessary to rely on rent control, at least as a temporary measure. While rent control is discussed elsewhere, this study finds that on balance a shelter allowance or rebate program, with other measures to control price, is more equitable and a more easily administered program. However, as a transitional measure, to ensure the satisfactory introduction of a shelter allowance policy, it is worth considering in Lagos now. It is also possible that rent controls may be adopted as part of a comprehensive package of wage and price controls--this the government has done in the last few months, but we wait to see the success or failure of the measures.

Price and Distribution Policy

Stabilization policy has clearly failed to control housing price inflation and the poor has been the losers. They are hit most heavily by the increase in housing price. Other techniques for dealing with inflation in the housing sector must be found. Dissatisfied with the effectiveness of stabilization policy in curbing inflation generally, the Nigerian government appears to be applying prices and income policy. For the housing sector, that dual action involves no fundamental changes

in the system of production, but makes an attempt to regulate, confirm, and restrain the underlying cost pressures.

The alternative is *to deal with the underlying forces, to change fundamental relationships, to attempt to redirect and restructure the housing production system,* rather than simply and, probably, temporarily, policing prices. The approach has been prospects of long-term success. The existing tools for dealing with housing price inflation, namely rent edicts; are too blunt. They create shortages and simply postpone inevitable increases. There has been no national attempt to devise new techniques for dealing with housing price inflation except for that of the Anti-Inflation Task Force, and half or more of its recommendations were rejected by the government. Present day policy measures have not advanced beyond the possibility of instituting wage and price controls, another set of unit temporary measures which attempt to confine market forces rather than restructure them.

To eliminate the above cycle, it is necessary to ensure a sufficient, steady production of housing, to meet annual increases in housing requirements. If continuing efforts are to be made at stabilizing the Nigerian economy, they should not be at the expense of the housing sector. While steady growth of the housing stock will alleviate some of the demand-pull aspects of housing inflation, steps should be taken to deal with the cost-push factor.

Land Assembly and Land Banking.--Rising land prices, as mentioned earlier, are a major culprit in housing price inflation. Those prices have quadrupled in the last decade. Increased land and servicing costs have pushed residential land development into the hands of a perpetuating

landlordism. Therefore, it is recommended here that a major land assembly and land banking program coupled with changes in tax policy be instituted to deal with rising land prices.

This would entail the acquisition of a sufficient supply of land to meet all urban residential requirements for say, a ten year period, although the land would be marketed over a longer period of time. But of more significance here is that the public land banks would market from one quarter to one half of land required in any given year and thereby set the pricing pattern. They would be in a position in any given year to flood the market and depress prices.

In order to achieve the above objectives about land there is need to:

a. implement the type of overall Federal Land Development policy outlined earlier in the chapter;

b. establish goals for land banking and assembly as to cost control, equity (for example, why should the advantage of the added value accrue to private interests, who have done nothing more than purchase and hold the land?), and property taxation.

c. determine means and methods of providing sewers, light, drains, roads etc.; making loans for the acquisition and servicing of land for general housing purposes, deciding when and from whom the servicing costs charged to land assembly will be recovered.

d. the method of disposition of publicly assembled land--which may take the form of leasing arrangements or resale to the private sector.

Housing Rehabilitation.--If all the people were to live in decent housing, one cannot simply rely on the construction of new dwellings to replace existing substandard units. For that to happen, as many as one-quarter million new units in excess of those required to meet new household formations would have to be built in the next decade. Those new units would not necessarily be produced in the areas where sub-standard housing exists. The expense of tearing down existing units and rebuilding is out of all proportion to the cost of rehabilitation.

It is therefore recommended here that a large scale rehabilitation program, to bring as much existing housing as possible to a state where the structural and building systems perform adequately be initiated. Such a program if based on appropriate criteria, costs and standards; and with well, thought-out funding mechanisms would be more acceptable than outright urban renewal projects.

Because the low-income groups will not undertake additional debt, it is suggested here that universal grants to homeowners and small landlords of two-thirds of the cost of providing plumbig, light, decent system of waste disposal and other structural systems, for all buildings having a potential useful life of fifteen years or more be made to them. The grants would not be restricted to specific areas as the need is widely scattered. For larger landlords, or for small landlords who so prefer, it is recommended here to provide preferred interest rate loans, coupled with code enforcement. All loans or grants to landlords would be in consideration of agreements not to increase rents for a period of ten years, except to cover increased taxes and operating costs.

Home Improvement Loans: In order to conserve the existing stock and improve same, home improvement loans should be made at preferred lending rates to low income home owners and to landlords prepared to agree to control rents for ten year period. To encourage the use of the programs and the unassisted improvement of residential areas, steps must be taken to stabilize city neighborhoods.

Homeownership.--In order to make the filtering process work it is recommended that a system of home ownership inherent in the newly established government policies and objectives be started. This program will be directed mainly to the middle-income group who will be assisted by the government through public institutions. Right now in Nigeria, this type of program can be started as soon as the Mortgage Bank begins real functioning.

There are some in the society whose earnings are too inconsistent to enable them to keep up steady payments (in case of loans), and, of course, there are many in Lagos who are so mobile that they prefer to rent rather than own. However, it is questionable whether it is right that an average wage earner in Lagos earning between ₦300 and ₦600 per month should be told that he cannot have a house of his own if the necessary factors are provided. It is fallacious to believe that renting is innately cheaper. In an inflationary society, it is cheaper only when controls or subsidy make it so.

There are a number of cogent reasons for encouraging homeownership. A few of these would be: ego satisfaction, family security, psychic security, better citizenship, opportunity to build the kind of home

you desire, incentive to save and homeownership as freedom from landlords.[62]

Renting.--There are of course, arguments in favor of renting. Some of these are:

1. renting may more readily permit taking advantage of different occupational opportunities;

2. renting permits changing housing in order to meet changing household needs more readily than when a household owns;

3. also renting does not carry with it the responsibility for upkeep of the property and above all permits living in a location more convenient to work.

Rent Control.--Many people have suggested rent control as a measure to deal with arbitrary power of landlords to increase prices even as housing services that are supplied start to deteriorate. With prices for new rental units constantly rising along with population growth, owners of existing dwellings are able to charge higher rents than they could when their buildings were new, despite the depreciation which has taken place.

Rent control was introduced in most West European countries during the Second World War and remains an integral part of national housing policy in many of them. From time to time it has been used in Nigeria as an anti-inflationary measure to solve the housing problems of cities like Lagos. Yet even though quite a number of edicts have been passed in the past purporting to control house rents, these have

---

[62]For more detailed discussion on homeownership, see Housing and Society, by Beyer, pp. 249-273.

only been effective on paper. Recently a rent control panel was constituted and it has since published its recommendations: pegging rent in Lagos at ₦12.00 ($19.68) per standard room and limiting advance payment to only three months. One has to wait to see if these could be successfully implemented even though the threat of forfeiture is decreed by the government.

The problem in Nigeria is that the necessary organizational framework for rent control is not present and there are loopholes in requisite legislative and administrative powers. At a time when pressure is ripe for rent controls in Nigeria, the Europeans are moving away from them. The arguments made against controls are as follows:

a. Limits on profits chase private money out of the rental housing sector into other uncontrolled areas, resulting in reduced production.

b. It is inequitable to control some fields of activity and not others.

c. If only part of the stock is controlled, rents in the uncontrolled sector rise as new production fall.

d. Not only does new production fall off, but investment in maintenance and repairs diminishes, leading to rapid deterioration in the existing stock.

e. As controls usually apply to dwellings, rather than households, there is no assuming that older, lower priced units go to those whose need is greatest; controls usually apply as of a certain date, for the benefit of dwelling occupants on that date.

f. Households hesitate to move from larger units, even when the space is excessive for their needs, because less space in new housing may be more expensive. Underutilization of the existing stock may result.

g. "Black markets" frequently develop in which "key money" is paid to acquire a price--controlled unit. In a partially controlled market in which excess demand is present, poorer households have difficulty competing for controlled units.

h. Cumbersome administrative machinery is required to police the control system. These administrative difficulties are sufficient to dissuade one from recommending large scale rent control (outside of the context of a national prices and income policy) provided that a shelter allowance is adopted to at least keep track of landlords "gimmicks."

In the short run, however, there are two clear advantages to rent control. It costs the public purse nothing, except for its administration. It entails transfer of the right to increased income from properties from landlords to tenants, and thereby reduces the burden of shelter expenditures on low income tenants. The author feels that shelter allowances do the job more efficiently and are administratively far less complex. But if the decision is taken that taxpayers cannot afford income transfers of the magnitude suggested, there is no alternative to controlling rents, at least for older existing dwellings. That control would not take the form of the traditional freeze, subject to increase for increased expenses; rather, it would probably involve

rent regulation or stabilization, that is, administrative controls which must be enforced, aimed at the establishment of "fair rents."

Residential Financing.--Financing for housing, like that of any durable asset, is facilitated by a system that effeciently mediates funds from surplus economic agents to deficit units (builders and buyers of houses). And, as in the production of other assets with long useful lives, house construction is aided by the availability of long-term credit. Financing of housing thus involves long-term commitments by lenders to a highly nonliquid form of wealth. Dwellings are subject also to fluctuations in value quite apart from ordinary wear and tear on the physical structure. In this section, the various financial resources for housing will be mentioned and discussed briefly with a view to evaluating whether they could be used in Nigeria or not.

Housing finance in developing countries suffers from disabilities that are common to all types of long-term finance and from those which are specific to housing. In most developing countries, financial systems are underdeveloped and beset by government restrictions that limit the volume of long-term finance and distort its allocation. Financial systems typically are dominated by commercial banks that lend on terms that technically require repayment in a short period. The proportion of mortgages and other long-term loans is kept low.

With excessive demand created by controlled interest rates, banks prefer lending to the least risky borrowers, and what little mortgage money is made available is channeled to rich customers with ample collateral. Low-income households, and often those with medium incomes, are excluded in such a rationing. Hindrances specific to

housing finance also exist. Because in the past investment in housing has often been labeled "unproductive" by governments that have failed to understand its economic significance, legal restrictions have sometimes been deployed. Some governments have created specialized mortgage institutions financed by concessionary public funds--by for example, ear-marked payroll taxes--to meet this basic need. Since such funds are severely limited, however, stringent rationing to borrowers has necessarily been imposed.

As mentioned elsewhere, the Nigerian Building Society has been converted into a Mortgage Bank. The detailed mechanisms for the operation of that bank have not been worked out and is outside the scope of this study. However it would be necessary here to mention the salient aspects of mortgages and other financial institutions that could be used in Nigeria for housing.

Kinds of Mortgages

Mortgages are classified in several different ways. First, there are the straight-term and amortized types. There are also first mortgages and second or junior mortgages. There are the open-end and package mortgage types.

The straight-term mortgage, which are quite uncommon today, is one which requires no payment on the principal during the term of the mortgage. The full amount of the mortgage falls due at the end of the period covered by the loan arrangement. An amortized mortgage, which is the prevelant type today, is repaid in specific amounts, frequently on a monthly basis, during the term of the mortgage. The payment includes that against both principal and interest. For amortized

mortgage, the most common arrangement requires the mortgagor to make a cash down payment ranging from five to thirty percent, as well as payment of certain other costs incidental to "closing" the mortgage. Amortization is usually spread over a period ranging from ten to thirty years; this planned repayment feature has made amortized mortgages considerably sounder than the earlier straight-term type.

Sources of Mortgage Credit

In the United States, the funds for the heavy volume of residential mortgages are provided by several kinds of "primary lenders." These include savings and loan associations, commercial banks, mutual savings banks, life insurance companies, pension funds, individuals, the Federal Government, mortgage companies, nonprofit organizations, real estate and construction companies, and a few other groups. The most important, from the standpoint of volume, are the first four. It is not the intention here to describe the detailed operational practices of these. The more important concept is whether any of these sources could be established in Nigeria, especially in Lagos where the level of sophistication is higher than in most other parts of the country.

The author would see no harm in using the savings and loan associations, the commercial banks or even the insurance companies to finance housing credit. Most houses in Lagos are built by private individuals who try to save for that kind of project. The savings and loan association has a counterpart in the "esusu" societies or even co-operative societies. The thing now is for the government to reorganize and restructure these for the purposes of such projects

li

ba

in

go

of

ro

Ni

wo

In

fa

Th

of

ac

th

ir

mo

g

n

i

p

s

h

th

of

like housing. The Federal Government has started encouraging commercial banks to lower their interest rates and make more loans to the middle income group for housing. Such loans should be guaranteed by the government, like it does in the case of car advances to higher categories of workers. Payment for this type of loans could be made through pay-roll deductions which is a well-known method among civil servants in Nigeria. But what about self-employed people? Something could be worked out for them also based on colleterals that will be substantial.

Insurance Companies

Right now in Nigeria, these companies are mushrooming and making fantastic profits. They should be co-opted into the housing effort. The principal characteristic that distinguishes them from other types of financial institutions is the long-term nature of the funds they acquire. Their principal source of income is the insurance premiums that they collect, usually over the period of the working years of an individual. Part of their huge assets could be invested in residential mortgages.

All that is being said here, is that even though the Nigerian government is making commendable efforts in housing finance, more needs to be done, especially at the management level. The financial institutions for housing need to be improved within the overall fiscal policy. A lack of shortage of mortgage funds retards the provision of sufficient housing. This problem, of course, is not so much one of housing as a development of the financial sector. In Nigeria, now, the building up of a variety of suitable financial intermediaries is of primary importance. But financial intermediaries generally require

reforms in financial markets. Such actions as the freeing of interest rates restrictions, the institution of measures to encourage competition among banks, the ending of inappropriate banking practices, and the promotion of life insurance companies and pension funds will help to increase the availability of long-term credit and, potentially, of financing for an efficient housing sector.

One possible means that combines aspects of financial market development with reaching low--and middle-income groups, is to encourage the creation and good management of mechanisms or institutions for mortgage insurance in the public or private sector. Such schemes decrease the downpayment requirements by ensuring the mortgage lender for a certain percentage of the loan. Thus, homeownership can be made accessible to persons who have a regular income but lack the accumulated savings required for a downpayment of from 30 to 40 percent.

Another means stresses the linking of deposits and loans to changes in the price level in order to protect investors from inflation and to stimulate the flow of resources to the construction sector. Removal of the specific hindrances to housing finance would allow housing to compete more effectively with other claimants for long-term institutional finance. Specific measures, and in most cases new institutions are needed if low-income borrowers will be able to borrow freely in amounts suited to their needs.

Administering a Comprehensive Housing Policy

The range of instruments available for implementing housing strategies and policies is considerable. Most instruments have a number of effects, some of them not always anticipated, but sufficient experience

has by

about

use.

and c

such

in th

ment

out

Zoni

zon

res

an

one

of

etc

ho

me

mo

Su

ir

Ho

st

ar

has by now been accumulated to enable some general judgments to be made about the value of particular instruments and their most appropriate use. In this section, such measures as zoning, sub-division regulations and controls on building standards will be discussed. Utilization of such measures can facilitate the meeting of the program goals discussed in the earlier sections of this chapter and help improve the environmental conditions of the residential neighborhoods in Lagos as pointed out in Chapter III.

Zoning

A potentially valuable instrument of urban and housing policy, zoning is important in protecting health, an aesthetically pleasing residential environment, grouping commercial and other activities in an efficient manner, and segregating activities that interfere with one another. Properly used, zoning can help to ensure an ample supply of urban land as a city expands--for housing construction, for industry etc. This type of measure should be used not only to stimulate the housing industry but, in combination with other land development measures, to improve housing styles, protect public health, safety, morals and general welfare of the citizens.

Subdivision Regulations

One of the reasons of substandard nature of residential housing in Lagos is that houses are built before the areas are even planned. Houses are erected in a hurry in order to avoid the observance of standards before the streets are laid out; and other infrastructure are brought in afterwards. Therefore, there is need to subdivide

neighborhoods, extend all essential infrastructure to them before allocating the plots or lots. There is also need to set aside open spaces, school sites and sites for other community facilities.

Building Codes

One of the oldest forms of control over the local housebuilding industry is the building code. These codes govern the types of materials used in construction, the relation of materials to design, sanitary facilities, and the provision of light and air. Building codes have a significant effect upon the cost of housing in the locality--generally the effect of increasing it. Ironically, building codes may be hindrances rather than helps to sound housing development in the community.

Typically, these forms of control are not related or cordinated with the other forms of control that affect the housing scene in Lagos. In addition, its detrimental effects are often aggravated by lax enforcement and the existing Building Bye-Laws and Regulations are dated. In Lagos, the unfortunate situation is that these Bye-Laws and Regulations are being applied as zoning, and even subdivision measures, hence they cannot be easily administered.

Appropriate building standards can do much to create a safe and pleasant environment. Yet, misconceived, they can contribute to depressing the living standards of the poor. If such regulations are inappropriate and set standards too high for existing income levels, their primary effect will be to reduce the amount of housing that is available at prices the people can afford.

Conclusion

In this chapter the main components for housing supply as a prelude to policy recommendations have been traced. The previous efforts of the government have been analyzed and evaluated. Based on these, a broad comprehensive housing policy for Lagos has been formulated. A number of conclusions and observations flow from this formulation.

Housing policy involves basic social judgments. The implicit purpose of all housing legislation is to promote the general welfare, whether in terms of physical health, social and civic efficiency, protection of the family, or the fulfillment of such social ideals as "equal opportunity" and "equal rights."

But these are very general goals, that must be translated into sites and buildings of the most specific, tangible and permanent nature. The Nigerian government has now committed itself to encourage and assist in the production of housing of sound standards and design, construction, livability and size for adequate family life. By implication this would also mean the development of well-planned, integrated, residential neighborhoods and the development of integral parts of the community.

How do we decide what kind of housing promotes adequate family life, or the exact nature of an integrated neighborhood, or what makes a real community? Housing investments provide powerful instruments for the achievement of such goals, but little instructions as to what these goals are in three-dimensional terms.

The consumer is hardly more potent or influential in the detailed operation of public policy than he is in the private market. He has

little real control over the concrete administrative decisions which affect his own life most intimately. These include: the size and appearance of his house, the convenience of shops and playgrounds, who his neighbors will be, how far he will go to work. Such questions cannot be easily settled. Yet it is the sum of small finite decisions that adds up to a satisfactory or unsatisfactory home and community.

The Role of the Expert

At every step in the complicated process of housing and civic development, somebody does have to weigh the possible alternatives, and make some decisions. Most of these decisions that determine the shape and quality of the environment are not made by the consumer, by the builder reacting to known consumer demands, nor by government functionaries. They are necessarily made, on the whole, by a long line of specialists, employed by public agencies and by major building and lending institutions. These "middlemen" translate the laws into standards, regulations and operating policies. They advise as to what will or will not be profitable. They design,construct and manage the housing projects. Their decisions are, of course, intermeshed; no one individual is likely to have all the expertise by himself. But, together, the sum of actions or inactions are largely responsible for the home environment of their ultimate victims or beneficiaries, the people who need housing.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This dissertation has been directed to review, evaluate and demonstrate the ways in which requirements for housing are assessed with a view to applying some of these to the unique situation in the LMA. The possibilities to improve or change existing methods have been explored, and new and unexpected elements which have been neglected in the past have been identified. In order to estimate the housing requirements with reasonable accuracy, the existing housing situation in Lagos had to be appraised. It was found that the existing stock, the physical conditions of these, and the market functions for allocation of the existing dwelling units leave much to be desired.

Housing in the LMA is regarded as a package of processes and services--the structures and related infrastructure. The situation of domestic running water, disposal of human wastes, power supply and consumption, and vehicular-pedestrian circulation in the residential neighborhoods is quite inadequate and has helped further to deteriorate the existing dwellings into substandard status. In addition to excessive overcrowding, the rents are intolerably high with the low-income groups suffering the most.

Over the past 10 years solutions attempted for the housing problem in the LMA were mainly in the form of rent control through

milit

terms

that

in or

Lagos

the

dwel

Area

othe

durr

Thes

wha

dem

and

and

br

fi

es

to

su

wh

bo

me

ne

military edicts which have failed. From simple economic reasoning in terms of the supply and demand mechanisms, it quickly becomes evident that controls collapse in the face of extreme shortages. Therefore, in order to begin to solve the problem of housing and infrastructure in Lagos, it is very essential that a scientific (analytical) estimate of the needs and demands be made.

The research has calculated that from 1976-1985 about 842,000 dwelling units are *needed* to house the inhabitants of Lagos Metropolitan Area, based on certain minimum standards of housing quality. On the other hand, about 319,000 dwelling units will be effectively *demanded* during the same period, while only about 82,000 units will be supplied. These estimate figures portray a wide gap between *what is needed* and *what is demanded,* and of greater importance is the gap between the *demand* and *supply*. If the government wants to achieve its objectives and policies on housing in the LMA it has to base its investment targets and programs on these estimates. In order words, the aim would be to bridge the gaps, but no one can span a bridge across a river without first determining as accurately as possible the width of the gap. These estimates referred to were made for a base year 1976 and then projected to a target year 1985, employing essential factors of need, demand and supply. In this way, there would not be too much difference between what is planned for investment and what is actually achieved.

It was assumed throughout this study that an application of both traditional tabular methods and more recently developed mathematical methods for determining future housing needs and demand help to reveal new dimensions of the housing problem in Lagos and in other cities in

Nigeria over the decades to come. It will also indicate ways to improve further the methods of estimation. The study as carried out in Lagos has demonstrated that the level of assessed housing requirements does not depend only on the accuracy of the methods and the availability of data. To a large extent it depends on the norms, criteria, assumptions and overall standards used in the estimates. Recently, the number of surveys and econometric studies the world over devoted to ascertaining housing demand and need has grown rapidly; but most of these have been developed for the advanced western countries. Some of these methods have been adapted for this research study and some new ones have been evolved and applied to a situation representative of cities in developing countries.

The functions of the studies on the need and demand for housing and consequently the methods employed, are affected by basic economic and institutional structures that form the framework for the production, management, and allocation of dwelling units. This means that it is very difficult to work out a universal method which could be indiscriminately used in different countries. It is, however, possible to formulate at least the general principles which could then be adapted to the conditions of the places concerned. This has been done with Lagos as a case study for urban Black Africa.

It is not only true that there has been under-estimation and under-investment in housing in Lagos, but the existing stock and new construction have been allocated by a market system whose gross imperfections are very glaring. Therefore, one of the contributions of this study was to evolve a system of allocation which could be

used to improve the housing condition of specifically the low-income groups in Lagos, through direct government intervention, controls and other policy decisions. The method recommended here is the Stock-User Matrix which showed how the limited investment in housing could be optimized for the benefit of all.

In practice, it is far from easy to form a balanced judgment of this matter. The factors involved are too complex. Account must be taken not only of demographic changes and the migration trends, but also of the rate of new construction, the rates of obsolescence and demolitions, the cost of housing to different categories of households, and the incidence or absence of subsidies. There is need to determine whether dwellings are appropriately located in respect to places of work and for shopping and recreation.

The result of this study has shown that to understand the problems and technical issues involved in housing it is necessary to know:

1. the economic system and social framework within which these problems are dealt with;
2. the existing housing situation and the phase in dealing with the housing problem;
3. the government's housing policy and organization; and
4. the long-term social and political aims connected with housing.

The author's view of the housing situation (actual and potential), leads him to be perhaps more penetrating, aggressive, exhaustive and rigorous than other housing researchers in Nigeria. Maldistribution

of housing in a social, economic and geographical sense is regarded as the crucial factor in the housing problems of Lagos and other cities in Nigeria. It is largely caused by the operations of the private housing sector--is perpetuated by insecurity of tenure, which in turn, impedes mobility and thus redistribution. Most of the housing supply in the LMA is through the private landlords. But how can the private landlords meet the needs of the disadvantaged income groups? Could equity or even reasonable allocation be achieved even if the private sector is garlanded with red tape so as to justify subsidies which could be more efficiently placed, with more direct control in other matters?

Questions such as this cannot be effectively answered only by reference to experiences abroad. Nor do they reflect prejudice against private landlords as a group. It would indeed be wrong to "condemn" them outright because their performance compares unfavorably with that of recent government efforts; or to blame the whole species for the inequities of its members. After all, they have provided the bulk of residential housing all these years.

On the contrary, the lack of confidence in Nigeria in a happy partnership between the private and public housing sectors arises from the recognition of the difficulties which the private sector faces, which cause economic hardships to many landlords themselves. These difficulties--rising construction and land costs, lack of financial facilities or mortgages, no rehabilitation programs--have to be seen in the specific contex of overall development, social philosophy and other institutions in Nigeria.

Private landlords cannot be expected to cope with the backlog of housing needs and demand--the inappropriate, ill-distributed stock of dwellings; the legacy of erratic policies (or lack of policies) and the persistence of out-of-date idées fixes which hinder rational reallocation. The private sector cannot possibly be expected to cope with all these in a period of complex changes in the socio-economic structure of Nigeria.

It is thus the author's conclusion--stated without apology for a term that has become a cliché--that housing should be transformed progressively into "social housing," that is, into *a social service*. A greatly expanded public housing sector is regarded as the only hope for the reduction and eventual solution of LMA's housing problems. In the years to come, this major facet will be the main point of controversy.

In order to solve the housing problem in the LMA it will be beneficial to operate within the following aggressive framework:

1. Honor the right of everyone to live in a decent home and accommodate the supply of dwellings to the needs of the people. The formulation of a fully comprehensive policy is a fundamental basic requirement for all housing, be it owner-occupied or tenanted, which must embrace the goals to be achieved. The primary goal of a national housing policy in Nigeria should be the provision of satisfactory dwelling for everyone at a price or rent he can afford. Hence, it follows that the necessity to tailor the supply of dwellings to the needs of the people is essential. Great emphasis is laid on identifying, analyzing, and assessing housing needs as opposed to housing demand, and to transform these needs into effective demand in order to realize a fair distribution of the housing stock. Housing policies must be able

to res

housin

but i

gover

which

fore,

to fi

soci

esta

and

hous

sat

nee

be

hou

th

an

ho

ar

i

e

i

to respond to human demand, taking into consideration both the existing housing stock and the new housing production.

2. The present inadequate magnitude of investment is noted; but it is agreed that satisfactory housing is a basic human right and government should protect its housing policies from all influences which may impair the adequate achievement of the stated goals. Therefore, minimum construction standards must never be reduced in response to financial inadequacies.

3. Within this framework, the experience and ability of the social and semi-social housing bodies like the NBS, LSDPC and recently established Housing Authorities and Corporations should increasingly and *effectively* be used by the government to implement a national housing policy. As a first priority, "social housing" should provide satisfactory housing for those in society who are unable to meet this need themselves. Such housing must be mixed by classes of occupants, be varied in design, and be well-integrated into the existing general housing stock. Class segregation must be avoided. In the longer term these measures will be seen to be advantageous both from the social and economic point of view.

4. Government administration and its policies towards the housing sector should be seen as an instrument for the implementation and fulfilment of National Housing Goals. The role of the government in influencing the price mechanism of the housing market should be effectively and positively exercised. It is essential that the large investments in housing construction be made with regard to long-term

social and economic considerations in order to maintain the value of these investments.

5. The question of housing quality is of paramount importance. This is not only a question of the character of the individual dwellings but of the whole housing area with its environment. In the field of public and private housing these qualities should be secured, with an influence on the general development of housing standards. In a wider context, this sector is a necessary link in the whole fabric of urban development. In connection with the question of general housing standards, increasing emphasis should be laid on rehabilitation, urban renewal, and slum clearance in that order.

6. In order to provide the essential infrastructure related to housing--water, power, facilities for disposal of human wastes, better streets--a system of property taxation should be introduced, streamlined and implemented in all major cities of Nigeria. Thus, initial provision of water pipes, electric poles, sewers and streets could be provided with a contribution from landlords. All property must be assessed before taxes are imposed. There are three methods one of which might be used:

a. The market value approach or the cost approach which involves appraisal by the dimensions and features of the house, taking account of its depreciation.

b. The market comparison approach, whereby the property being appraised is compared with a similar one that has been sold recently.

c. There is also the capitalization or income method, whereby a market rate of capitalization is used through which estimated future net income can be concerted into a sum of present value. The tax for the property for a year in all three cases will be computed by multiplying the tax rate with assessed value.

7. Reduce the drift to the cities.

8. Develop and reorganize the many financial institutions; not only the mortgage banks but the Nigerian Provident Fund, development stock, insurance companies, contractor-finance system, etc. for housing.

9. Encourage use of locally produced building materials like burnt bricks etc., standardized building components, develop Nigerian building enterpreneurship and Trade skills and undertake government sponsored research on housing.

10. The big construction firms should be encouraged to provide for housing for their employees.

11. Acquire enough land for public use and regulate land prices effectively.

As a researcher, the author would like to agree whole-heartedly with the frequent lament about the lack of facts and data which is alleged to prevent policy-making or to delay it. There are many gaps in information about the housing field in Africa as a whole. Since a solution to this has been started here (see pages 37-47), there is not much difficulty in estimating, with reasonable accuracy, the number of dwelling units of different types and sizes *needed* in various locations of a city. Thus, data required for a balanced housing program will be

provided. In deed, scarcity of data or information is a poor alibi for the vagaries of social administration in Black Africa.

Unsolved Problems and Further Research

In spite of the progress achieved and the considerable degree of standardization reached in this study, there are housing issues in Lagos which have not yet been satisfactorily discussed or researched. Some have already been mentioned, others are of a more general nature and have appeared when summarizing the methods or chapters.

In an effort to achieve greater accuracy in the estimates, this study has used improved methods by disaggregating the requirement elements into differentiated components. This procedure, though basically correct, has its limits. Such disaggregation can indeed lead to double--counting some items in the requirements and the consolidation of all parts of the requirements then becomes a rather complicated procedure.

There are quite a few insufficiently explored housing issues in Nigeria. Some of these include: estimating the relationship of demand factors, or carrying out a cross section analysis for housing demand by means of the regression analysis technique or showing how the various elements in the demand for housing have been changing in importance over the years or even vacancy chains. These issues are worthy of separate, thorough study if they can be quantified as data continues to be available.

The constitutional responsibility for the provision of housing in Nigeria has been assigned by judicial interpretation to the states--housing falling under the "residual" or "concurrent" list in the

Nigerian political set up. There is an urgent need to reassess this relationship, to redefine responsibility and to come up with realistic and workable reallocation of housing functions and responsibility among the various levels of government--federal, state and local.

Research should be directed towards ascertaining how far, if any, there is a nationally accepted physical pattern or varieties of different kinds of residential districts reflecting the uniformity of modern urban environments. In order to cut down on housing costs, the possibilities of self-help housing schemes, advances in house design and an analytical method of evaluating existing housing programs should be evolved. More research is needed into the house-building industry and the associated building materials, the housing market and the exact working mechanisms of mortgage and other financial institutions. Housing research in Nigeria is yet an unexplored frontier.

Housing Data

At present there is no systematic way of collecting, storing, retrieving and disseminating information on housing in Nigeria. The Federal Office of Statistics occasionally collects random information on the qualitative and quantitative deficiencies of residential accommodation in selected cities. These data are quite limited in scope. It is needed to organize as a matter of urgency the mechanics of a housing data bank and information system.

Vital data on the situation of housing should be collected, documented and published: namely, starts, completions, the people to be housed and their characteristics, the characteristics of existing

invento

admini

to urb

aggreg

to th

and o

inventory, economic dimensions of the housing sector, and housing administration and management. This exercise should not be limited to urban housing only; rural housing should be part of it and all aggregated according to the local, state and national inventories.

The contribution of this study, however, is modest when compared to the amount of research that remains to be done in housing in Nigeria and other developing countries. But a start has been made.

APPENDICES

APPENDIX A

AN APPRAISAL METHOD FOR MEASURING THE QUALITY OF HOUSING IN LMA

APPENDIX A

An Appraisal Method for Measuring the Quality of Housing in LMA

In this appendix a method for estimating the quality of a dwelling, on the lines indicated in the text is described. This method aims at providing a basis for discussion (as it is hoped will be the case) in order to examine the subject more deeply when carried out for Lagos. In the chart which follows essential instruments of the method are outlined. Penalty weights may not necessarily be the ones used here.

Appraisal Items	Weights or Maximum Penalty Points	Observations
A. Structure of the building and dwelling	285	Penalty points must be assigned for the objective situation of the structure and its individual elements
1. Location of the dwelling in the building: floor on which it is situated	35	Penalty points assigned only for the position
2. Thermo-acoustic insulation	30	Max:
2.1. Materials used in construction	20	If easily inflammable materials predominate
2.2. Outside and inside facings	10	Max: if there are neither inside nor outside facings
3. Entrance and circulation	80	
3.1. Entrance to building and dwelling	40	Max: if access is directly from sitting room to a dangerous road with pavement
3.2. Features (dimensions etc.) of corridors, halls and landings	20	Max: if there are no corridors inside dwelling
3.3. Features of the stairs	20	Max: when dimensions and positions are such to be dangerous.

4. Natural ventilation and lighting	100	
4.1. Obstruction from adjacent buildings and window exposure	40	Max: presence of obstructions which necessitate use of artificial light by day
4.2. Dimensions of windows in all plus entrance hall and stairs	30	Max: if window dimensions are less than 1/50 of surface area
4.3. Room height	30	Max: if less than 8 ft. (2.41 m)
B. Equipments (Installations)		
5. Kitchen facilities: permanent fixtures and other installations (gas etc.)	80	Max: if there are no permanent kitchen fixtures, or if kitchen is without sink or shared by other families
6. Water Supply	115	
6.1. Origin linked to mains or a well	80	Max: if unit has no water or at least no drinking water
6.2. Convenience of supply	35	Max: if outside the building
7. Drainage (Storm)	45	Max: if no system of drainage or if uncovered or smelly
8. Toilet (W.C.)	80	Max: if there is no lavatory, or if outside building and at the same time without flush and shared by 3 or more households
9. Bath and washing facilities	30	Max: if there are no baths or washtubs available
10. Electricity	65	Max: if the building and dwelling have no electricity
11. Air conditioning (instead of heating)	25	Max: if no room in dwelling has any sort of fan or airconditioning
C. Environmental and Sanitary Conditions and Maintenance	275	

12. Index of healthiness		
12.1. Dampness or flooding or marshy conditions	90	Max: if generalized permanent dampness is present, affecting walls, or presence of flood on adjacent roads
12.2. Infestation with rats, parasites or harmful animals	30	Max: if building is infested with rats or other insects
12.3. Presence of smoke and/or harmful gases and accumulation of garbage	50	Max: if considerable quantities of rubbish indicate irregular collection etc.
13. Index of the condition of sanitary fixtures	25	Max: if toilet has no window or ventilation and no artificial light and the seal of the fixtures is inadequate
14. Index of Deterioration: for the individual parts of the building and dwelling (outside walls, floorings, roof, foundations, stairs, inside walls, doors, windows) attributing a varying degree of importance according to parts concerned	120	Max: if most of the individual parts received maximum (and should therefore be replaced) so that dwelling and building are practically in ruins (50 points registers basic deficiency)
Maximum Total Points	1,000	

APPENDIX B

INVESTMENT FOR HOUSING

APPENDIX B

Investment For Housing	1975-1980 Development Plan Period
A. Federal Government	Total Estimated Expenditure 1975-80
1. Federal Mortgage Bank	₦150 million
2. Federal Housing Scheme	₦1,500 million (This involves the construction of a minimum of 60,000 units in various locations by the Federal Housing Authority
B. Lagos State	
1. LSDPC Projects	
a. Amuwo Odofin New Town	₦40,000 million (to accommodate 80,000-100,000)
b. Victorial Island Housing Scheme	₦5 million (22 blocks - 2 block of 11 storys - 8 blocks of 5 storys and 12 blocks of 5 storys including car parks)
c. Dolphin Housing Scheme	(LSMWP) ₦55 million to relieve housing problem in Lagos
d. South Surulere (Alaka estate Extension)	₦1 million (Site development, reclamation and drainage)
Animashaun Extension	
e. High Class Residential Flats/Bode Thomas St. S/L	₦2 million; involves construction of high class flats for rent
f. Ilupeju Extension	₦1.5 million (site de., roads, drains and street lighting; 241 housing units, 140 industrial units)
g. Oshodi Scheme	₦2 million (site dev. for industrial and residential estates)
h. Ormole High and Medium Res. Houses	₦3.6 million (550 acres, site dev. for Ojota/Ogudu Scheme Replacement

i.	Gbagada Settlement Scheme	₦5 million - for reclamation, road construction, res. plot layout and drainage = 650 acres
j.	Ogba Industrial and Res. Schemes	₦5 million (160 res. units, 280 industrial units)
k.	Isolo Ilasamaja Settlement	₦6 million (site dev. work involves reclamation, road and drainage construction)
l.	Urban Renewal (Lagos Island)	₦10 million (Phase 1 central Lagos, Phase II Island - Eko - modernize slum areas)
m.	Development of Surulere	₦10 million (redesign houses and roads - to prevent slum condition)
n.	Iponri Redevelopment Scheme	₦75-84 acres to rehouse displaced persons
o.	Matori Scheme	₦.5 million (site dev. 154 acres)
p.	Low Cost Housing (LSG)	₦10 million (accommodation for low and middle income groups with Metro area of Lagos)
q.	Staff Quarters for LSDPC	₦2 million (22 flats)
r.	Grants-in-aid to LSDPC by LSG	₦1 million
	Total	₦ 154.45 million

Note: That LSDPC projects are self-financing and therefore make no claims on the State Government's resources.

Sewerage and Drainage

1.	Lagos Sewerage Scheme	₦30 million
2.	Lagos Storm Water Drainage Scheme	₦30 million
3.	Septic Tank for individual houses to phase out the pail system	₦10 million
4.	Federal Govt. special subvention for sewerage and drainage schemes in Lagos Metro Area	₦52.5 million

Water Supply

1.	Consultancy Engineering Services Fees	₦4 million to raise distribution from 100-200 m.g.d. at Iju
2.	Water Supply Phases II and III expansion scheme	Dev. Ogun and Owo rivers to produce 100 mgd
3.	Lagos Water Metering - meters installed to monitor water consumption	₦2.5 million
4.	Federal Government grant for Water Supply in Metro Lagos Area	₦33.3 million

APPENDIX C

METHOD OF TRANSFORMATION--FROM RENTAL TO PURCHASE VALUE OF HOUSES IN LAGOS

APPENDIX C

Method of Transformation--from Rental to Purchase Value of Houses in Lagos

Dwellings can be either purchased or rented, therefore, we have two basically different pricing arrangements for housing. We cannot break the housing market down into two housing markets, this is not entirely satisfactory because housing units can and do change from one market to the other. A dwelling may change from owner occupied to tenant occupied. To estimate changes in "price" for a transition we have to solve the important problem of capitalization. Since a housing unit is a long lived economic goal which yields a stream of receipts and expenses over its useful life, capital theory can be useful to find its net discounted present value.

According to C. W. Clifton[1] "the net discounted present value of owning the home is the sum of the net discounted present value of the receipts stream plus the net discounted value of the expenditures streams or $NDPVH_o = NDPVR_0 + E_0$ where NDPVHo is the net discounted present value of owning the home, NDPVRo is the net discounted value of the receipts stream and Eo is the net discounted value of the expenditures stream (at time 0).

$$\therefore \text{NDPVRo} = \frac{(1-D^n)}{1-D} R + D^n HV_n$$

where D is the discounted rate per month

[1] C. W. Clifton, "Towards a Model of the Housing Market" (unpublished dissertation, University of Michigan, 1970), pp. 80-84.

$$\left(D = \frac{1}{1+i}\right)$$

R = the monthly rental value

HVn = the value of the house in year n (when it is sold)

$$Eo = -HVo - \sum_{j=o}^{n} Dj\,(Cj + Ij + Tj)$$

HVo = the current price of the dwelling

Cj = maintenance expenditures

Ij = expenditures of insuring the home

Tj = taxes expected to be paid

The purpose in this paragraph is not to solve the problem theoretically, but to find a transformation function that could be used for the conversion of dwelling values into monthly rents. If we assume that the value of the housing services provided by a dwelling every month is represented by its monthly rent, therefore a transformation function is only needed for owner occupied dwellings. Since most of the dwelling units in Lagos (about 91%) are rented, we can use the recent rent values and compare them to the selling price of the dwelling in order to estimate the transformation function. We can use a transformation function taking into account the monthly payment made by the owner of a new dwelling to pay back his mortgage loans, plus the opportunity cost of the downpayment.[2]

[2]The Nigerian Building Society which is to be converted into a Mortgage Bank does not use the downpayment method. Its loans are made on an incremental basis like giving 80 percent of the loan when 75 percent of the building is completed. But if the house to be purchased is already built, the Society pays the entire loan at once. Since 1975, its rate of interest has been reduced from 8 1/2 percent to 6 1/2 percent.

or R = C+B where R is the monthly rent we want to estimate, B is the monthly payment made by the owner of the dwelling to pay back his mortgage and C is the opportunity cost of his downpayment.

If we assume that the value of a new dwelling (V) is equal to the downpayment (D) plus the mortgage credit obtained from the bank or NBS (M) or V = D+M, where D+ a V with $0 \leq a \leq 1$ and M = (1-a)V, then,

$$B = \frac{(1-a)V(r)}{1-(1+r)^{-n}} \qquad \frac{(1)}{12} \quad \text{where:}$$

r = the annual rate of interest of the mortgage

n = the duration of the mortgage (years)

and i = the rate of interest of the opportunity cost (yearly rate)

and $C = (i)aV\frac{(1)}{12}$.

then $R = C+B = (i)aV+ \quad \frac{(1-a)V(r)}{1-(1+r)-n} \quad \frac{(1)}{12}$

In the case of Lagos, if we assume a = 0.25 i.e. downpayment is equal to 25 percent of the value of the new building), i = 6 percent (the rate of interest of the opportunity cost equal to 6 percent per year), r = 6 1/2 percent (the mortgage interest rate equal to 6 1/2 percent which is the interest demanded from NBS) as if n = 10 years then R = 0.65 percent of V, or the monthly rent of a new dwelling is equal to 0.65 of its value.

If we consider that the real mortgage rate of interest in a country like Nigeria where capital is scarce must be superior to 8 percent and assume that it is equal to 12 percent, then R will be equal to

0.01V or to one percent of the value of the new building. Notice that this percentage corresponds exactly to the rule of thumb which states that monthly rent is equal to one percent of the value of the dwelling. In our study, we will use R = 0.0iV as our transformation function.

The easiest way to do the transformation is to use the method of Contractor-Finance. This is the system used by Nigerians to finance housing development in Victoria Island, South West Ikoyi and other growing areas of the LMA. It involves a building agreement whereby a contractor who has money builds the house for a plot (lot) owner who cannot afford such amount presently. The contractor, usually known in local parlance as the "Senior Landlord" collects rent on the house for a maximum of *five years* after which the house reverts to the original owner of the plot of land known until then as "Junior Landlord."

In enacting the Income Tax Rent Act of 1965, the Federal Government of Nigeria indirectly recognized this method of financing housing especially in Lagos. The Act says in part that "since the contractor who built such houses leased them for a number of years without actually paying any rents to the (original) owner for the number of years required to recover his money, it was thought inequitable to ask the property owner to pay tax on rents on the assumed income not in fact collected.

Hence, the Act allowed "the owner the option of not paying tax in respect of the assumed rent for a maximum of five years. Where this option was exercised, at the end of five years, no capital allowances would be claimed thereafter. The Federal Government has decided to make

the law applicable throughout the Federation so that other urban areas outside of Lagos can be developed through contractor finance facilities."[3]

The values of the houses applied in Table 32 were based on this contractor finance practice. If cost of houses are usually recovered in five years time, this will mean sixty monthly payments. If the monthly payments are taken as monthly rents payable on the house, the cost of the house will approximately equal sixty monthly rents or payments.

---

[3]Alhaji Shehu Shagari briefing the Press on the 1975/76 Federal Budget, News from Information Division, Nigerian Consulate-General New York, Vol. 4 No. 2 (April 1975), pp. 5-6.

APPENDIX D

TABLE ON COMPREHENSIVE PROJECTIONS OF POPULATION, HOUSING STOCK AND INFRASTRUCTURE IN THE LMA

APPENDIX D

Table D-1.--Comprehensive Projections of Population, Housing Stock and Infrastructure in the LMA.

Year	Total Population	Total No. of House Holds	Existing Housing Stock	Domestic Water Per Capita (lpcd)	Completed New Buildings	Domestic Electricity KWH
1966	1,205,361	241,072	45,000	63.5	1,616	156,718
1967	1,161,219	242,243	46,929	67.7	1,091	154,304
1968	1,210,635	242,127	48,051	66.7	1,124	163,372
1969	1,259,060	251,812	49,380	67.7	1,329	205,291
1970	1,405,701	281,140	50,791	72.7	1,411	281,066
1971	1,461,928	292,385	52,144	79.5	1,353	354,878
1972	1,520,967	304,193	53,358	85.0	1,214	356,373
1973	1,581,412	316,282	54,638	87.7	1,280	409,532
1974	1,644,669	328,933	56,041	88.6	1,403	478,843
1975	1,710,455	342,091	57,238	98.1	1,197	548,813
			Projected by Author			
1976	1,778,873	355,774	58,412	113.6	1,774	637,045
1977	1,850,028	370,005	59,547	143.2	1,135	738,049
1978	1,924,029	384,805	60,952	145.4	1,405	853,495
1979	2,000,990	400,198	62,462	147.7	1,510	985,259
1980	2,081,029	416,205	64,557	150.0	2,095	1,135,418
1981	2,164,270	432,854	66,325	159.1	1,768	1,306,328
1982	2,250,840	450,168	68,328	159.1	2,003	1,500,595
1983	2,340,874	468,174	70,117	163.6	1,789	1,721,107
1984	2,434,509	486,901	72,037	163.6	1,920	1,971,123
1985	2,531,889	506,377	74,333	181.8	2,296	2,191,623

APPENDIX E

TABLE ON PRICES OF SELECTED BUILDING MATERIALS

Table E-1.--Prices of Selected Building Materials--1962, 1967, 1972, and 1975 (in ₦).

Materials	1962	1967	1972	1975	Percentage Increase 1962-1967	Percentage Increase 1962-1972	Percentage Increase 1972-1975
Cement per ton	23.00	25.00	50.00	120.00	8.69	117.00	140.00
Water closet per set	20.00	26.00	41.00	45.00	30.00	105.00	9.76
Roofing Sheet (per bundle)	8.50	10.00	15.00	28.00	17.64	75.47	46.67
Build Sand (Lorry load)	4.00	6.00	7.50	15.00	50.00	85.50	100.00
Gravel (washed)	16.00	20.00	24.00	50.00	25.00	50.00	108.00
Gravel unwashed (per lorry load)	12.00	18.00	20.00	32.00	50.00	66.66	60.00
Asbestos (per sheet 4"/6")	0.45	0.55	0.80	3.00	22.00	77.77	275.00
Iron Rods							
1/2" X 30(112/ton)	180.00	202.00	204.00	380.00	12.22	13.33	86.27
3/8" X 30(119/ton)	158.00	180.00	225.00	380.00	13.98	43.40	68.89
7/8" X 30(36/ton)	150.00	181.50	225.00	360.00	20.59	49.50	60.00
5/8" X 30(36/ton)	158.00	180.00	225.00	360.00	13.92	42.40	60.00
1/4" X 30(36/ton)	158.00	180.00	225.00	360.00	13.92	42.40	60.00
Tiles (per sq. yard)	1.45	1.80	2.10	3.50	24.13	41.37	66.67
Planks							
1" X 12" X 12	1.00	1.50	1.80	5.00	50.00	80.00	177.78

Table E-1.--Continued.

			Planks - Continued				
11/2" X 12" X 12	1.85	2.25	2.26	7.00	21.62	40.54	209.73
2" X 12" X 12	3.00	3.35	3.60	10.00	11.66	20.00	177.78
2" X 6" X 12	1.00	1.25	1.50	4.00	25.00	50.00	166.67
2" X 4" X 12	0.50	0.80	1.00	2.30	60.00	100.00	150.00
2" X 3" X 12	0.35	0.50	0.75	1.50	42.85	114.00	100.00
Pain			Window Lourves (Per Price)				
36 X 6	0.30	0.30	0.40	1.22	0.00	3.33	186.36
30 X 6	0.30	0.35	0.35	1.11	14.00	14.28	217.14
24 X 6	0.25	0.30	0.30	0.89	20.00	20.00	230.00
			Paints (Per Tin)				
Under Coats	3.75	6.00	6.85	9.00	60.00	82.66	31.39
Wood Liner	3.50	3.95	4.87 1/2	7.00	12.85	39.28	43.59
Emulsion (assorted)	4.00	5.75	6.45	8.55	43.75	61.25	32.56
Gloss Paints (assorted)	5.60	6.00	7.45	10.20	10.71	33.03	36.91

Source: "Housing and Inflation in Nigeria" by A. Onibokun and O. Adeniyi, Physical Planning and Development Division, NISER, University of Ibadan (Unpublished Memo. Submitted to the Anti-Inflation Task Force, 1975).

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Aaron, Henry J. Shelter and Subsidies: Who Benefits from Federal Housing Policies? Washington, D.C.: The Brookings Institution, 1972.

Abrams, Charles. Man's Struggle for Shelter in an Urbanizing World. Cambridge, Mass.: M.I.T. Press, 1964.

Baker, Pauline H. Urbanization and Political Change--The Politics of Lagos 1917-1967. Berkeley: University of California Press, 1974.

Beyer, Glenn H. Housing and Society. London: The MacMillan Company, 1972.

Central Planning Office, Federal Ministry of Economic Development. Third National Development Plan 1975-80, Volumes I and II, Lagos, 1974.

Chief Statistician. Urban Consumer Surveys in Nigeria: Report of Inquiries into the Income and Expenditure Patterns of Lower and Middle Income Wage-Earner Households in Lagos 1959-60, Federal Office of Statistics Lagos, 1964.

Dennis, Michael and Fish, Susan. Programs in Search of a Policy, Low Income Housing in Canada. Toronto, Canada: A. M. Hakkert, 554 Spadina Crescent, 1972.

Glass, Ruth and Westergaard J. London's Housing Needs: Statement of Evidence to the Committee on Housing in Greater London, Report No. 5. London: Center for Urban Studies, University College, 1965.

Goodman, William I., ed. Principles and Practice of Urban Planning. Washington, D.C.: International City Managers' Association, 1968.

Grimes, Orville, F., Jr. Housing For Low-Income Urban Families--Economic Planning in the Developing World. Baltimore: The John Hopkins University Press, 1976.

Harris, W. D. and Hosse A. Hans and Associates. Housing in Honduras. Washington, D.C.: Pan American Union, General Secretariat, Organization of American States, 1964.

International Federation for Housing and Planning. The Future Goals for Social Housing During the Nineteen Seventies and Eighties. The Netherlands: A Report of a Seminar held in The Hague, 1974.

Mandelker, Daniel R., ed. Housing In America: Problems and Perspectives. Indianapolis: The Bobbs-Merril Company, Inc., 1973.

Marris, Peter. Family and Social Change in an African City. A study of rehousing in Lagos. Evanston, Illinois: Northwestern University Press, 1962.

Meyerson, Martin, ed. Housing, People and Cities. New York: McGraw-Hill Book Company, Inc., 1962.

Musil, Jiri. Housing Needs and Policy in Great Britain and Czechoslovakia. Edinburgh: Oliver and Boyd, Ltd., 1966.

Needleman, Lionel. The Economics of Housing. London: Staples Press, 1965.

Wheaton, Wilham, L. C. Urban Housing. New York: The Free Press, 1966.

World Bank. Housing Sector Policy Paper, May 1975.

United Nations Publications

Compandium of Housing Statistics, ST/STA/OSERN/1 1971.

Department of Economic and Social Affairs. An Economic Framework for Investment Planning in Housing and Urban Infrastructure. New York, 1973, ST/ECA/186.

Economic Commission for Europe. Housing Requirements and Demand: Current Methods of Assessment and Problems of Estimation, ST/ECE/HBP/46, Geneva, 1973.

_____. The Housing Situation and Perspectives for Long-Term Housing Requirements in European Countries, Geneva, 1968.

Koenigsberger, Otto, et al. Metropolitan Lagos, a report submitted to the Ministry of Lagos Affairs, New York, 1964.

Methods for Establishing Targets and Standards for Housing and Environmental Development, U.N. New York, E/C.6/31, 1965.

Report of the Seminar on Housing Statistics and Programmes for Africa. Copenhagen, Denmark, E/CN 14/CAS.5/16/RC.C1, New York, 1968.

Social Indicators for Housing and Urban Development. Report of the Ad Hoc Group of Experts, Dublin, Ireland, ST/ECA/173, New York, 1973.

U.N., Economic and Social Council. Finance for Housing and Community Facilities in Developing Countries, New York, 1968.

_____. World Housing Conditions and Estimated Housing Requirements, New York, 1965.

_____. Statistical Indicators for Housing Conditions, New York, 1962.

U.N. Meeting of Experts, Feb. 7-21, 1962, Working Paper 4, The Role of Housing and Urban Development in National Development Programs, New York, 1962.

U.N. Economic and Social Council, Committee on Housing, Building and Planning, World Housing Survey: Report of the Secretary General, E/C.6/129, September 1973.

Articles, Monographs and Reports

Adeniyi, E. O. Housing in Nigeria National Development. The Nigerian Journal of Economic and Social Studies. Volume XIV, No. 3.

Department of HUD, Division of International Affairs, Housing in Nigeria, June 1967.

Donnison, D. V. Research and Policy in Housing: Current Development Britain, Review Article. Journal of the American Institute of Planners, March 1976, p. 123.

Freedman, Leonard. Public Housing: The Politics of Poverty. Book Notes by Jerome Rose. Journal of the American Institute of Planners, Vol. 36, No. 3, p. 212.

Green, Leslie. Lagos State: Population Models for National and Regional Planning, 1952-67. Nigerian Institute for Social and Economic Research, Interim Report No. 3, May 1969.

Human Resources Research Unit, Some Aspects of Population and Housing Conditions in Lagos, Research Project #2, University of Lagos, 1974.

Koenigsberger, Otto, et al. Infrastructure Problems of the Cities of the Developing Countries. International Urbanization Survey, Ford Foundation, 1971.

_____. Housing in the National Development: An Example from Nigeria. Ekistics, 180 (November 1970), pp. 393-397.

Lawal, M. I. Estimating Housing Needs: Standards, Priorities and Needs in Metropolitan Lagos, Nigeria. Unpublished and undated.

Lucas, David. Some Aspects of Marriage, Fertility and Migration Among Women in Lagos. Human Resources Research Unit, Research Project #3, University of Lagos, July 1974.

Lozano, Edwards. Housing Costs and Alternative Cost Reducing Policies. Technical Report, Journal of the American Institute of Planners, May 1972, p. 176.

Morgan, Robert W. and Kannisto, Vaino. A Population Dynamics Survey in Lagos, Nigeria. Social Science and Medicine, Pergamon Press Volume 7, pp. 1-30, Great Britain, 1973.

Muench, Louis H. and Carolyn. Planning and Anti-Planning in Nigeria: Lagos and Ibadan. Journal of the American Institute of Planners, November 1968, pp. 374-381.

Onibokun, G. A. Housing Finance in Nigeria: A Critical Survey Private and Public Sources. Town Planning Review, Vol. 42, No. 3 (July 1971), pp. 277-292.

_____. A Critical Review of the Nigerian Government Housing Policy and Programs, Paper read at the 2nd International Conference on Housing, University of Ibadan, Ibadan, 1975.

Onyema, Ugochukwu. Rent, Changes that only millionaires can afford. Business Times, Vol. 1, No. 24 (March 9, 1976), p. 12.

Preston, Martin. Aggregate Housing Demand: Test Model, Southern California, Land Economics, Vol. XLII, No. 4 (Nov. 1966), pp. 503-513.

Printing Division, Federal Ministry of Information, First Report of the Anti-Inflation Task Force, Lagos, Oct. 1, 1975, and Government views on it, Dec. 1975.

Strassmann, W. P. Housing Strategy in Developing Countries: Costs and Simulated Consequences. Unpublished monograph.

_____. Optimal Programming with Housing Stock-User Matrix Projections. Paper prepared for the U.N. Conference on Human Settlements, Habitat Forum, Vancouver, Canada, 1976.

Turner, John C. Barriers and Channels for Housing Development in Modernizing Countries. JAIP, Vol. 33, No. 3 (May 1967), pp. 167-180.

Teodoro, Rosso. How Brazil Finances Social Housing. Build International, May 1970, pp. 130-136.

Tri-County Regional Planning Commission: Housing Market Analysis: Tri-County Region of Michigan, Continuing Study, March 1973.

White, Harrison C. Multipliers, Vacancy Chains and Filtering in Housing, JAIP, Vol. 37, No. 2 (March 1971).

William Bruggerman, et al. Multiple Housing Programs and Urban Housing Policy. JAIP, Research Report, May 1972, p. 160.

General References

Chapin, F. Stuart, Jr. Urban Land Use Planning, 2nd ed. Urbana: University of Illinois Press, 1965.

Dietrich, Bernard H. and Henderson, J. M. Urban Water Supply Conditions and Needs in 75 Developing Countries. Public Health Papers, No. 23, WHO, Geneva, 1963.

Duncan, Beverly and Houser, Phillip M. Housing a Metropolis--Chicago. Illinois: The Free Press of Glencoe, 1961.

Droyer, D. J. People and Housing in Third World Cities, Perspectives on the Problem of Spontaneous Settlements. Longman, London, 1975.

Frank de Leeur. The Demand for Housing: A Review of Cross-Section Evidence. Review of Economics and Statistics, Feb. 1971, pp. 1-11.

Fried, Joseph P. Housing Crisis, U.S.A. Baltimore: Penguim Books Inc., 1971.

Lagos State Development and Property Corporation. Preliminary Sketch Master Plan, Lagos Metropolitan Area, 1965-1985, Lagos, Nigeria, 1965.

Lagos City Council. Building Bye-Laws and Regulations. Extracts from the Lagos Local Government Bye-Laws.

Mabogunje, Akin L. Urbanization in Nigeria, University of Lond. Press, Ltd. 1968.

Nigerian Building Society. Reports and Accounts, 1973-75.

Onokerhoraye, Andrew G. The Pattern of Housing, Benin, Nigeria, Ekistics, Vol. 41, No. 242, pp. 55-59.

Williams, Babatunde and Walsh, Annmarie. Urban Government for Metropolitan Lagos, Frederich Praeger Publishers, New York, 1968.

Whittick, Arnold, ed. in chief. Encyclopedia of Urban Planning. New York: McGraw-Hill Book Company, 1974.

Unpublished Theses

Achunine, Obi B. "Urbanization Needs and Physical Planning Policies for Nigeria." Unpublished Masters Thesis submitted to Michigan State University, 1974.

Ferchiou, Ridha. "New Construction, Subsidies and Filtering of Dwellings in Tunisia: A Vacancy Chain and Linear Programming Analysis." Unpublished Ph.D. dissertation, Michigan State University, 1975.