

DEVELOPMENT OF A NEW URBAN HOUSING ESTATE ABUJA

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DECLARATION

I, EDEKE, Nduonomo of the Department of Architecture, School of Environmental Technology, Federal University of Technology, Minna, hereby declare that this thesis is an authentic research work conducted by me under the supervision of Dr. G. C. Nsude. This work has not been presented either wholly or partly for any degree elsewhere. All references are dully acknowledged.

CERTIFICATION

This thesis entitled "Development of a new Urban Housing Estate Abuja", by Edeke Nduonomo, meets the regulation governing the award of the degree of Master of Technology in Architecture of Federal University of Technology, Minna, and is approved for its contribution to knowledge and literary presentation.

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Date

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External Examiner

Date

DEDICATION

This thesis is whole heartedly dedicated to ~~my~~ Almighty God who has guided me throughout my studies and provided my everyday need according to his riches in glory through His Most Excellent Son Christ Jesus in the power of His Holy Spirit.

Blessed be the name of the Lord. Jehovah Jireh.

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ABSTRACT

"Housing to me is a concentrated expression of the function, the form and the aesthetics of the house as a unit, its combination and interrelationship as a complex and the environment of which both are a part; in relation to a given economic and socio-cultural setting."

- Arch Dr. Chukwuali, C B.

"The term housing refers to more than just a dwelling. it also includes all that is within the dwelling and all that surrounds the dwelling. Housing is the creation of a special environment in which people live and grow."

- Clois E & Joan C Kicklighter.

"the environment in human settlement is determined by a variety of factors social, functional, spatial - but the most immediate inescapable and profound influences are social influences exercised in the first instance in the home. Here, the family survives as a biological unit, with the hope of adequate income, diet, shelter, and privacy in accordance with the world's vast

variety of climates and cultures. Here citizens receive their first educational formation. Here they learn - or do not learn - love, security and the sense of how to live with other human beings. The house is the care, the central place, then starting point of all life in human settlements, in short human life itself."

- Barbara Ward.

The fact that dwellings renders a bundle of services holds as a universal proposition, but the mix of services and importance attached by occupants to each of them widely among nations, within nations as well as within even the very household care.

Howevrr, there exist a common denominator that connotes housing as a sense of community whose prime function is to create a satisfying special environment that could be seen as a series of relationships between things and other things, things and people and between people and other people. An orderly and multi-leveled spatial social relationship dependent upon a proper articulation of the adjacent levels of heirarchy to develop a sense of place and therefore enhances communion.

Thus, people and housing are inseparable and it could therefore be held that owning a house is an inalienable right of a citizen; regardless the socio-economic or socio-cultural class or groupings of citizens.

The thesis generally attempts to solve the housing problem in a new Urban Centre with a bias for the low income group by providing affordable houses with a conceptual frame work that takes into consignment the present socio-economic factors of the society, the socio-cultural preferences and prejudices as vital design factors for the Urban dwellers (low income earners). It goes further to propose a growth principle that affects each housing unit as individuals, and the total environmental layout.

The thesis proposed a development scheme, whose onus lies much more with the dwellers rather than bureaucrats, in order to achieve the desired implementation results. The estate development scheme consisting of integrated estate layout, community hall, recreation centre, Day Care/Nursery School, office complex, shops and housing which reflects traditional and contemporary Architectures.

EPIGRAPH

"The Architect must be more closely associated with the total process of socio-economic and cultural changes, the changing pattern of the way of life of the people and the attempt to improve their human physical environments."

- R L Barolay.

"The ideal is within thyself, thy condition is but the stuff thou art to shape that same ideal out of."

- F L Wright.

"...the house, the shell which fits man's back looks inward to the family and outward to the society and its organisation should reflect this duality of orientation."

- Allison and Peter Smithson.

"What should we believe is what we have perceived, experienced, thought, proved and calculated for ourselves."

- Marcel Brever.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The problem of housing in Nigeria, particularly in the Urban centres, have had their solutions centred on short term programmes and technical issues. Also they have been characterised by the often lack of regard for the varied socio-economic and socio-cultural ^{categories} ~~characteristics~~ of the Urban population as basic essential parameters of functional organization of the immediate environment; emphasising more on demographic trend.

However, population changes alone do not create pressure in the housing market. It is the nature of household changes which can indicate how new housing provision should respond to the aspirations of consumers. Household are basic units seeking accommodation. The number and type are determined by the composition of the population, pattern of marriage, separation and

divorce, and the economic and social factors which under pin these.

This shows the enormous and complex nature of house problems in Nigeria, and they also exhibit apparent and marked regional differences. In most of our urban centres, the problem is not only restricted to quantity but also to the poor quality of available housing units and the environment. The result is manifest in growing overcrowding in home and increasing pressure on infrastructure facilities and rapidly deteriorating environment. The scenerio is further complicated with the realization that there is ominance of the poor and low income group within the urban and rural areas. An estimation of over seventy percent of the country's population is given to fall within this category; and from available statistics, the magnitude of the housing problem in the urban areas of the country is such that five million new housing units will be required to meet existing and future need up to the tear 2000 AD ie., a production of about 600,000 housing units per annum.

researched into in order to attain a more practical solution. In this light, the development of New Housing Estate for Abuja is expected to serve as a research and documentation of urban housing problems view from Architectural perspective. It also puts forward proposals for a housing system which is based on the reality of the social circumstances of the low-income group; that is characterised by a potential to grow in response to social needs, and as well disintegrate yet maintaining its unity.

1.2 PROBLEM DEFINITION

Prior to the December 12th, 1991, official movement of the Federal Seat of Government from Lagos to Abuja, a huge housing problem phenomena had already seem to entrench itself into the city, whose process of citofreation had begun as far back as the new Federal Capital City (NFCC).

The barely existing infrastructure on ground then could not cope with the massive and sudden influx of mostly, rural-urban and urban-urban migrant workers. Most of these workers if not all were in the construction industry their primary aim or concern was with the financial rewards and they were content with just having

anything - roof over their heads regardless of location or environmental health. This resulted in the satellite town of Suleja which actually first experience the migration effect to attain one of the most haphazard urban developments of recent time which has left the town as a slum city up till today and is still expanding as a slum city.

This phenomena was spatually transfered to even the planned labor camps now turned into satellite towns of Nyanya and Karu; characterized by poorly constructed houses, lack of drainage and lack of water and light services - which were later installed almost three to five years after without the upgrading of the already abused environment.

Village settlements of Karmo, Gwagwa and Garki also followed suite; all these within the fringes of the city. Yet with even thses, informal developments at their unprecedented pace, not only is there still a housing supply shortfall but also a quality one too - even within the city itself despite efforts of development control - particularly in the formal sector (public housing).

Thus, the December 12th enmass movement of so many ministries, parastatals, commissions and other supporting services and their staff and kinship groups only compounded the already painful housing problems of Abuja.

Though renewed efforts have been made to tackled the problems, the production/or delivery rate of housing is still very slow even with massive government support. This has not been helped by difficult process of acquiring services, land and the high cost of building materials and also the rather extreme highly cost of living within the city. The exorbitant rent charged by private developers and property owners and even staff aloocated free of charge to quarters and the recent submissions by some senior officials of ministries, that is no longer viable for government to house all thier staff clearly brings home the problem.

Mass housing scheme such as the short term programme to accommodate participants of the Organization of African Unity (OAU) and ECOWAS summits were all taken over within twenty-four hours after summits ended. Central Bank staff quarters and

development in Maitam and Asokoro Districts regrettably are meant to favor mostly the upper income class and perhaps lucky middle-income groups; leaving the problem barely scratched and more influx of population is experienced daily as to make nonsense of the populations pattern and phasal movement/development envisaged in the masterplan of the city, whose success in the eyes of its residents will be judged on the basis of the quality of the residential environment.

Today the vast majority of the city populations are tenants-two-three households crowded together into a unit specifically designed for a single household and often paying rents and suffering in most unrepairable social and psychological damage and causing over use on the now intermittent services and overcrowding.

Though housing is the largest consumer of land, and the major element of the cost of Abuja, one wonders how come this housing problem at such a scale.

Hence, the focus of this thesis is then on the development of an exemplary housing system for Abuja that achieves a

satisfactory balance between residential and commercial uses. A housing system that is affordable by the low income and can be delivered to them quickly - as quick as they themselves would determine.

1.3 AIMS AND OBJECTIVES

Researches are born out of the desire to know, experience, discover or verify the known or the unknown with the purpose of achieving a desired goal(s); the following were sought to be determined amongst other aims and objectives;

- A type of environmental conditions for habitation by various categories of persons particularly the low income in a functional and harmous environment which will also be socially gratifying to the inhabitants;

- A type of housing which is very much affordable by its dwellers by using the growth principle;

- To enhance a blend of architecture that has a true socio-cultural basis using the principles of architectural design and sustained by both the site and effective citizen

participation;

- To enhance the mixed use of all possible types of relatively low cost building materials particularly local building materials either by improvements or selected uses, maintenance;
- To blend traditional and urban with the national landscape (within modern developmental concepts) to maintain and even enhance the urban-rural links without the destroying the environment.

1.4 RESEARCH METHODOLOGY

To accomplish the aims of this thesis, the study makes use of both primary and secondary data.

The primary source involves the direct investigation, measurement of existing housing estates in terms of number and types of housing provided, layout concept, relation to the total environment. While the secondary source involves publication, official statistical records, and journals.

The second major source of data was got from the Federal Ministry of Works and Housing, Federal Ministry of Federal Capital

Territory, in terms of standard acquisition and base plans/site location.

Third source of information was from personal observation/oral interviews with various estate development personnel, particularly, the private estate developer within the Federal Capital Territory, Abuja.

1.5 SCOPE OF STUDY

The scope of study is restricted to field work on existing planning structure of the city as laid down by the Abuja Master Plan; existing data analysis and also on the recommendations of the New National Housing Policy. The design proposals which applies the growth factor/principle would also form a frame work for the scope of this study.

A dual approach is used. This first being the theoretical presentation of thesis, while the other is made up of the practical representation of the project in terms of detail drawings, skeletons, perspectives and model presentations.

CHAPTER TWO

2.1 PHYSICAL AND SOCIO-CULTURAL BACKGROUND

Abuja, land of starkly dramatic hills jotting skywards like many fingers pointing to the heavens is 250sq Km, Capital City in the North Eastern fringes of the 8,000sq Km between longitude 6o 47.5" to 7o 20" E and latitude 8o 30" to 9o 15" N, ie, approxiamtely at the centre of the country on the Gwagwa plains. Simply, the area is bounded on the northwest and west by Niger State, on the South by Kogi State, north by Kaduna and east and south by Plateau State.

The territory consists mainly of virgin land dotted with settlements. Ethnically, it is composed of Gwari (64.9%), Koro (8.3%), Gwandara (7.9%), Gada (6.5%), Hausa (4.9%), Fulani (4.6%) and other groups totalling 2.9%. These today are mostly refeered to as the original settlers who make up majority population in the four area councils of the territory while the residents (new settlers) dominate the city (ie, the fifth area council reffered to as the Municipality). However, the philosophy of the

establishment of the new city lies as promised by the Late General Murtala Mohammed, an area that is not within the control of any ethnic group in the country, a virgin land, for all Nigerians, a symbol of oneness and unity!

Abuja presently has a total population of about Abuja is expected to acquire a new political structure which would be reflected by the amended basic constitution and transitional provision decree of 1990 such as to allow the Abuja Municipality Council to consist of an elected Mayor, deputy Mayors, supervisors and secretary to the Municipal government, which is an autonomous entity relating directly to the Federal government. The council's four areas shall be split in forty ward (ten per ward) from which councillors shall be elected from the two political parties. The territory would have one senator and four elected.

The political status and administration according to President Ibrahim Babangida would be in such a manner as to avoid the political, constitutional and administrative confusion which had been part of the problems of Lagos.

The current development is concentrated on the phase one

(250,000sq m) which is virtually completed with infrastructure at 90 percent. However, this development has been visibly showed in foavour of public sector projects with the lack of private sector, participation in the scheme, although all 7,000 residential plots set aside for the private sector under the phase 1 has been fully committed. The phase II is intended to commence very soon, possibly early 1993.

The phase II is expected to offer a considerably larger proportion of plots for housing under the twelve districts which include Katampe, Mbushi, Utako, Wuye and Durumi Districts. Plots to be provided are likely to comprise between seven hundred to one thousand plots per district.

However, planning activity in the satellite towns some of which are also being re-planned under the master plan scheme are being sped up.

Abuja is yet to pick up a defined character in the commerce and economic sector. Presently, it is a haven for construction companies and supporting industries. The public work is still the most visible economic activity and government the largest spender.

The population distribution within the territory has evolved a network of high density satellite towns surrounding the low-density city centre. Hence, the bulk of workers within the FCT commune from these towns over distances ranging from fifteen to seventy five kilometres to work in the city centre every day. The implication is the dominance of the mass transit mode of transportation which as of now is dominated by the private sector. Supplemented by ministerial staff busses all plying an efficient road network system in the territory.

2.2 CLIMATE

A comfortable living environment will depend on maximazing the aspects of the environment which would reduce heat and the effects of humidity and protect from rain and dust. Hence, the analysis and understaning of the climates parameters of a proposed area of development is essential and are discussed belowl;

* TEMPERATURE - HUMIDITY

Net radiation is in human terms felt as air temperature, the response to which is influenced greatly by the humidity conditions

of the air. Abuja has its highest temperatures recorded during the dry season, a season of cloudlessness. Daily temperature changes between 15 ° to 20 ° C are recorded between the highest and lowest temperature.

However, during the rainy season, the maximum temperature is lower due to the dense cloud cover and also the diurnal annual range is also much lower, recording about 7° C in July and August.

In the dry season, relative humidity which greatly affects human sensitivity to temperature, falls as low as twenty percent in the afternoon in Abuja. Such low relative humidity with high afternoon temperature are known to account for the desiccating effects of the dry season. The relative humidity is much higher in the rainy season, with the morning hours reading as high as 95 percent. The temperature is slightly lower, the effect is to create a heat trap that for a hot environment and only the southerly flow predominates and being moisture laden, it brings a lot of rain. In September, the tropical continental begins and dominates from October to March bringing with it dry, cloudless but dust laden conditions associated with the harmattan.

The days are quite hot but cloudlessness means that at night there is considerable loss of heat radiation from the earth. The temperature drops sharply to about dewpoint, giving rise to early morning temperature inversions and early fog/mist. Settling dust particles now have the effect of reducing visibility to a few hundred metres. With daylight, renewed insolation clears the fog though the dust particles continue to float in air or settle as thin film over objects both static and kinetic.

* SUN INSULATION AND CLOUD COVER

Abuja is exposed to 2,500 sunshine hours annually (Mabogunje 1977). During the dry months (November - March), the monthly variation in the amount of sunshine follows the general trend of an increase from over 275 hours. As the wet season approaches, the trend is to increase cloudiness. The sunshine hours decline intensively and reaches its lowest values in August.

* RAINFALL

The raining season starts in MARCH/April and tpaers off rapidly in October, giving a duration of 200 days. The mean monthly distribution shows a tendency to concentrate in about fout months with about 60 percent of annual rainfall in the months of July, August and September. This concentration shows the need for drainage system that would handle large volumes of water very quickly.

The rainfall is characterised by dense, dark, cumulonimbus clouds with lightening and thunder, followed by strong winds and intense rainfall that lasts up to two hours and followed by several hours of drizzle. These are most common in the afternoons at the begining and ends of rainy season, and after results in serious property damge particularly roof elements of houses.

Also present are orographic rainfall systems generated by the presence of indelbergs.

terrain interlaced by riverine depressions. The length variation from crest Hill to water course varies around 50 metres, more or less, producing in the immediate of some on the ground, short views of less than a wale and these views are further shortened by the typical park savanna vegetation.

2.4 VEGETATION

Generally, the vegetation of Abuja is characterised by park savanna. Riverine depressions are typically skirted by fringes of thickets and high trees, with occasional ^{patches} patelness of forest or heavily wooded areas.

Park savanna is typically a stratified community with a discontinuous canopy, shrub and grass layer. These tree straterm is less dense than that of the savanna wood-land, but more substantial than the shrub savanna.

Shrub savanna vegetation occurs on platter plains and undulating terrain. It consists primarily of shrub vegetation with a well developed grass layer and a few scattered emergent trees. Human use and fire plays an important role in removal of

vegetation cover.

Patches of rain forest are scattered in a few locations within the plains and interfluves at the foot area of rocky hills, and in deep river valleys. Tall evergreen canopy trees dominate the community.

CHAPTER THREE

HOUSING POLICIES AND IMPLEMENTATION

3.1 INTRODUCTION

Looking at the backlog of the rather colossal amount the Federal Government has invested into housing provision, N10 million in 1962, N49 million in 1970, more than N1 billion in 1973 and about N2.7 billion in 1979, one cannot help but be appalled that almost next to nothing has been achieved as the results have been very marginal in fact negligible.

There was nothing like a master plan, or at least site plan for the programme, the programme did not take into consideration the socio-cultural behaviour of the people. Though designed to grow with the growth in the housing vains, most could not attain that growth physically on the ground because no adequate provisions were made for such during setting out resulting in a substantial percentage of the housing stock still occupied at all (Suleja Low Cost Programme), while some have been totally vandalised and abandoned.

It becomes essential thus that the understanding of all these past policies and their merits and demerits are fully appreciated before evolving new schemes.

3.2 REVIEW OF PAST POLICIES PROGRAMMES

Discussing the problems of housing in Nigeria which are enormous and complex exhibiting apparent and marked regional differences, one cannot but go into the history of Nigeria independence. It is on record that housing problems in most of the urban centres is not only restricted to quantity but also the poor quality available housing units and the environment. This is manifested in the growing overcrowding in homes and increasing pressure on infrastructural facilities and rapidly deteriorating environment.

Most housing is immobile, of course, the demand is localised and its utility depends on local services. It becomes a valueless resource if the demand shifts away geographically, as in the case of rural dwelling units vacated by migrants to cities.

The rural areas exhibit low quality of housing and inadequacy of infrastructural facilities like road, drainage, water supply and power supply. However, the most important characteristics of both the urban and rural sources is the dominance of poor and low income group. It has been estimated that they consisted seventy percent of the country's population. Looking at the history of Nigeria in terms of providing adequate solution to housing problems one could see the inadequacies of solutions provided both by the public and private sectors as the problems still persist.

Efforts to alleviate the problems of housing in Nigeria could be dated back to the establishment of the Nigeria Building Society (NBS) in 1965 to provide mortgage loans to Nigerians. However, limited financial resources at society's disposal and the poor response of the public to the saving scheme not to achieve much. In the same year, the colonial government established the African Staff Housing Fund (ASHF) principally to encourage African Civil Servants to own their own houses plus other regional government Housing Corporations establishments. Though these

corporations were unable to extend their services to the low income group, they formed the nucleus of modern housing estates in Nigeria.

Perhaps the first significant attempt by government to intervene positively in the area of housing was the establishment of the National Council on Housing in 1971, this leads to the establishment of a National Housing Programme during the second National Development Plan period under which the Federal government through an enabling decree intended to construct 59,000 dwelling units. Also in the same year, the African Staff Housing Scheme ASHS functions were taken over by a newly established staff housing board for the purposes of granting loans to civil servants to enable them build or purchase their own houses.

However, in 1973, the Federal Housing Authority was created to coordinate a nationwide programme. But the most significant intervention of the Federal government in the housing sector was under the third National Development Plan (1975 - 1980) when it decided to participate directly and actively in the provision of housing rather than leaving it principally to the private sector.

This involved the construction of 202,000 dwelling units nationwide. However, poor implementation allowed for a less than 15 percent of the houses to be completed.

in 1975, in order to fully solve the housing problem in Nigeria, a new Federal Ministry of Housing, Urban Development and Environment was created with the responsibility of initiating and coordinating the policies in housing related areas. This led to the formation of five committees to deal with problems of housing and housing delivery in the country.

These Committees are:-

- (i) the committee on the standardization of houses types and policies and its recommendation resulted in the acceptance of low income housing concepts and strategies of the World Bank;
- (ii) the Anti-inflation task force (1976) to examine among other things the current inflationary trend in the country and their causes;
- (iii) Rent panel (1976) to review the structure and level of rent in the country, their recommendations resulted in the

establishment of State Rent Tribunals which have been very ineffective in controlling rents.

(iv) the land use (1977) to examine the various tenure and land ownership systems in the country. The recommendations led to the promulgation of land use decree, a major step in land reform arrived at making land readily available for development;

(v) the NBS was converted to the Federal Mortgage Bank of Nigeria (FMBN) (1976) the impact of the FMBN during the period was not very significant and most of its loan went principally to the middle and high income groups.

In 1980, the National Housing Programme was embarked upon based on the concept of affordability and citizen participation due to the deficit of urban housing as well as its continuous deterioration in the rural areas by the incoming civilian administration. The target group was the low income earners whose annual income did not exceed N5, 000 for 1 bedroom coned houses and also the medium income group with annual income not exceeding N8,000 for 3 bedroom houses. A total of 40,000 units were

constructed annually nation wide of which 80 percent was earmarked for the income earners. By June 1983, only 20 percent overall achievement in terms of completion had been attained the second phase was also commenced midway through implementation, comprising 20,000 units of 2 bedroom cone houses also for low income group. This phase failed to take off in most states.

Then in 1980-85 fourth development attempt at the implementation of the National Low-Cost Housing Programme was made. Yet the impact of the programme in the housing sector was negligible. Various reasons have been given for this failure such as the adoption of a single design for the entire country irrespective of the varied cultural and climatic differences, the distribution and chores of rites borne little or no relationship to the effective demand for housing, most states politicised the whole affair leading to deyaed implementation and increased costs of infrastructural development and the issue of "nominated suppliers."

Still the government continue to strive to achieve a break through in the housing sector, setting up the World Bank Assisted

Nigerian States Urban Development Programme (NSUDP).

Despite all attempts by government to tackle the problem of housing in Nigeria, the problem still persists like cancer.

Perhaps, if carefully analysed, one will come to see that the basic reason for failure of policies on housing so far not only lie with the implementation of these policies on housing but the apparent lack of total character or comprehensiveness of such policies, as housing policies depend a great deal on what aspects of housing are in the parview of decision makers in a particular place at a particular time, or what components of the bundle of housing services command their principal attention.

hence, it is more advisable to look at formulating factors of even the new housing policy launced in February 1992 by President Ibrahim Babangida aimed at ensuring that all Nigerians own or have access to decent housing accommodation at affordable cost by the year 2000 AD.

The objective of the policy are;

1. Encourage and promote active participation in housing delivery by all trends of governments;

2. Strengthen institutions within the system to render their operations more responsive to demand;

3. Emphasize housing investments which satisfy basic needs;

4. Encourage greater participation by the private sector in housing development.

The policy provides also functions to be performed by the Federal, State, and Local governments. Here, the Federal government shall initiate, define and coordinate the policy options and the instruments for achieving the objectives in the housing sector, the Federal government shall also formulate policy to coordinate, construct and monitor housing programmes. The actual implementation shall be undertaken by appropriate agencies of Federal, State and Local government levels.

The state governments are to formulate their housing policies and programmes in line with the overall National Housing policy. The Local governments are to provide;

- (i) residential layout for low income housing through local planning authorities within its areas of jurisdiction;
- (ii) assist in the formation of housing cooperations;

- (iii) provide infrastructure through loans from the infrastructural Development Fund;
- (iv) maintain urban and rural infrastructure and be responsible for environment sanitation;
- (v) determine the housing needs of the rural population and
- (vi) upgrade the existing residential areas in collaboration with state governments.

The policy also provides for the re-organization of the FMBN as a sole institution at the Federal level for encouraging the flow of funds from the various sources to the housing industry. Accordingly, a two-tier financial institution, with the bank as an apex institution and decentralised network of building secretaries, housing cooperatives, housing associations, credit to the grass roots are to be established the policy also identify there annaul areas of resources mobilization. These are;

(i) Voluntary

Government shall encourage individuals to save at lower interest rates and also borrow at the same time low interest rates to build or bury their houses at any given time now or in the future,

introduce appropriate fiscal measures to protect the assets and liabilities of individuals, stabilises individual deposits through contractual savings schemes;

(ii) Mandatory

Scheme makes it compulsory for all workers both in private and public sector earning N3,000 and above to contribute 2.5 percent of their monthly salaries to the National Housing Fund. Also, commercial Banks and Merchant Banks through CBN credit guidelines are to invest 10 percent of their loans and advances in FMBN at the interest rates of 1 percent chargeable on current account. Also, insurance companies are directed to invest a minimum of 20 percent of their non-life funds and 40 percent of their life funds in real estate development of which not less than 50 percent must be channeled through FMBN at interest rate of 4 percent.

(iii) Governmental Budgetary Allocation

Federal, State and Local governments are expected to make direct budgetary allocations of a sum not below 2.5 percent of their revenue to the housing scheme.

With so much being done, to achieve a better housing condition

in Nigeria, a lot of observations are already worried that like other government policies, implementation of the scheme may not be proper and thus lead to the failure of the policy.

Hence, questions are forced out, which are "If the policy do actually fail because of poor implementation, what next?" Since implementation seems to be a or the arrival manifesting factor of the success of housing policies, who should be responsible for the implementation of such policies? Can actual target ie., the populace themselves now become directly responsible for the process of implementation? If yes, how can this be achieved? What are factors if any, that are actually intigating themselves against the proper implementation of housing policies?

Is it reaily implementation or wrong policy formulations that are responsible for this failures? In answering these questions, it seems only logically to understand the housing need/demand and their various types and even perhaps their respective qualities.

3.3 HOUSING NEED

Urbanization as a process has affected and changed so many communities in terms of character, composition and function, even in size. These changes have also drastically affected the housing need quotient of these communities depending on a combination of factors amongst which the new function or status of the centre is one. This is revisited by Abiodun who also observed that the need for housing in Nigerian urban centres have been made greater by the after multi-combination of factors (Abiodun, 1976).

Firstly, there is the fact that the bulk of the houses which are traditional houses available in our urban centres are in dilapidated conditions, secondly, more houses are needed to reduce existing overcrowding, thirdly, natural increase within the urban centres themselves demand additional dwelling units to house the increasing- population, fourthly, there is rural-urban migration which has assumed great proportion during the last decades, despite the efforts of the government at integrated rural development projects.

Thus in response to this great demand for houses unplanned

and sub-standard private housing district continue to emerge in many towns as solutions, thus in turn tend to degenerate into slums (Abiodun, 1976).

It should be re-emphasized here that the need for housing would not be a uniform entity all over but that each urban centre would have to own peculiarities and features which should be closely investigated rather than being discarded as its being done.

It is often these peculiarities and features of these need values that in turn and up affecting or determining the type of housing demanded by each centre even though some say that these features are too salient. It should also be known that the fact that a particular type of housing seems to have a very high demand ratio does not necessarily mean that it is the optimum factors of cost, tenure type, proximity to workstations, security and services could jointly determine the choice of housing type. Even cultural or traditional indications can also affect this choice.

Statistically, urban households live more often in single room dwellings than in any other type of dwelling. In 1980/81, 86

percent of these households lived in single room dwellings, 89 percent in 1984/85. Only a small percentage, 10 percent of households lived in whole buildings in 1980/81, by 1984/85 the percentage of households living in whole buildings had declines steadily to 6 percent. Between 4 percent and 7 percent lived in flats or duplexes in the five-year period.

Like the urban household, but to a lesser extent, a great percentage of rural household live in single room dwellings. Over 95 percent of rural dwellers lived in either single room dwellings or whole buildings. It is common for households to live in duplex, less than 2 percent in any year.

Hence, one can draw a conclusion for this, that the essential ingredient of any housing type for this urban/rural areas must be a singlecore unit. Considering also, housing tenure, one finds that between 1980/81 and 1984/85 at least 1/3 of urban dwellers were paying normal rent. The percentage however declined from 49 percent in 1980/81 to 37 percent in 1983/84 (with a slight rise in 194/85. Owner occupiers account for 32 percent of household, with 34 percent as its highest in 1984. An increasing

percentage of households are living free, 16 percent in 1980/81, rising to 26 percent in 1983/84 with a slight fall to 25.2 percent in 1984/85.

In contrast, most rural dwellers were owner occupier. In 1980/81, the percentage of these owner occupier was 81 percent by 1984, rising to 86 percent only to drop substantially to 74 percent in 1984/85. With the exception of 1984/85 where 13.4 percent of households lived free, generally less than 10 percent of rural households paid nominal rent.

Hence, one is tempted here to conclude that two different policies be enacted to suit the rural and urban centres in terms of tenure. However, when one realises that it is from the rural the urban is born, a second look is given to this issue.

As regards, affordability of housing, it is very evident to from analysis of Nigeria low income households ability to pay for public housing estates. Low income dwelling types, that the capital cost of dwelling types in public housing estate in Nigeria, designed and built for low income households, are so high that the units are beyond the economic reach of most of the low

income households (Awotona, 1987).

And, statistics reveals in recent surveys conducted in Nigeria that 85 percent of public employees and 45.5 percent of the total working population are on salary levels 01 to 06 (Yakubu, 1980; Wahb, 1976).

Hence, for any housing programme or policy to be appropriate and realistic, it must reflect the irregularities between households ability to pay for public housing dwelling units with particular attention being paid to the complex relationship between capital costs of dwelling units, what rents households of varying incomes should be charged as a percentage of the capital cost, and the total annual household incomes of the target population for whom the housing policy is intended.

CHAPTER FOUR

CASE STUDY

4.1 GENERAL SURVEY

A survey on recommendation for the "ideal home" conducted in some state capitals showed different results as summarised below;

LAGOS - Because the accommodation problem is so bad in Lagos, people are glad to have any roof over their heads; here a two bedroom is considered more than adequate for an average dweller. Mass housing or high rise development is clearly acceptable given the very high cost of land, such as to render extras like courtyards as unnecessary luxury. The informal sector constructions outstrops the formal sector and it offers much cheaper rates. Not even the transfer of the Federal Capital away from Lagos has reduced the demand. New commerce compete with residential use on an equal basis.

IBADAN - Here situation is not as acute as in Lagos, and land is not a scarce commodity. The pace of living is slower in Ibadan, and also more leisure time and the time cost of mobility is much less. The kinship ties are still highly respected such as to need courtyard more as it enhances family interaction. The minimum accommodation is regarded here to be a three bedroom apartment and lateral spread (as against vertical) is highly favoured.

ABEOKUTA - Accommodation problems came in with the creation of Ogun state, as a product of the resultant process of certification as the town was upgraded to a state capital. However, the problem is not pronounced yet, with plenty of undeveloped spread and favoured and the minimum accommodation is a three bedroom house.

MINNA - Shares same experience with Abeokuta however, the influx of construction firms into the town and the proximity to new Federal Capital City of Abuja has brought about an unprecedented demand for accommodation.

ABUJA - Prior to the official movement of the Federal government to Abuja, the city had been engulfed by an enormous housing need/demand even to its satellite towns such as Suleja which were and is being overwhelmed by the problems leaving behind an ever expanding deteriorating town scape. This problem has now become almost unspeakable with the final movement to the capital. Such that overawarding of houses have almost become legal practice even up to ministerial levels. Anything house are taken over. All type of spreads are favoured. The city now has one of the highest priced land values in the country and even these have become difficult to obtain except for the very rich. The problems of housing in Abuja gives the impression that the case of Lagos is still a child's play.

Such raised showing of housing problems between locations effects the aims of the case studies chosen and also the terms of analysis. Hence, case studies would only be an attempt to understand and judge the effectiveness in operation of various polveness of housing with emphasis on the following;

- (i) terms of occupancy

- (ii) user's experience
- (iii) peculiarities of the scheme.

4.2 CRITERIA FOR CASE STUDY

Basically, in the choice of cases to be studied, priority was given to schemes which were genuinely within the urban centres.

Secondly, priority was also given to urban centres with high administrative function reason for this was similarity of function to that of the new capital city of Abuja. Also, the high population growth and mobility of such centres was another point of consideration.

The aim of the case study is to use the summary of findings in evaluating a scheme which achieves a design not only for a specific place and for specific users but rather an adaptive scheme that would knit houses together in groups with a sensitivity to site based contextually not only on logic but also on traditional cultural influences.

4.3 OUTLINE OF CASES STUDIED

- (1). Festival town Lagos, Nigeria
- (2). Bodija Housing Estate Ibadan, Nigeria
- (3). Laluz Housing District Albuquerque, New Mexico
- (4). Karmo Associated Estate Abuja, Nigeria
- (5). Nigerian Institute of Architects (NIA) Free Bungalow Designs
- (6). The Nigerian Traditional Family Home.

4.4 CASES STUDIED

- (1) festival Town (Festac) - Lagos

The scheme is a Federal project located in Lagos state, and had a dual objective. A short term one of providing adequate accommodation for the participants and visitors at the second World Festival of Arts and Culture (FESTAC), and a long term one of creating within the national housing programme, a model township in Lagos, to relieve some of the severe housing pressures experienced.

The estate caters for people from all walks of life from the messenger/cleaner category to those of company executive status. The available house topologies corresponds with the varied income

Fig. 4 T1 (Low Income) 4 Storey 1 Bedroom Block of 32 Flats

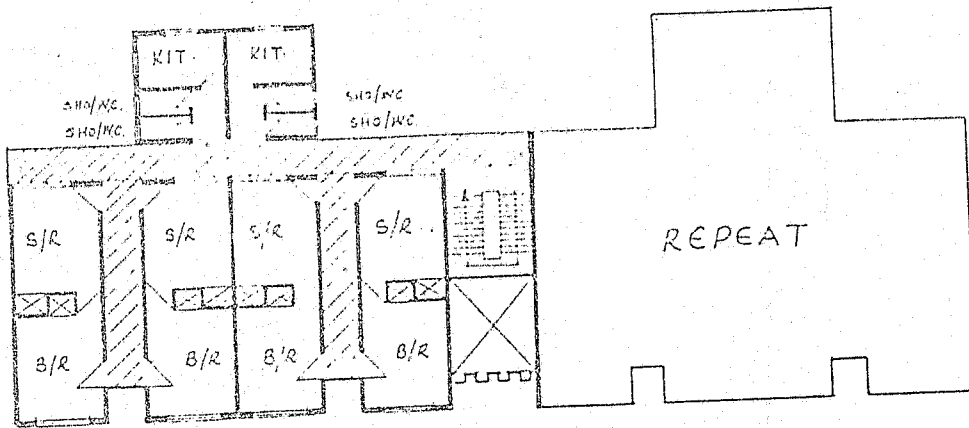
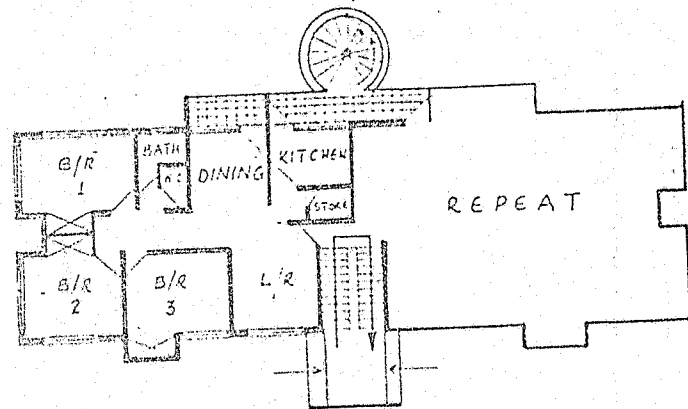


Fig. 5: T6 (Medium Income) 4 Storey Block of 8 Flats



groups, ranging from four-storey blocks of single bedroom flats, to five bedroom detached house with garage and boys quarters.

Houses are occupied on mortgage basis. The cost of the house plus interest is spread over twenty five years, and the prospective owners only come into full, legal ownership at the end of that period (banning default payment).

Appraisals

Despite the general opinion that the scheme is a laudable one, there is a lot of discontent regarding space adequacy. Ironically, the people who need the most space (for their usually extra large families) are the ones who can least afford it, and hence, have to make do with the barest provided by the schemes.

unfortunately too, it is this same low income group that is helpless about doing anything to remedy their situation. On one hand, they they are prevented from seeking alternatives, more spacious accommodation, by financial limitations, on the other hand, they can not expand their present abode, as the nature of their accommodation (a block of flats or a system of row houses), renders this physically impossible. Also, with the higher income

groups, there is a feeling that the scheme would have been enhanced by the inclusion of some more public facilities (like cinema halls, swimming pools, markets etc) , and the practice of adequate maintenance with proper drainage channelization.

There are other problems of socio-cultural nature, the result of trying to bridge the gap between tradition and the pressures of modern (city/urban) living.

However, as a result of the development control exercised by the Federal Housing Authority (FHA), the environment has been protected from degenerating into a slum (as is typical of most third world high density urban developments), all structures to be erected or amended are consored by authority. The master plan is strictly adhered to, giving rise to a development in which built up areas are relieved by open, undeveloped green areas.

The above situation is not what is happening anymore as the master plan is now greatly discarded with open spaces and parking lots now given out as residential plots or areas of developments which has led to the destruction of some service facilities (mostly which are underground).

The Festac town has now begun its own process of degradation not caused by the inhabitants but rather by the very persons who are responsible for avoiding such a state.

(2) Bodija Hosuing Estate - Ibadan

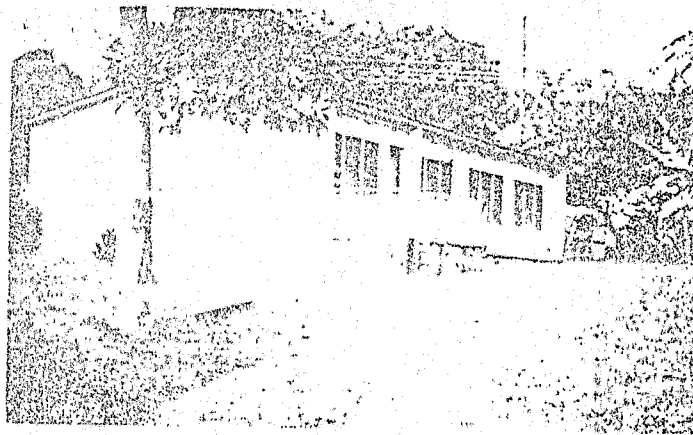
The scheme is a regional/state project locted in Oyo state, in the capital Ibadan the first phase was implemented by the western Housing Corporation (now Property Development Corporation of Oyo State - PDCOS), and constitute most of what is now reffered to as "Old Bojida."

It originally was conceived to provide housing for low/middle income groups but with the recent development of expensive prototypes, and the outright sale of land, the development has resulted in a highly varies architectural and socio-cultural scene.

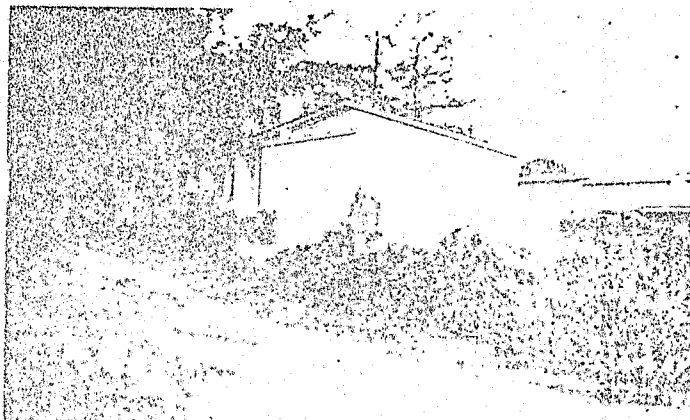
One major characteristics of this development is the generous proportions of land on which each unit was sited: each plot (under the old scheme) was about 30M x 30M.

Corporation - built units allocated in the first phase after

Fig. 6. Case - Study: Bodija Housing Estate

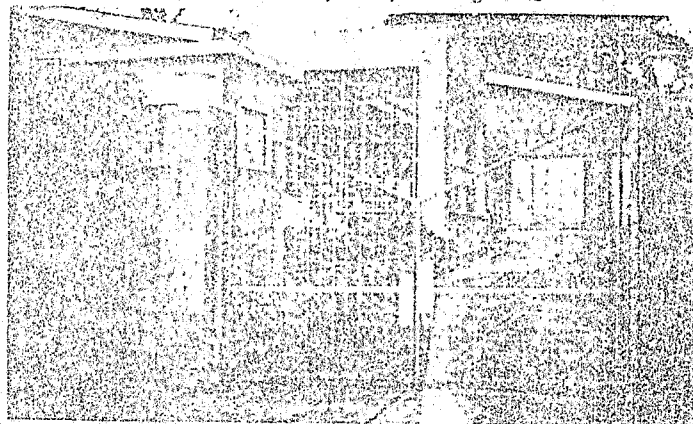


Main facade of a Corporation-built prototype (early '60s model); this particular house has remained virtually untouched by modifications/additions in over 20 years



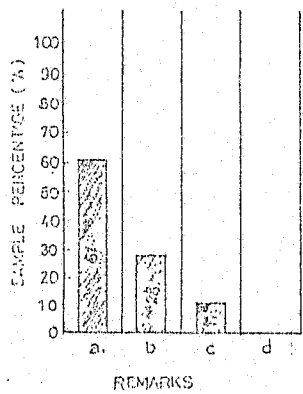
Back view of the same house from the main road (Adeyi Avenue).

Fig. 7. Case - Study: Bodija Housing Estate



A Corporation built prototype ('60s model); the house has been so added on to and generally improved as to be totally unrecognizable from the original

D. EXPANSION



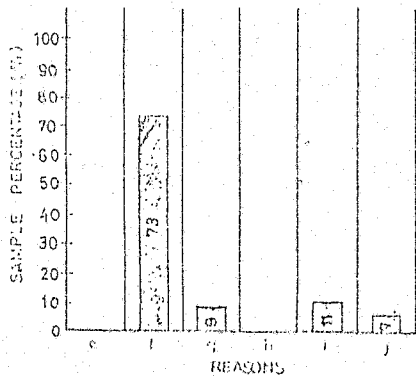
DISTRIBUTION OF INCOME GROUPS

BODIJA: 1963: LOW INCOME	30%
MIDDLE INCOME	55%
HIGH INCOME	15%
1983: LOW INCOME	0%
MIDDLE INCOME	25%
HIGH INCOME	75%

- a - Already effected
- b - Keen, but unable through terms of occupancy/type of design/plot-size
- c - Indifferent/unnecessary
- d - Already implemented illegal modifications

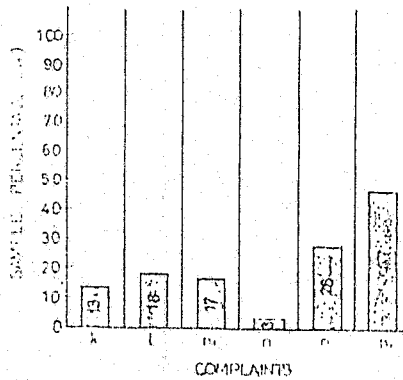
Fig. 2 Distribution of Income Groups

E. ORIGINAL INTEREST IN SCHEME



- e - Desperate for accommodation
- f - Desire to own personal house
- g - Pleasant location
- h - Lower rents
- i - More space afforded
- j - Others

F. MAJOR COMPLAINTS



- k - Inadequacy of space
- l - Poor Workmanship
- m - Poor infra structure
- n - Poor amenities
- o - Poor design
- p - Others/none

Fig. 3 Original interest in scheme and major complaints

a deposit of 50 pounds - in the case of two bedroom bungalow with rest the rest of the payment (a total amount of 1000 pounds spread over fifteen years). The first thus, the occupant became an authorative owner. The first units were ready in 1959.

Apart from the almost uninterrupted flow of both water and electricity, the generally well kept enomoment is such that it is obviously a cut above most other residential localities the country over. Other attributes of the scheme particularly pleasing to the residents include the possibility to adapt one's house to suit one's needs and tastes, and the right to have a say in the management of the estate.

The growth potential entrenched in the size of plots in the old part of the estate has been so taken advantage of in some cases as to have completely transformed the original prototype.

Appraisals

The increased cost of the land which has resulted in the mapping out of "economy plot," is highly regretable as it now cancels out the growth potential concepts of earlier phase of the scheme.

The strict zoning principles appear to have created a somewhat regimented layout, in the light of the dictates of Nigerian Socio-cultural Exchanges. Also the presence of open drains and gradual destruction of earlier preserved environments are added problems besetting the scheme.

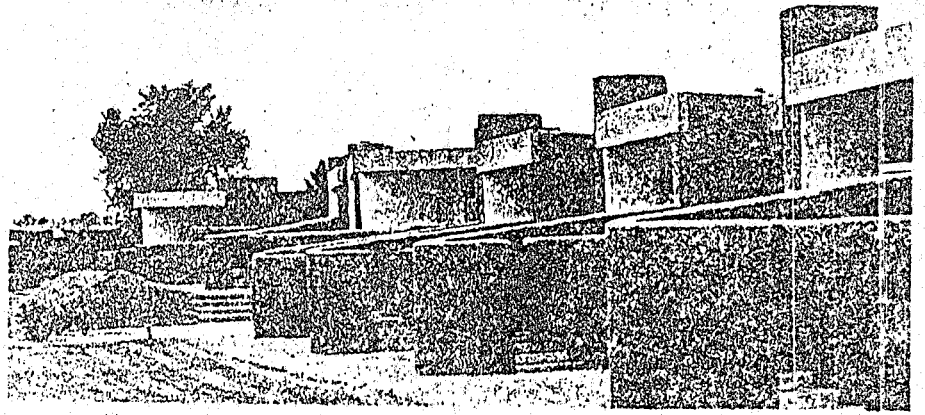
In general, Bojida scheme can be regarded as a successful venture, from its present, the greatly upgraded outlook, it strains the imagination to think any part of it was ever "low cost", or that houses there could ever have been allocated to low income people.

(3) Laluz Housing District - Albuquerque

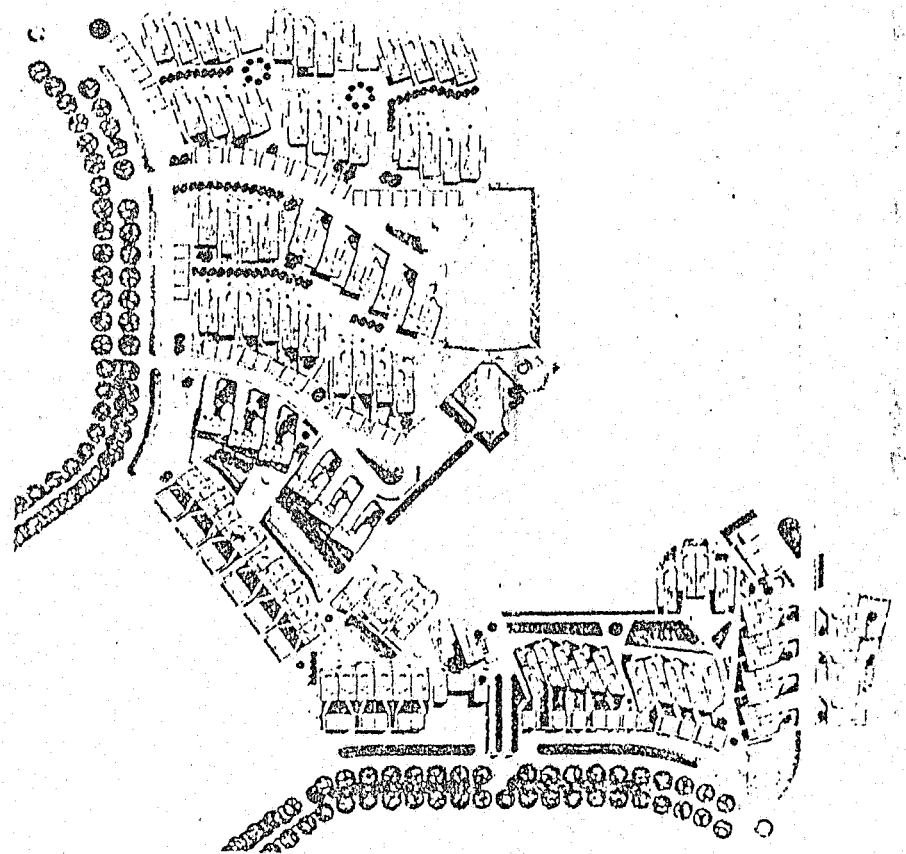
This scheme was born out of the enthusiasm for a revival of unbaked - earth building in the USA, not only of individual houses but also of schemes on an urban scale.

Hence, in 1975 the American Architect Antoine Predock built the residential district of "Laluz" containing 100 luxury homes.

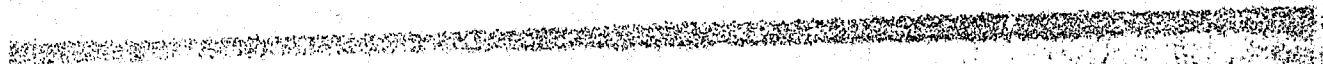
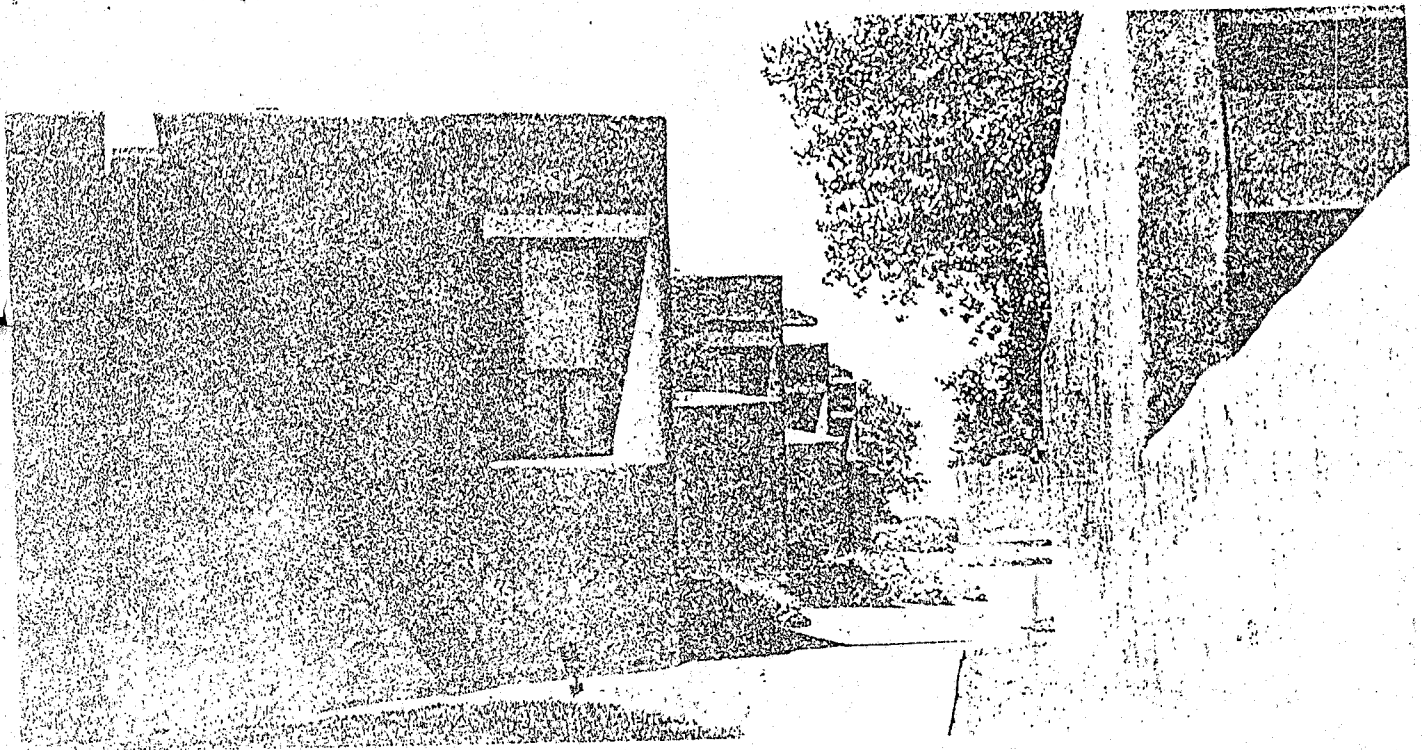
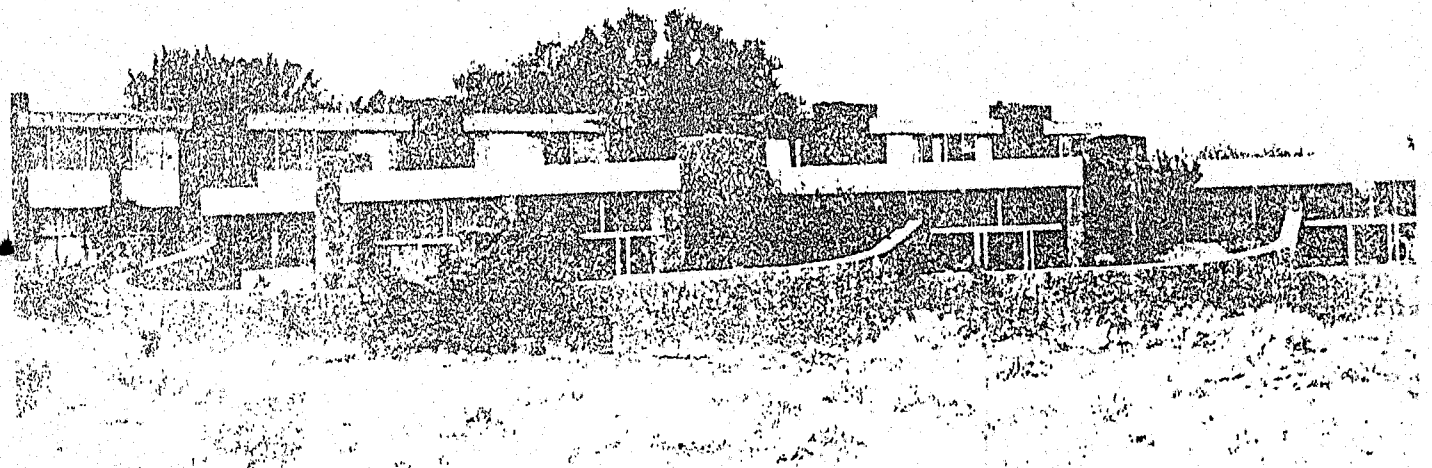
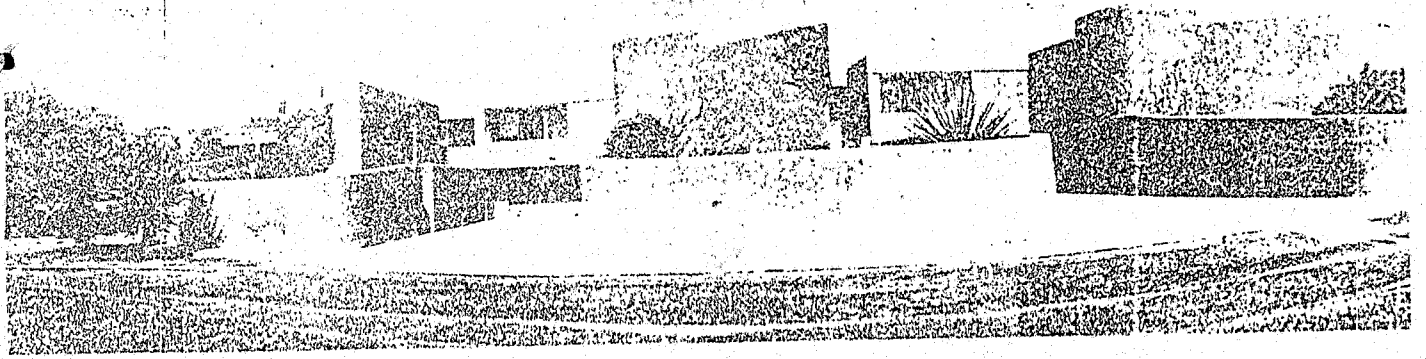
The project proved that large modern schemes for urban housing can be constructed in unbaked earth, that developers can guarantee the safety of these structures, and that they can use



2



1-9 Current enthusiasm in the USA for a revival of unbaked-earth building has led to the construction not only of individual houses but also of schemes on an urban scale: in 1975 the American architect Antoine Predock (2) built the residential district of 'La Luz' containing 100 luxury homes (3, 4 and 5). This magnificent project proves that large modern schemes for urban housing can be constructed in unbaked earth, that developers can guarantee the safety of these structures, and that they can use the material interestingly. It also proves that earth architecture is adaptable to all types of cultural expression, from the traditional to the most up-to-date. This scheme is judged a milestone in contemporary American culture, and is listed in the *National Register of Historic Places*. The walls, made of adobe bricks with a protective covering, are encased around the top in a concrete sheath which is continuous with the slabs of the roof. (Plan and air-photo by Antoine Predock; portrait of the architect and photos of the house by Jacques Eyraud and Christine Bastin, 1981)



the material interestingly. It also proves that earth architecture is adaptable to all types of cultural expressions, from traditional to the modern times.

Structurally, the walls are made up of abode bricks with a protective covering, encasing the top in a concrete sheath which is continuous with the slabs of the roof.

This scheme has been judged a milestone in contemporary American Culture, and is listed in the National Register of Historic places.

Appraisals

Despite the seemingly overwhelming success of the scheme, one notices that the project itself was for the high income group ie., luxury units. Hence it favours only the rich that are now interested in experiencing the earth architecture.

Another criticism is that one again it is a bulk of total housing delivery system - no growth or deazy potential.

(4) Karmo Associated Estate (Phase 1) - Abuja

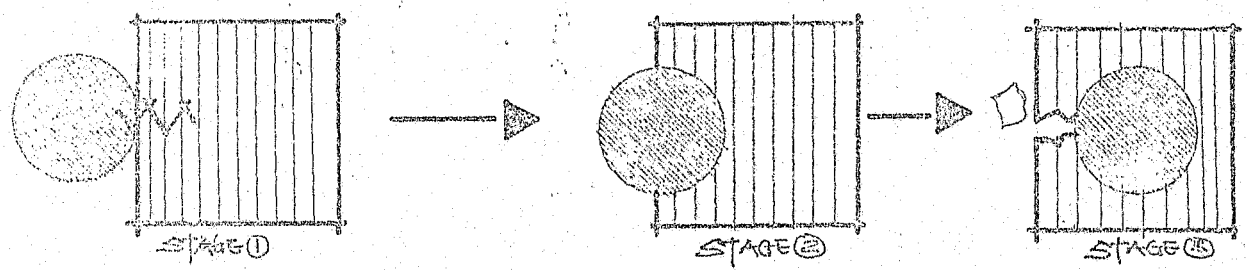
This scheme is a private sector property development programme spurred by the housing shortfall in Abuja and the challenge put forward by government at the inauguration of the National Housing Policy.

It is on a 23-acre virgin piece of land in Karmo District, along Abuja-Suleja road, about 15 minutes drive from Abuja city centre. It is bounded by Julius Berger Staff Housing Estate to the right and Aprofim Nigeria Limited camp along the highway.

of the five districts types of houses planned for the estates, 29 four bedroom detached bungalows which represent the first phase of the project has been completed.

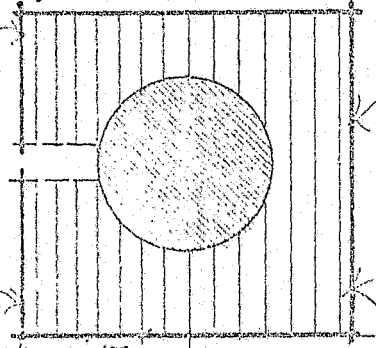
The houses are set in plot all otments of between 750 and 1150 square metres ie., (25m x 30m and 30m x 36m). Each house has an entrance foyer, entrance hall, a wide kitchen, a store, a laundry and a linen store. It also has a spacious living room, a tewares and a dinning room. Each of the four is ensuit with separate toilet facilities. There is a planted courtyard in the middle of the house surrounded by corridors. The walls are of

PROCESSES - EVOLUTION



PROPORTION

SCALE OF URBAN/MODERN OUTWEIGHS TRADITIONAL DEVELOPMENT IN TERMS OF SIZE



Circle emphasizes the traditional soul of the modern.

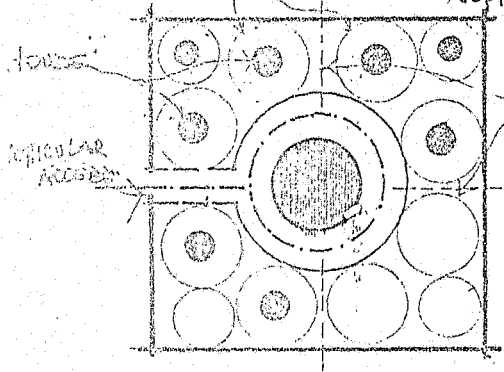
SQUARE FORM OR EQUILIBRIUM OF SIDES EMPHASIZES URBAN RIGIDITY - URBANITY - UNIFORMITY

DIFFERENCE

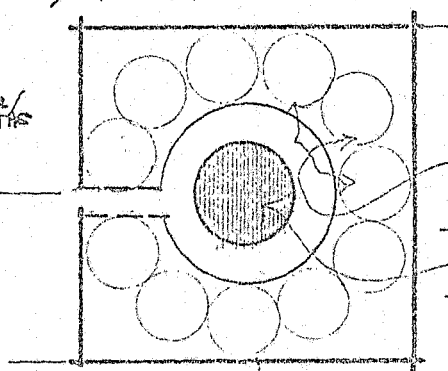
SIZE DETERMINED BY URBAN/TOWN PLANNING STANDARDS

COMPOUNDS

RADIAL DISTRIBUTION OF (OPTIMAL AXIAL) SERVICES/CIRCULATION



NAKHOVA/FOOTPATHS



COMPOUND CITIES
COURTYARD

SERVICES
RECREATION
PLAY SPACE
GREEN SPACE
GARDENS.

ADDING A 4TH DIMENSION - PEDESTRIANISATION

WAYS FOR INTERCONNECTION OF UNITS VISUALLY AND PHYSICALLY - USING THE CORE SPACE -> ENHANCEMENT OF COMMUNITY LIFE

AN URBAN COMPOUND
CONSISTING OF PLOTS

HIGH MOBILITY

DETERMINED BY THE X-TICS OF THE INTERDIGITAL HABITATS AND TRANSPORTATIONAL SYSTEM -> TRANSIT

best explained by the following:

- It seems to me that past, present and the future must be active in the mind's interior as a continuum. If they are not, the artifacts we make will be without temporal depth or associative perspective.

- Aldo Van Eyck (1962).

- "...When architecture is seen as a continuous process in which these and antithese are dialectically integrated or as a process in which history is as closely involved as the anticipation of history in which the past has the same weight as looking forward to the future, then the process of transformation is not only the instrument of design but it is the very object of design. The principle of transformation is active in all fields of nature, life and art. It is the principle of formation capable of organizing divergent elements into a planned totality..."

- Mathias Ungers (1982).

Hence, there are strong traditional preferences within the urban development process so as to obtain a traditional neighborhood concept which Elizabeth Plater-Zyberk (1990) declares

as "... a spatial concept, not just a stylistic one." And this is the real rule to making good spaces and integrating other uses in functional ways to achieve settlements that work well.

Traditionally, our settlements are made up of three main elements, houses/huts enclosing a courtyard to form a compound, these compounds are now clustered together around another courtyard (this bigger) to form a hamlet. Hamlets formed round another bigger courtyard (village square) and this now forms the village. Hence the general compound-courtyard-clustering trend of accumulation. It is the harmonization of these three elements that gives the "TRADITIONAL NEIGHBOURHOOD CONCEPT."

The three Cs (ie., courtyard, compound, clustering) all imply the centrality of space. A space when defined means the closing out of the surrounding outside world and bringing out the surrounding inside worlds of buildings/dwelling. A space with communal spatial characteristics which becomes the contact point of human settlements within cultural identity is a major concern.

A graphic representation of "Traditional (tripartite) Neighbourhood Concept" involves the choice of two basic building

forms;

- circular form which seeks to emphasise the traditional historic and natural aspect of the concept;

- rectangular form which emphasises the new urbanized modern aspect of the concepts.

The purity of forms chosen seeks to emphasizs the simplistic nature of the developments of our traditional settlements.

The forms are now fused together to obtain a composite form in which the circle is now inscribed in the square form and this represents in the proposed scheme an harmlet unit ie., a unit neighbourhood.

The inscribed circle emphasises the traditonal soul of the modern which has overwhelmed traditional institutions in terms of size and scale, and also the soul ensures the continuity of the spatial equality or sameness or rather uniformity of the urban development and also its rigidity and linearity.

These unit cells or harmlets are used to enclose a larger space to obtain an urban village with the village space or centre

consisting of most facilities such as recreational facilities.

Also within each hamlet, there is a clustering of compounds around the soul which now acts as the commercial space of each hamlet or even a service point (ie., accumulation of services such as central sewage tanks, refuse depot), relaxation/paly space.

In considering of the characteristics of the target population for the propped scheme - civil servants (low and medium income group are majority), most of whom will depend largely on the mass transit transpotation mode, a fourth dimension was applied to the traditional (tripartite) neighbourhood concept which is pedestrianisation. This allows for the creation of pedestrian precincts. These allow for the inter-connection of unit cells/hamlets by linking each soul to another through footpaths wide enough to ensure good visual interactions between unit cell souls or central courts. Thus, enhancing the overall community spirit and knitting the entire whole together.

Generally each unit cell/hamlet is pierced in three to four sides by circulation axes, two-three are pedestrian alleys/avenues

concrete blocks - plastered and painted both internally and externally. The roofing are coloured steel encasement, with burglary bars.

The floors on their part are terrazo/cerawe furnished to the living room, dinning, kitchen, terrass and circulation areas, while the bedrooms have PVC tiles. There are steel glazed entrance doors, and ly flush doors equipped with glazed frames to other areas. Also we have conduct electrical winning and fittings.

On the total plan of the estate, there is a large neighbourhood centre - shopping. recreation, workshop and other public facilities. Also ther is a primary school, a post office and a police station.

The other housing types are;

- * Five bedroom detached house on two floors with three bedroom boys quarters;
- * Four bedroom duplex house on two floors with attached boys quarters;
- * Three bedroom detached bungalows and
- * Six blocks of three bedroom flats on three upper

floors with the ground floor for parking and boys quarter provision.

Appraisals

This project like so many others like it within the Abuja environs have the total delivery or packaged delivery model ie., the sale of fully completed housing unit. Hence restricting such developments to the high income group (which must be really high) - a rejection of traditional models.

Also, the plots are not fenced as it is done traditionally but left open - leaving marginal lands as no-man's land.

Even with the luxurious status of the project an essential housing ingredient for such developments ie., garages are about from the units, hence definitely allowing for additions to the main building when occupied. Also there is no sense of communal living in the estate layout as housing are lined along streets and close.

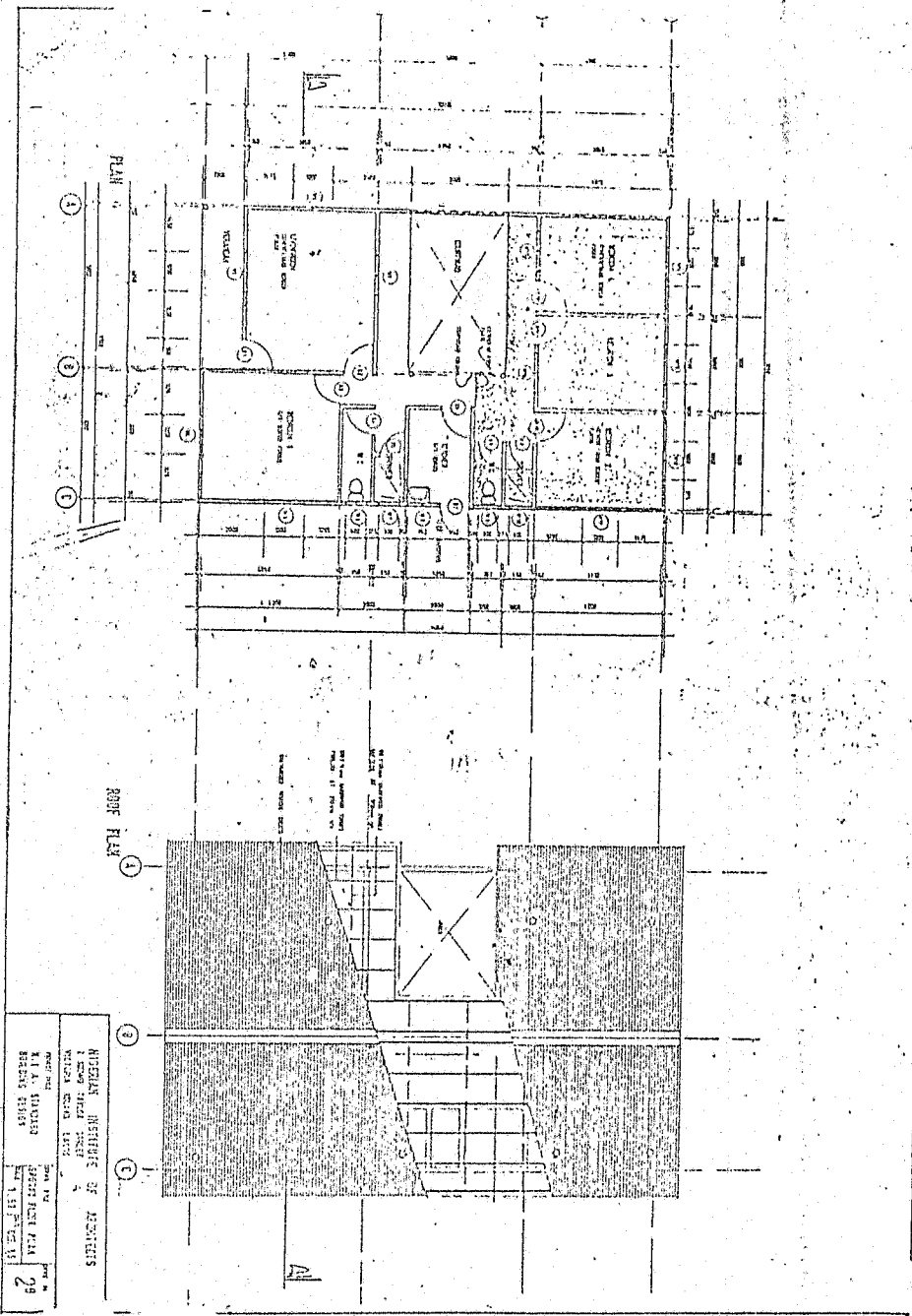
There is no provision for the further growth of most housing types and also that of decay in them. Thus the house can not grow with the family - rather the family has to either grow into the house or constricts itself in the house.

(5) NIA Free Bungalow Designs

This was a scheme conceptualised as NIA's contribution to solving housing problems facing the people as well as to enable them to own such house at cheaper rate. As at the time of conceptualisation - 1986; it was envisaged that the free bungalow design would cost between N15,000 and N20,000 using local building materials.

the design was decentralised to enable state chapters of the institution to make their drawing meet the geographical/climatological and the socio-cultural requirements of their various areas. The master plan was therefore reproduced to enable developer build according to these variants.

The free bungalow design consists of four bedrooms, a sitting room, kitchen, two bathrooms, two water closets and a courtyard. The development of the bungalow is carried out in two phased developments. The phase one consisting of a sitting room, a bedroom, kitchen, a water closet, a bathroom, a bedroom kitchen, while the phase two consists of three bedrooms and a bath/wc - a growth phenomena.



It is also worthwhile to note that the free bungalow design was made available to the masses free of charge as a social services by the NIA.

Appraisals

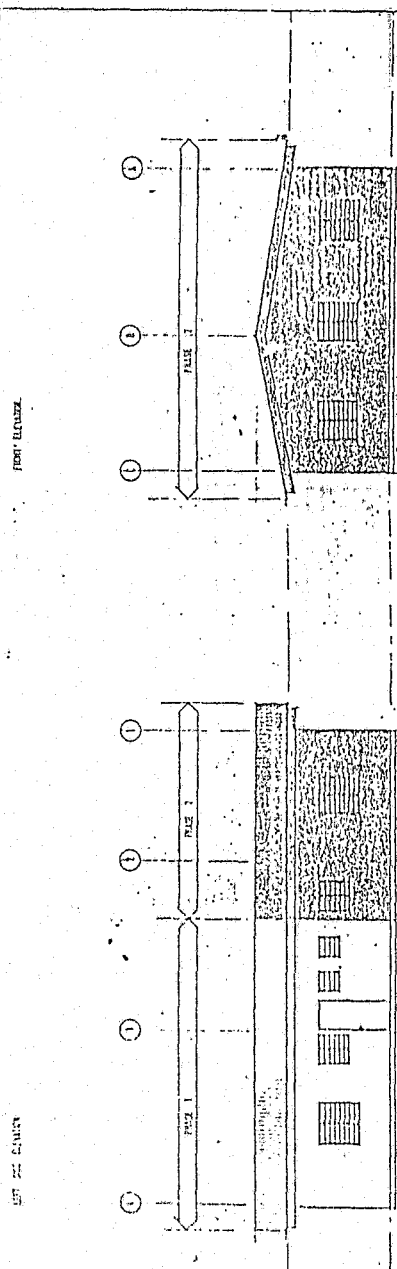
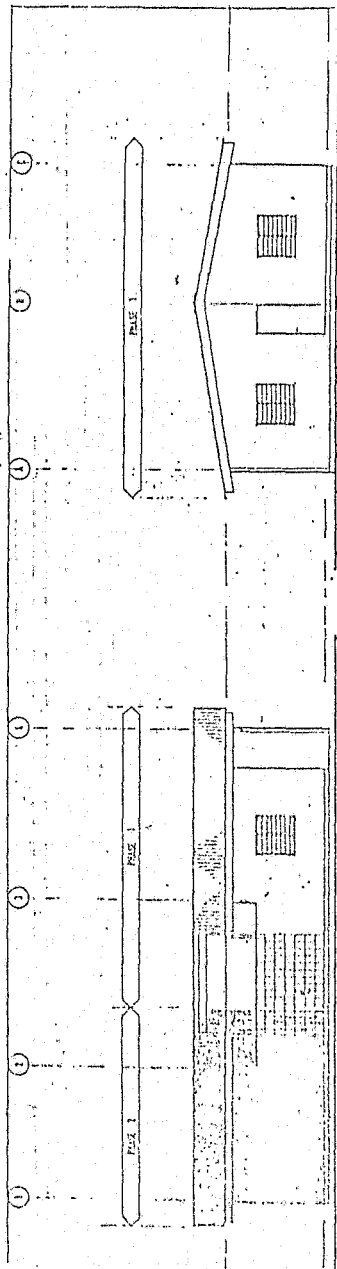
While appreciating the use of growth principle in the design of the free bungalows, the singular development of phase one is perceived to be too large within the present economic realities.

Also there is an absence of the decay possibilities of the design such as to allow for subletting at a later period without major structural re-alignment of the design. And looking at the overall or total plot development one sees an element of under-utilization or wastage because further developments has been highly reduced and yet there seems to be much land mass unused.

(6) The Nigerian Home

By tradition, the common form of the dwelling house in Nigeria's human settlements has been the compound multi-family, multi-occupancy residence usually not more than one storey high.

The essential aspects of the traditional family house would



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include the following;

(i) The system of courtyard planning

The house plan basically follows the traditional African pattern with rooms arranged within or around a courtyard. The plan allows for the separation of the sexes. The courtyard is ideally suited for life in the tropics where outdoor living, for most part of the day, is necessary. It functions as the playground for children, serves as a sleeping place during dry seasons, functions as a social arena for all members of the extended households.

(ii) Individuality of each Family's Home

Nigerians identify very strongly with their home environment and one major mehtos that is often adopted to ensure that he appearance of the home to self and community support the image they want to create of who rhey are is to elaborately decorate it both internally and externally. Decorative styles are generwllly an internal part of building construction especially in house traditional architecture.

The decorative elements used in varying degrees of boldness include the circle, the rtriangle, and rythms of vertical and

nuber of years, the owner improves his dwelling according to his financial capability. A sense of self-reliance is fostered by the fact that he has control over the method and speed of construction.

- Secondly, is its flexibility. The household can schedule its investments and expenditures for housing and related services. And this flexibility of use is crucial to stable family relations and to changing demands on space over time.

CHAPTER FIVE

DESIGN

5.1 SITE ANALYSIS

The land area earmark for the proposed housing scheme development lies towards the immediate south western fringe of the Central Area District of Abuja - the Capital City; under the phase II development scheme. with a total area of approximately 300,000 square metres.

It is approximately four kilometres from the Central Area (ie., about four munites drive). See figure 5.

The site itself has longest side which is about 700 metres running south to north. While its shortest side about 530 metres running directly east west.

topographically, the site has a predominant north-westerly slope of about percent which does not constitute any major constraints to the site developments.

The site is bounded on its four sides by major road

networks, to the south by an arterial road and to the east and west by arterial collector, all these which goes to prove the good accessibility of site. This enclosure of the site by roads goes to create a noisy fringe which also rings itself round the entire site and having a rather quite care (ie., the further into the side and having one moves the less noisy it becomes). However, the highest noise levels are to the northern sector of the noise fringe due to the expected high vehicular traffic servicing the transitway.

Usually, the site has an eastern view point advantage, mainly because of its slope character. The possible natural highest points is at about 480-490 metres on the south-eastern edge of the site while the lowest point is about 450 metres on the north-western edge of the site.

The site orientation, on its part allows for low insolation and thermal activities within the site as the sun's path runs parallel to the shorter sides of the site (ie., the east-west axis). This is coupled with the slope character of the site which allows for good air movement or airflow without stagnation.

reduces the thermal activities or parameters of the site.

The wind system over the site is made up to two major wind systems: the N.E. trade winds which is generally dry, dust laden and occurs during the dry season and the S.W. trade winds which is moisture laden and occurs predominantly during the wet/rainy season, and two minor winds systems which unlike the major ones are sporadic in occurrence, particularly the easterly winds which are perbeuted by the Aso Hill/Rock and bring with it the sporadic orographic rainfall.

While the other is actually a localised cool westerly breeze arising from the large natural unchannelable stream flowing in the south direction and is mostly felt during late evenings.

Generally because of the rather stronger presence of grass vegetal covers the natural surface run off has not created much erosion on the site as it flows in the north -westerly direction of the slope. The site has a medium drainage capacity.

The vegetal cover of the site is generally that of a sponse park savanna type, with sporadic spread of few clusters of thick shrubs punted by trees and grass covered spcaes with very few

out crops.

Geologically, the site is underlain by layers of rhgolite, granite and marble which are firm or hard rock stratas which can be workable with minimal constraints.

In terms of infrastructural services to the site, the water distribution line runs parallel to the east and south sides of the site (in fact along its bound and while the power line runs along the northern side and the proposed dual trunk sawer distribution line runs along the western side adjacent to the natural stream course.

Also, adjacent to the side on the northern -eastern edge is the district centre facilities which consists of primary school, recreation, shops, offices and commercial activities including post office and hospital/clinics.

5.2 DESIGN PHILOSOPHY

Generally, the development of the entire project is based on the evlution of an urban settlement with the dynamic rural-traditional characteristics. This is in order to achieve a

settlement which is not developed as a suburb but rather as a self reliant urban quarters. There is emphasis on the proper articulation of pedestrian precincts that thus favours the pedestrian more than the vehicular and such precincts generating a maximum walking time of about five minutes between facilities.

However, the philosophical basis of the design approach employed in the individual housing design lies not in the articulation of new ideas but rather in the re-awakening of a rudimentary aspect of our traditional architectural/building methods which is an inherent part of the total human development.

The principles of growth and decay, a metamorphosis of stages - hence an organic undertone, all with the total objective of optimizing the design process in the context of controlling the cost of buildings, such as to include a concern for ensuring that the provision of shelter does not take a disproportionate part of our resources required for the four basic needs of mankind (namely, food, shelter, health and work).

- Growth Principle

This is a system by which a core-unit with built in growth

potential is first constructed and then allowed to expand in response to increase in family size, economic power and socio-cultural status resulting into a home, born of personal needs and tastes as against a structure with shortterm financing of 2-3 years. The core-unit in this project is much ore smaller than the traditional core housing units which include having a living room, bedroom, kitchen a bathroom and toilet.

- Decay Principle

This is a process whereby a completed building which has now become too big/large for its occupants due to reduced family size, old age or even because of economic difficulties of servicing the rents, id mow divided into parts for subletting or even outright sale or lease.

Another aspect or type of decay is the development of part of the entire plot and how using the already developed building as source of securing more fund for further plot developments.

In all the building in decay process lays emphasis on possible multiple entraces and change of use of rooms within the building.

These two principles are applied because of the fact that the design of houses are determined on the one hand by economic considerations and on the other hand by peiorities, preferences, customs and traditions (including taboos). Design is further influenced by the availability of manual self-help/paid or hired help, for construction and production of materials and by external factors such as the availability of local and cheap building materials and exisiting building regulation.

However, in most of our urban centres, an economic and realistic design would be dictated by the present and potential future paying capacity of the occupier of the dwelling.

Hence, one can summarily point out that the resultant design effect of the two principles employed would be those of continuity and flexibility of the overall design achieved which are the basic fundamental characteristics of our traditional development pattern in terms of our architecture and buildings.

hence the proposals of prototypes which are the design options or alternatives in this project would be seen in the light of Hertzberger's (1963) explanation, as collective interpretations

of individual living patterns which allows everyone to bring into being his own interpretation of the collective pattern since it is impossible to make the individual setting that exactly suits everyone.

5.3 CONCEPT

The concept of the entire scheme is based on traditional values which hitherto have been ruthlessly ignored. These traditional values constitute an heritage which we now must rediscover in order to re-create a living synthesis between the wisdom of the past and the knowledge of now and the future, knowing that cultural traditions are not frozen in time but constantly reviewed, re-interpreted and renewed in order to create a vital link between history and local. a truth emphasized by R. L. Barilay, the architect must be more closely associated with the total process of socio-economic and cultural changes, the changing pattern of the way of life of the people and the attempt to improve their human and physical environment.

The importance of a continuum in our design articulation is

and one vehicular access routes.

the fact that the concept is built round an old idea can best be described by the words of Frank Lloyd Wright.

"... I am here to assure you that the circumstances of architecture is changing with astonishing rapidity, but its centre remains unchanged --the human heart."

5.4 GENERAL DESIGN FEATURES

The basic approach in the general design concept was to set achievable targets and thus leading to the immediate refusal of any element of built in ambition rather consideration was given to the following:

- specifications should be client - relevant and also responsive to climatic and other social factors;
- simple construction techniques and methods that can easily be implemented with the basic experience of traditional construction methods within a cost conscious environment;

Plot sizes for the various major housing density development (ie., medium and high) was recommended in accordance with planning

code of Master plan. Each plot has ability to allow for the growth clearly understood within the minimum planning standards. For noe such housing density development (high density) a plot size of 30m x 16.4m, 30 x 15m and 30 x 17.6m were recommended. This is not too far from the plot size for low income development as laid down in the Abuja Master Plan (18 m x 30 m) and other estates understudy. And considering that the developments grows possibly into medium income or high income, this is a great savings in land as against the larger plots earmarked for the category of medium and high income developments.

The design prototypes follow both lateral and vertical spread depending on the choice of the developer and plot size and economic strength- monetary as shown in figure 5.

Examining any of the prototypes, it is found out that there is no rigidity in the designation of core units - this has been left as a flexible entity whose origin should again be determined by the developer according to his specific needs, hence, the contents and scale of core units are as varied as the number of stages of development.

However, it is worth mentioning here that the design prototypes allow for a minimum requirement for a core unit which consists of a bedroom, bathroom, WC or bathroom/WC and non utility spaces (which can be used for temporary cooking activities).

As regards the non utility spaces such as corridors (particularly in early stages of development), verandars and recesses, much has been done to make them profitable up till the mature/final development stage by their use as supporting spaces, most generally made to either partially or totally enclose courtyard spaces which in themselves either lie within a building or within buildings. It is not only a forum for socio-cultural exchanges (at family level) but also plays the role of regulating environmental conditions (air flow, ventilation).

Also an attempt has been made to de-emphasize the space normally allocated to the car - garage: reason for such deviation is mainly because of the access to an expected good mass transit and road network systems. Another reason is that the small scale residential function for each most garage are turned into, as being places at the entrance of each neighbourhood unit/cell and

be said to be adjacent to all the plots within the neighbourhood unit.

However, open space have been created for the car should it be owned. This space is generally part of the set backs as against the lock-up garage spaces which are part of the building.

The original intention of the roof have been retained in the design and this is mainly to keep away the elements - not to feature as the slants, dues and falls in concrete, aluminium, iron, asbestors, which might be aesthetically pleasing but cost a fortune. Hence, simple gable roofs are recommended - however, each design in toay's can adorn the ambitions adventurism that are common in today's House Architecture.

One very important feature of the proposed design prototypes (apart from their growth and decay potential), is that adequate spaces that have been defines based on the use of 1.20 metres design grid to outline the house. The use of such a basic grid as explained by Osasona (1991) are based on the following reasons:

(i) it is the smallest conveneint unit for spaces needing fictures, or involving free circulation, eg., toilets and

corridors respectively;

(ii) a reasonable fraction of it eg., half, defines adequate storage space for the bedrooms and the kitchens ie., wardrobes and cupboards respectively;

(iii) multiples of it resulting in convenient functional spaces eg., a dining room of 2.40m x 3.60m ect;

(iv) a combination of multiples and fractions of it could result in dimensions already standardized, eg., a garage or car port of 3.0m x 6.0m.

This is done basically to enhance the flexibility in the use of space in the designs and the growth and decay articulation of the houses.

However, it is worth mentioning here that the designs of prototypes are not fixed. This means that what are presented in this proposal scheme are not the ultimate. They basically are meant to show that growth and decay should be component features of any design chosen by the developer.

5.5 FUNCTIONAL ANALYSIS AND SITE PLANNING

5.5.1 ZONING

The major determination of the zoning of the site into functional areas were the:

- site characteristics;
- adjacent land uses;
- circulation pattern articulation;
- infrastructural services layout;
- distance - time ration over facilities;
- conceptual philosophy.

This resulted in three major functional areas within the site. A narrow middle area for the purpose of mixed recreational and main pedestrian alleys/avenues, and this middle zone was flanked on both sides by the two major zones of mixed-residential areas which were broken into cells in line with the conceptual philosophy. This arrangement could almost be said to be symmetrical except for the differences in the incorporated facilities within each area. In the western residential sector lies the commercial to the northern part while in the eastern

residential sector lies the water resavior and power transmission areas to both the southern and northern fringes respectively.

The site was also divided into two major parts in terms of distance - time ration over facilities in a manner such as to place most residential areas/sectors within five hundred metres radius from an epicentre (which was the bus stop) - this area housed most of the low/medium income earners who are mostly pedestrians while the remaining part was allocated to mixed residential development of medium/high income earners whom are expected to have access as vehicular movement. This was done to achieve as much as possible a clear distinction between vehicular and pedestrian traffic within the site.

5.5.2 SITE PLANNING

The planning of the proposed estate scheme was approach as a town planning scheme on a small scale in three basic stages:

- Overall site planning
- Unit cell/harmlet site planning
- Compound site planning.

The overall site planning stage involved two layout of road network - which was reduces to only one major ring road network with two entrances point on opposite sides of the site (ie., at the south-western point). This staggering of entry points and ring roads nature of the circulation network was most importantly to discourage through traffic access to the site. The arrangement of residential plots along the major collector within the estate allows for them to face both the road and the inner courtyard (particularly the larger plots). Enough setbacks were allowed on both sides of the road for the purpose pedestrian side walks and laying of services as well as enough for tree belt used to live the roads through its entire length. To avoid bringing too much traffic into the estate, the car parking space of the commercial area can only be accessed from outside the estate along the western arterial collector. Another important planning aspect is the layout of the pedestrian routes or alleys.

The unit cell site planning which largely involves the grouping of plots of different sizes round a larger courtyard is largely a modified cersion of a cue-de-sac. the courtyard use is

flexible in that it is proposed for such uses as play space, a service depot, recreational uses. There is no thorough traffic across any unit cell and also there is the introduction of small area along the entrance into each cell for small scale commercial purposes grinding machines, and petty trading. As earlier unit cell is such that allows for low, medium and high residential housing developments.

It is also worthy to note that the pedestrian routes (ie., their numbers and positions) are determined by the relation of each unit to another and to the overall site planning to ensure continuity.

Finally, in the compound site planning, there was no blanket rule for all plots, rather for each plot type had its own set back specifications and overall percentage of plot developed and number of rooms - all within the acceptable planning standards. However, the approach of employing minimum values was used in all the plot sizes.

It is also important to mention that effort was made at the creating green belts within the scheme in all three stages of site

planning by utilization of marginal lands/spaces largely in the overall site planning which in its flexible nature allows for the growth principle as it is possible for the gradual extension of services in line with the growth of the scheme.

5.6 SPACE_REQUIREMENT

The guidelines for space allocation and measurements of facilities and services were largely obtained from the Abuja Master Plan particularly as regards dimensions of road networks and the area of space of allocated for communal services.

The percentage plot utilization i.e., fifty per cent for high density (low income) and thirty five percent to forty percent for medium density (medium income) was carefully followed. (Abuja Development Control).

However, set backs of buildings from the court access was reduces to a minimum of three metres. This was based on the findings of research work by the department of planning and department of building of the School of Environmental Technology, Minna (1991). This showed the preferences of a clear majority of

traditional urban dwellers preferring smaller setbacks from the access street. Mainly because of the very minimal vehicular movements along the streets. The set back from the major estate collector was made to follow planning requirements (ie. 9m from the centre of the road).

CHAPTER SIX

MATERIALS CONSTRUCTION AND SERVICES

INTRODUCTION

Prices of building materials and construction costs have risen by 200 percent in the last five years, rendering even more unlikely the ability of most Nigerian to realise the dream of owning their own houses.

Most materials for building construction can be locally sourced in their raw form. What is commonly termed traditional building materials fall into the grade of elements which are abundant in their pristine form but require processing and refinement to be relevant to modern creation of spaces, shelters and ultimately architecture. It would be quite cheap to build houses if we could simply pluck them out of their natural settings

and erect them on site as finished products. But this is not possible. It is the process of making these materials usable that separates fact from fiction.

6.1 MATERIALS

There is a vast number of materials available for use in building locally, and more are being developed every day, but each material must satisfy many demands based on such diverse factors as cost, availability, strength, durability, appearance, weight and compatibility with other materials.

However, for the purpose of the proposed project, "Housing Estate for Abuja," emphasis is placed on materials presently available and also accessible to the builders. These are grouped into roofing materials, walling materials, structural and finishing materials.

For roofing materials, i.e., material of roof deck, corrugated fibre cement sheets - "Amiantus" (9mm) and corrugated Aluminium sheets are mainly used while the horizontal ceiling materials are 13mm fibre board and timber boards and 5mm asbestos cement sheet.

However, corrugated aluminium sheets especially when new or repainted provide adequate protection against solar radiation (Olufofobi 1987).

Table 6.1 shows table of

ceiling temperature excess as regards the roofing and ceiling materials listed above. The use of amintus is based on the fact that it is a long span - a free span of up to 7.50 metres and self supporting which is easy to lay and fix - simply "wall to wall" - and avoid the need for expensive steel or timber roof substructures such as purline or roof trusses thus cutting down roofing cost considerably. Again most of the roof systems in the design have low pitched roofs. Also its weight and studies provide a certain assurance against the extremes of weather conditions which are particular to the Federal Capital area.

Materials used for structural and non-structural walls are mainly blocks (ie., landcrete/sandcrete, clay-burnt bricks, mud-Adobe bricks, and timber-partition walls). Conventional cement blocks are used mainly for load bearing wall such as the external wall system. However, there is a case for the mud-Adobe bricks. These soil blocks have numerous advantages, their strength and durability are achieved by mixing soil containing clay with a binding agent or stabilizer and then compacting the mix. A small quantity of cement or lime is ideal as building, but other

materials that can be used include oils, plant juices, animal dung, crushed anthills and butimen.

The blocks are more than fifty percent cheaper than concrete variety and are solid and smooth. They are 290mm in length, 140mm in width and 100mm deep.

Using the BREPAK machine a team of six can produce 40 blocks an hour that will endure the elements years. The machine enables compaction to be exerted by a hydraulic hand-operated lever. It produces a compacting force of about 40 tonnes, equivalent to a pressure of 10N/mm². The resulting stabilised soil blocks are air dried for two weeks to give a wet compression strength of more than 3N/mm² a fired clay brick has a minimum compressive strength of 2.8N/mm².

However, the blocks can also be made using molds and are ready for use after about 3 weeks of curing. To avoid cracking, a layer of paper is placed over blocks just after molding to prevent the cracking that can occur if the surface is allowed to dry too quickly.

Traditionally, straws are used to bind the blocks together

and keep it from cracking, however, this could be replaced by asphalt.

The development of the concept of a precast stone block used as load bearing wall, 200mm in width could also be applied to the proposed project. The actual block dimensions are reduced by one centimetre in order to provide the mortar joint thickness, thus 19 x 19 x 29 cm, given a modular component of 2m-2m-3m.

Stones are placed into moulds and then cement or lime concrete is poured to fill the mould. After the curing the blocks are used for the wall construction. The rectangular shape of the stone blocks enables the use of irregular stones which are easily obtained, and at the same time helps to increase the pace of construction resulting in a reduction of costs. The main building stones which are limestones, sandstone, granite, basalt and marble - (most of which are abundant on site).

As regards the finishes it is unfortunate that the choice of such materials has now become a status symbol. The state of achievement rather than its primary function of beauty and pleasantness. However, as regards this project, the choice of

materials for finishing is largely based on cheapness, efficiency and method of installation (which should be simple). And since we only have local installation, assembly maintenance and down stream services which only account for twenty percent to thirty percent of the production cost of materials, rather than total local production, this project proposes something though little but symbolic. A process that affects the choice of materials such as using ceramic tiles instead of marble tiles, concrete and fenestration instead of aluminium and glass curtain - walling, softwood (treated) batten doors instead of flush doors for internal doors - (all choices that would definitely make a difference to the final cost of the building).

It is also proposed that finishes such as painting and should be done by self as it is practised in advanced countries.

6.2 CONSTRUCTION

Joints are the special issue of attention especially with respect to carpentry and block, largely due to the expected frequency of joining by virtue of the growth nature of the proposed housing development scheme.

As regards the timber works, particularly those connected with the roof system - along purpins, tie beams and noggins, the "scarf joint" which achieves about 85 percent efficiency (Osasona 1991) based on slope of joint is recommended. Also, where hip-rafters are employed, the joints should be gusseted, possibly using 12mm plywood and 100mm nails.

The structural walls or blocks work (lancrete, sandcrete, clay bricks), have their ends from where growth in the building is expected to take place left protruding in alternate courses, so as to allow the new blocks to "key" with the older blocks during the process of growth. However, in areas where walls might have to be removed to ensure continuity with the next stage of growth, (eg., where a window now gives way to a full length opening), the blocks are then laid in such a manner that allows for not only their easy removal but also for their re-use in the building process. This is by making such that there is no interlock or "key" of blocks below such windows with the entire wall at the base. The blocks should preferably be stacked together using the stack bonding pattern with

a relatively weak mortar.

In the areas where reinforced concrete is used such as the floor slabs in the storey buildings, the ends of the rods on the sides where the next stage of growth is expected to start from would be encased in weak concrete (1:6:12) or even in sand cement mortar (1:12). This allows for ease of continuity, as the weak concrete cover are easily struck off, exposing the reinforcement rods to which new ones are tied for the next stage of development.

Generally the whole building should be set out in the very beginning. Two options are presented one is for the entire foundation walls to be constructed up to the floor slab level and the other is for the foundation walls to be constructed instages i.e., as the building itself grows. Both are suggested and adequate care must be taken in the latter such as to avoid the problems of structural alignment of walls of new stage to the existing stage and also to avoid the situation where by foundation trenches are left untreated as to allow for the accumulation of water in them.

As regards the use of mud (adobe) bricks, which are stabilised with asphalt emulsions to improve their

impermeability to water, the running bond pattern is employed in the process of laying the blocks for a simple and effective interlock at the corner. Care is taken to ensure that the footings of the mud walls are twice the width of the wall and also to ensure their stability, the footings are made very sturdy and extending about 250mm above the ground level, to keep the blocks dry. A 15mm mortar joint should be maintained in the wall. Also, to improve the strength of the walls, masonry reinforcing of long walls especially 4 inch, 150mm, single-way walls, by placing plasters locked into the wall by overlapping the bricks in alternate courses at every 3.6m/12 ft.

Also, the bricks used (sandcrete brick or mud) should be made hollow as such bricks save up to 30 percent of mortar.

6.3 SERVICES

Services (power, water, sewer) have been laid out in response to both closeness to major service lines as well as to the topography of site - which generally refers to the slope character of the site.

Thus slope has been used to try and achieve an efficient flow pattern for the services lines particularly water and sewer lines.

In terms of water, a system of indirect water supply is proposed for the scheme. The water storage tanks are situated on the highest level of the estate just adjacent to the main water distribution line running along the eastern and southern boundaries. See figure 6.

However, in opposite lies the main sewer lines (ie, dual trunk sewer line distribution) which runs along the western side of the site southwards. The lines are all outside the site perimeter/area. Hence the site sewers are articulated to take advantage of the slope, and is thus used as a force that generates continuous motion thus avoiding blockage of sewers lines. The lines start from the courts (serves courts) of the courtyard, cue-de-sacs within unit neighbourhoods on the highest levels in straight courses to meet the dual trunk sewer lines. See figure 6.

In the unit neighbourhoods, two proposals are made for the sewer systems.

The first is that each plot could operate its own septic tank system i.e., there is no central site sewer network system or distribution line.

The second is that if a central sewer line distribution is employed, the courtyard core (cue-de-sca) could now be a service core with perhaps a temporary collection chamber to which sewer lines from all surrounding plots are connected.

It is this collection chamber that now joins the sewer mains of the site. Another alternative is where not all plots are connected to it, while those closest to the main site sewer are connected directly to it. This alternative greatly reduces the need for possible land treatment in terms of slope enhancement of plots towards the service core from all surrounding plots.

As regards the compound, each would have its own service layout. This would be determined by the;

- (a) Type of development - detached or semi-detached.
- (b) Choice of design core.
- (c) Choice of growth axis.
- (d) Choice of entry points to the plots.
- (e) Closeness to the site's main service distribution network.

Generally, the above which are all infrastructural services are expected to have been laid down before property development commences - site and services approach.

The third essential service, which is power is expected to come into site as units are being developed. A proposal for a system that allows the use of about five different units all originating from same sources is suggested as shown in figure 6. The main transformer station for the scheme ie., the power house is located at north eastern fringe of the site adjacent to the main power distribution line which runs along the northern boundary of the site.

Finally, as regards public services, not much emphasis has been placed on them. This is mainly because of the district centre which is directly opposite the site to the north east. The centre comprises of all essential public services such as police and fire facilities, telecommunications, schools, health centres, shops, offices, parks and gardens as well as sports facilities. On a very large scale (in terms of size and number of persons to be served).

Hence a very small scale approach is used within the site as regards such facilities. Such as to serve the immediate needs of the inhabitants of the scheme.

CHAPTER SEVEN

7.1 AESTHETICS

The term aesthetics connote the description of works of art and (Smith 1977) deposed that only work of art which aroused some tension between novelty and originality, variety and coherence on the hand, economy and richness, multiplicity and clarity on the other hand, merited to be considered aesthetically appealing.

Architecturally, beauty exists where all parts of a building are rationally integrated in terms of proportion such cultural, socio-economic grouping have established their own idea of beauty/aesthetics which could be evaluated, interpreted, perceived, sensed and framed either as an art, spatial systems, structural composition, humanistic concern or even as an abstract.

Thus the aesthetic must be implemented by the users of the building/environment for its richness to be entirely revealed. Hence, an attempt is made in this project proposal at creating space and forms with inbuilt guidelines to both coalesce and synthesize into the image of the building and its built

environment. This has been done within the frame work of the concepts of growth and decay of the entire project, as determined by each inhabitant of the proposed estate. Therefore a dynamic characteristics is drawn into the aspect of aesthetic, which obviously conforms with natural ways of development.

Thus aesthetics of the project cannot be clearly defined as this or that as it is now engaged in an ever changing scenerio of beauty over time and space. However, within design frame work and expected implementation procedure and maintenance, the aesthetics of the housing estate in its final development state is simple determined by the organization and relation of forms (building and non-building) in harmony with landscaping that is also simple and site friendly.

The entire aesthetics of the scheme can be perceived in the thress basic settings:

- Overall site layout plan;
- Unit neighbourhood plan;
- Compound(s) layout plans.

In the overall site layout plan, the estate collector is articulated as an inner ring road with a number of "courtyard cue-de-sacs." There is a clear emphasis of the linearity of the collector in terms of design and landscaping - using trees as well as shrubs where necessary. Thus de-emphasizing the buildings that might be facing the collector on the one hand, and emphasising the fence walls of the compounds adjacent to it, such as turning the fences into artistic blackboards, considering the traditions of wall treatments/rendering attributed to our various cultures. The fences could take both slightly monumental and simplistic status as evident in our modern urban cultural developments. One important aspect of the fence architecture is that it is an avenue that allows for the acceptance of the bad taste of some dwellers thus allowing them their place in the community. The attempt at obtaining a symmetrical layout, using the recreation centre as a divide throughout the whole estates, emphasize the continuity of the communal space approach - as it intends to bring the whole communal activities to the centre without sacrificing distance to these facilities.

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The articulation of the overall site layout is such that takes the beauty of houses and environment into the unit neighbourhood courtyards. Here, images explode in at least fourteen different types, mixed with landscaping elements and other human activities.

Road or cue-de-sac surface of asphalt and concrete/brick side walks, sandy play areas and plant all create an exciting variety of materials and texture.

As regards the compound layouts, it is observed that any building, no matter how well or poorly designed, may be improved by landscaping. The soft lines of trees and shrubs set off the sharp lines of the buildings, and the presence of growing things moderates the weather around the structure. Landscaping is very strong here as it is used in protecting the building from sun and wind, screening objectionable views and framing desirable ones, used as fences and also to achieve a feeling of space and scale with regards to the architectural features of the building.

All landscaping are kept simple and functional as determined

by each building site and adjacent land developments, bearing in mind that a beautiful geometric design, as seen on a plan does not guarantee a beautiful landscaped plot, adequate care should be taken in the choice of plants used

7.2 GENERAL APPRAISALS

Architecture means life. It means life which was lived in the past, a life which is being lived in the future. Such as to mean that there is no life without architecture, and there is no architecture without life; Onuaha(1988).

Hence the entire housing estate development as proposed in this project has basically concerned itself with the celebration of this life. A life which is subjected to six dimensions of space which are related to the size of man:- length, width, height, motion, growth, and time. This has led to the provision of housing by the people for the people and housing also accepted culturally and socially.

A housing system that clearly differentiates continuity from expansion, avoids excessive repetition which causes monotony and

lack of scale, lack of character and individuality and also avoids over emphasis rationally. All these done in an attempt at achieving a traditional architecture that not only responds to societal and economic needs within the limits of the society but also gives a cultural references of the people.

This project proposal's success is based on the assumptions tha:-

(a) A site and service approach is taken by the governemtn instead of their total participation in housing provision.

(b) The deregulation of land use decree.

(c) Allowances for lower affordable standards devoid of major technicalities of modern construction such as to affect alternative choice of materials in terms of designated specifications.

This propped scheme has sought to show that public housing development can truly be public oriented in terms of occupancy and development. It also proves that tradition can amongst other things exist within the modern without contradictions.

CONCLUSION

Okunsanya (1978) observed that "the basic problems with the way urban housing evolved in this country is that forms have evolved in response to pressures for higher densities (in only handful of cities), with no references to previous traditions and not attempt to really understanding the range of needs to be answered in human habitant."

He went further to state that "the object of looking into traditional forms is to understand the relationships between socio-cultural values, available technology and material resources in determining what is essential from what transitory, what patterns persists amid all changes, the fundamental from fashionable. That is, one should look at traditional forms as a return to first principles," and this has being the aim of this thesis - new housing development for Abuja. Emphasis on how well not how many with respect to the provision of residential accommodation for particularly the low/middle income workers. Believing that when housing is provided properly, it is accepted quickly and therefore spreads faster thus in the final analysis

enabling a high production rate to meet the housing demand.

Thus, while it is accepted that for such an issue as the provision of affordable housing there can never be a single solution,- this thesis came out of a problem definition, borne out of both empirical and non-empirical findings to clearly provide its version of solution which also persists that the various traditional forms of housing, and indeed human settlements should provided the basis for any new development. House form and layout of settlements should be related to social and religious customs as well as to the prevailing economic circumstances of the people.

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