SOME ASPECTS OF URBAN DESIGN IN KADUNA METROPOLIS.

M.SC. (URP) THESIS,

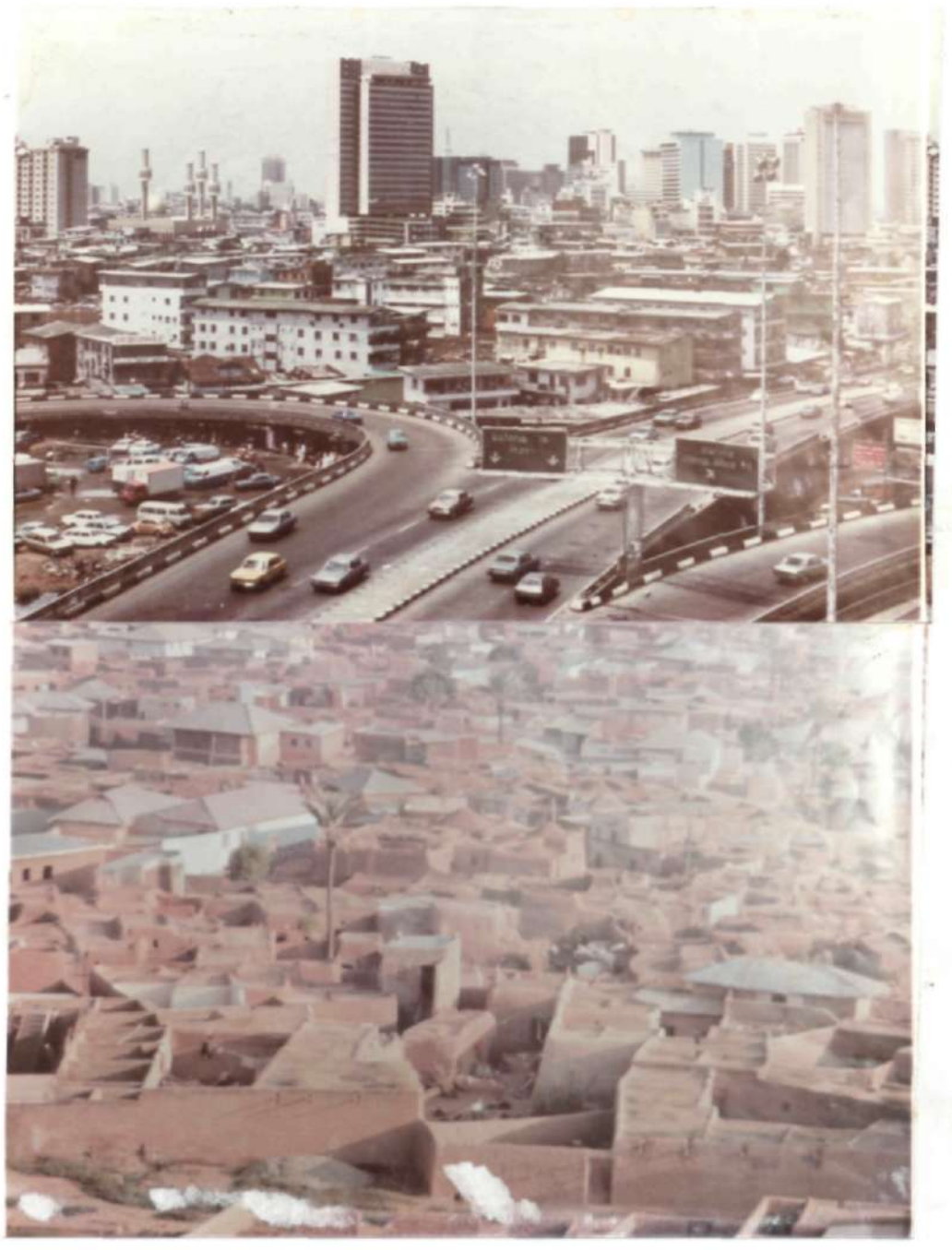
BY

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Z A R I A .

OCTOBER, 1390.

SOME ASPECTS OF URBAN DESIGN IN KADUNA METROPOLIS



ACHI, L. B.
MSc (URP) THESIS
1989/90 session

SOME ASPECTS OF URBAN DESIGN IN KADUNA METROPOLIS

M.Sc. (URP) Thesis

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Z A R I A

OCTOBER 1990

D E C L A R A T I O N

I hereby declare that this Thesis has been composed by me and that it is the outcome of my research work. It has not been accepted in any previous application for a higher degree. All sources of information are specifically acknowledged by means of reference.

_____

(ACHI, L.B.)

Date: .....19.....

C E R T I F I C A T I O N

This thesis entitled **"SOME ASPECTS OF URBAN DESIGN IN KADUNA METROPOLIS"** by **ACHI, LUKA BULUS,** meets the regulations governing the award of the degree of Master of Science of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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Date 5/6/91

D E D I C A T I O N

To my beloved wife, Laraba Bulus Achi and our children, Bisan, Zigwai and Kuzayet, for their prayers, patience and sacrifices.

A C K N O W L E D G E M E N T S

Many individuals contributed in one way or the other, to the success of this thesis.

I would like to acknowledge specifically my Thesis Supervisors: Mr G.P. Khanna and Mr. I.D. Suleiman, for their guidance, support and consultations at all odd times. Special thanks goes to Dr J.O. Popoola for his valuable advise, discussions and encouragements even after leaving the services of the University.

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A B S T R A C T

The capacity for natural and built elements to act as symbols and to transform one[f]s mental picture of a place has been implicitly understood and utilized for centuries in the building of cities. In contrast to the intuitive and pragmatic application of urban design aspects in urban development by rulers, recent analysis suggest that the process can be rationalized and codified to act as conceptual framework for plan preparation and implementation. Such studies can be applied to a particular socio-cultural setting in order to explore the implications of the findings in planning and urban design policy for that setting.

This study attempts such an application, in which some aspects of urban design as they relate to the Aims and Objectives of Urban Planning and Development, are examined. The contextual analysis 1B based on Kaduna Metropolis, Capital of Kaduna State, Nigeria. Essentially, the investigations cover the theoretical undertones of urban design relevant to urban planning in Nigeria in general and Kaduna in particular, in order to identify the options for articulating same in plan preparation and development control. A wholistic yiew is maintained as the basic approach for the analysis, with landuse and legibility as the control factors. This is in view of the scale of planning under question and the relative stability of the factor chosen. Furthermore, all policy decisions and actions ultimately are transformed in spatial terms.

This is by no means the only important property of relevance to urban design, it is of special importance when considering environments at the urban scale in terms of scale, size, time series, complexity of space use and land as the fundamental platform for man's activities.

The elements of the urban spatial composition were studied by observation and field measurements articulated in sketches and photographs. These were subsumed under four broad categories forming the structural components of Kaduna urban design aspects. These are landmarks, nodal points, areas of special interest and regional elements. The factors responsible for these categorization have been explained to be according to certain urban design principles and concepts described with the aid of illustrations.

The study culminated into outlining general recommendations and conceptual models for curative and preventive measures. This was applied to Kaduna central area as curative measures.

The study revealed that urban design is a component of urban planning. It offers a set of guiding principles which, when articulated in plan preparation and control of development, provides the foundation for a functional and aesthetically sensitive physical environment.

At Independence, Nigeria inherited urban design aspects which now feature alien techniques and standards that lack the expression of the people's social and economic system. This has been accepted and applied without question. The development control measures are too general and do not provide the developer with satisfactory guidance of what is acceptable on planning grounds. Thus they fail to ensure that permitted devdopment blends into the built environment. More fundamentally is the case that the imput on urban design considerations during plan preparation stage is very minimal.

Evidence suggest that curative and preventive measures exist for application of urban design aspects. Instead of handing over city designs or policy positions as an ostensibly finished products,

physical planners should seek to write the rules for the significant choices that shape the city. This is to be done within an institutional framework that can be modified as times and needs change.

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CHAPTER

1

RESEARCH JUSTIFICATION AND METHODOLOGY



ACHI, L. B.
MSC(URP)THESIS
1989/90 session

CHAPTER ONE

1.0 RESEARCH JUSTIFICATION AND METHODOLOGY

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

This is a study of urban design as a component of urban planning and development. The contextual analysis is based on Kaduna Metropolis, Capital of Kaduna State, Nigeria.

Essentially, the attempt has been to investigate the theoretical under-tones of urban design aspects relevant to urban planning in Nigeria in general, and Kaduna Metropolis in particular in order to identify the options for articulating same in plan preparation and implementation.

This has become necessary in view of the observed gap between plan preparation and plan implementation with respect to urban design aspects in urban development in Nigeria.

A wholistic view is maintained as the basic approach for analysis, largely because planning at the urban scale implies a systems approach, and the issues raised are concerned with the wider spatial arrangement of the urban fabric. However, for the purposes of illustrating specific urban design issues, reference is made of specific parts of the urban area.

The study culminated into outlining general curative and preventive urban design measures in the form of conceptual models. More specifically, recommendations are made for the development of Kaduna city centre as a means of applying the outlined models.

1.2 JUSTIFICATION OF RESEARCH

It is observed that urban spatial organisation with respect to urban design in Nigeria is faced with two basic problems; on the one hand, the social, economic and political transformation taking place in the society is creating changes in values, tastes and intensity of demand for urban space. This has given rise to sporadic urban growth with resounding implications on urban design. The emerging new urban areas and development are featuring principles of spatial organisation in isolation from the indigenous ones. The result is a set of conflicts where the vital sense of community, sensitivity to aesthetics and cultural identity are lacking.

On the other hand, the regulatory measures used as standards for effecting urban design fail to reflect the socio-cultural, economic and physical circumstances of the country. Indigenous urban processes are disrupted by the juxtapositioning of new forces and requirements. This has created a gap between plan preparation and plan implementation.

This situation is unacceptable, because urban planning and development are concerned with the fate of people's investment, social values and political status. Furthermore, the urban centres should not be written-off because they fail to attain the desired image. Rather, the challenge is to devise a means for resolving the dilemma. To this end, a study is required to articulate the nature of urban design aspects manifest in cities in Nigeria to enable the determination of policy options possible within socio-economic realities. It is on this basis that the analysis of urban design aspects of Kaduna Metropolis is undertaken. The observed problems above form the premise for this study, and the following submission is made:

First, that the production of the urban form is from decisions made for either single or multiple purposes, whose interrelationships and side effects have to be fully considered in order to achieve a living environment that is culturally sensitive, physically and biologically in harmony. Secondly, that lessons from history of the city suggest that effective urban design practice prevents the development of urban environments devoid of character, aesthetics, ventilation, enclosure and relationship with the natural elements.

1.3 AIM AND OBJECTIVES OF RESEARCH

A I M

The aim of the study is to examine the role and contribution of urban design in urban planning and development in order to appraise the state of urban design in Kaduna and make design proposals for a selected area.

O B J E C T I V E S

To achieve the aim, the following objectives would be pursued:

i) To identify and assess the urban design concepts as components of urban planning and development through time.

ii) To identify urban design aspects inherent in the urban planning process.

iii) To identify and assess urban spatial composition of Kaduna Metropolis with respect to urban design aspects of urban development.

iv) To study and then appraise the role of development control on the perceptive qualities of the urban components identified in Kaduna Metropolis.

v) To make a design proposal and recommendations for a selected area.

1.4 SCOPE AND LIMITATIONS

i) The study treats only the colonial city of Kaduna as an example of trend in urban development.

ii) The focus is on the positive and negative aspects of urban design that are manifest today in Kaduna Metropolis as the analytical material.

The study has to contend with lack of adequate documentation on the past trends.

iii) The study attempts an assessment of the perceptive qualities of the various urban design elements identified and how the planner perceives such elements as useful tools in urban design.

iv) The design proposal and recommendations made are based on current state of the art of urban design examined and are only broad policy options. Diversity in the physical environment and socio-economic content, would require that local conditions be considered further in future studies.

1.5 RESEARCH METHODOLOGY

1.5.1 DEFINITION OF RESEARCH PROBLEM

Today's urban environment is not accidental. It is a product of decisions made, either consciously or unconsciously, for both single and multiple purposes. The decision process contains urban design aspects which determine the urban form and structure. Understanding these urban design aspects is fundamental in achieving an effective interpretation and application of urban development planning principles and concepts.

To this end, the basic questions addressed in this study include:

i) What are those urban design aspects manifest today in

Kaduna Metropolis that need to be identified and considered in planning Kaduna Metropolis, in order to achieve a living environment that is both functional and sensitive to aesthetics?

ii) What are the appropriate regulatory measures required to effect these urban design principles and concepts?

1.5.2 APPROACH ADOPTED

The research scheme adopted is that of whole to part. Thus the study is divided into three inter-related parts. The first part starts with the theoretical content of urban design with a clarification of the contextual nature of urban design in the total package of urban planning and development process. This sets the stage on which the changing pattern of urban design over time is analyced. This section ends with a synthesis of the basic lessons to be learnt in the preview, and trends for application in the Nigerian context.

Part two undertakes the empirical study of Kaduna Metropolis with respect to the urban design aspects manifest today. The attempt here is to identify and analyse the positive and negative urban design aspects. This is to rectify the apparent lack of awareness on the part of technocrats, administrators, developers and the general public, of the intrinsic qualities or disqualities of urban elements in achieving the philosophy, aspirations and expectations expressed in urban development plans. To elucidate the relevant issues raised therefore, an appraisal of the development control measures currently in use, is made with respect to the urban design aspects of Kaduna Metropolis. This pin-points the areas that are lacking in the planning process as per achievement of urban design aspects in urban planning and development is concerned. The third part synthesizes the arguement. The arguement and relevance is tested on a part of Kaduna city centre as curative measure.

The wholistic view of the study has landuse and legibility

as the control factors.

The approach applied by Lynch (1960; p.140-145) and Gihring (1977; xvii) provided useful material as imput for the method applied to determine the legibility of Kaduna Metropolis. The full details of the method is given in appendix 1.

The land use distribution factor was obtained by field observations against official maps. The methods adopted proved reasonably successful in giving an indication of the public image of Kaduna and the inherent quality of spaces. However, further studies involving a greater sample size would be required to confirm the issues raised, based on these conclusions. Furthermore, the complex composition of Nigeria's socio-cultural setting requires testing of this approach on the different settlement types.

These observations notwithstanding, the approach is valid for use in a study of this nature, since it attempts to establish existence of imageability qualities of cities in Nigeria and a guide to positive and negative aspects of urban design.

1.5.3 Conceptual Framework of Thesis

The conceptual framework is summarized in figure 1.1. The first aspect was concerned with problem identification in which goals and objectives were formulated. The literature on the subject matter were reviewed and analysed for their use in the study area. This is supplemented by a preview of the changing pattern of urban design through out the history of the city. This provided the plat-form on which to examine the urban design situation in Nigeria with particular reference to Kaduna, with respect to the intrinsic qualities of spaces, form and their organisation. The positive and negative aspects of urban design in Kaduna are thus outlined against a backgrcund of existing development control measures.

With the analysis culminating into outlining the urban design issues, conceptual models have been developed as curative and preventive measures. The concepts are applied on a selected area of Kaduna City Centre.

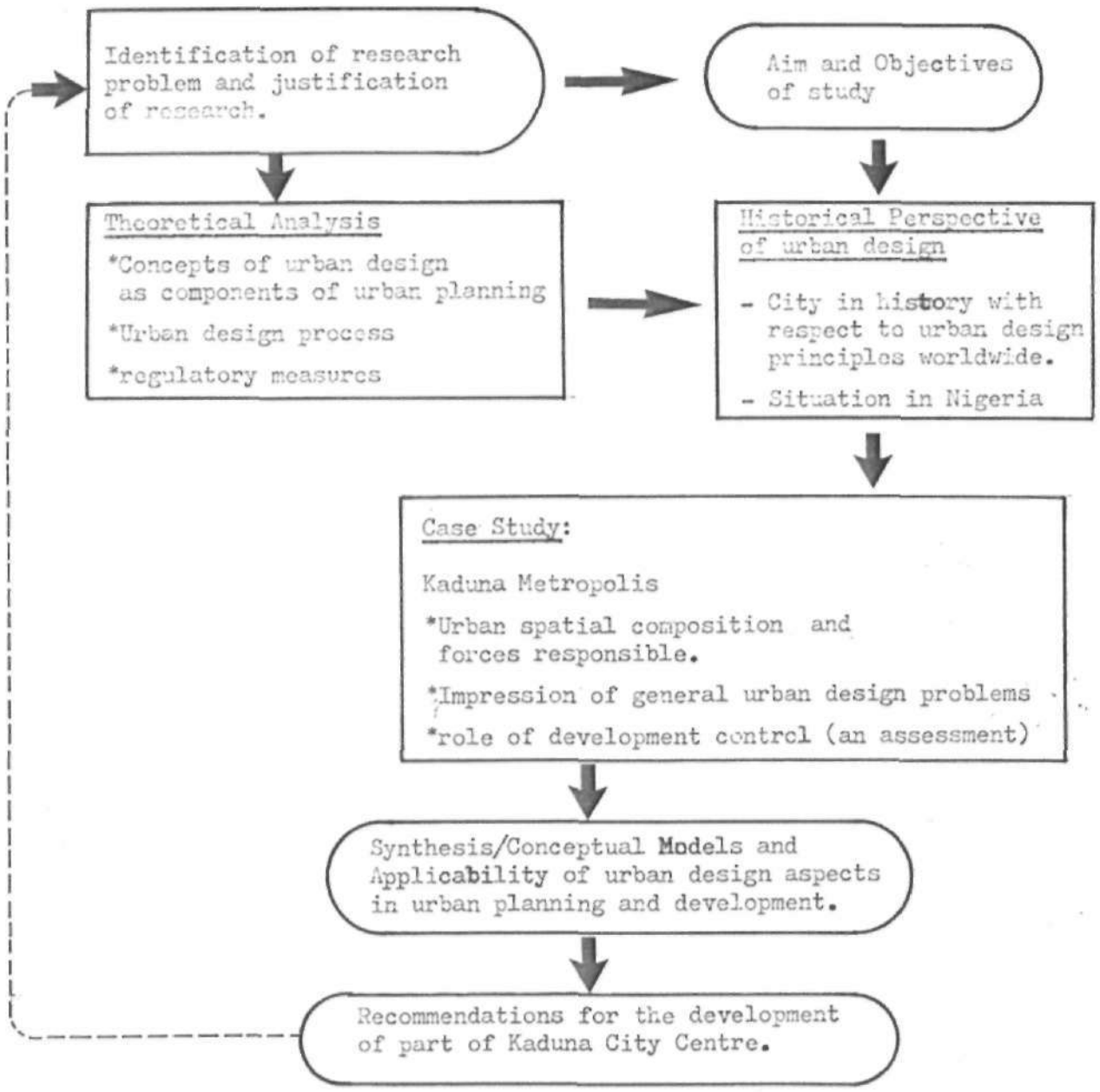


Figure 1:1: Conceptual Framework of Thesis.

1.6 Data Collection and Analysis

The data collection aspect was divided into four parts. The first part deals with obtaining information on principles, concepts, processes of urban design through time. This was obtained from secondary sources i.e. published and unpublished material relevant to the study.

The second part was concerned with information on the urban design components in Kaduna, the development control measure currently in use to effect urban design aspects. This was obtained through field observations of the elements and administering of questionnaires to obtain the legibility characteristics of Kaduna as seen and felt by the public. Photographs were made of observed elements to illustrate issues raised. Interviews were held with the planning agency.

The third part, was concerned with information on the urban spatial structure, visual character of Kaduna Metropolis. This was obtained through field observations, formal and informal interviews and literature review on image of the city and landuse analysis.

The fourth part, dealt with the collection of information regarding the public opinion on the three dimensional space created through present system of planning, and suggestion for future planning.

The data analysis and presentation was organised into a set of graphic illustrations, photographs and description. The historical perspective offered the platform for tracing the urban design aspects in the city and how present observations could be effectively interpreted.

Table 1:1 summarizes the schedule with respect to the objectives satisfied, sources, techniques used and nature/style of presentation.

What to collect/issues raised	Purpose	Source of data to be collected	Technique for collection	Technique for analysis presentation
Urban design principles/Concepts in theoretical forms, in Europe and Nigeria. Urban design process and planning process in general in Europe and Nigeria. Urban design in history of urban planning and development throughout the time.	• To identify the role and contribution of urban design in urban planning. • Establish the place of urban design in urban planning process.	• Literature review on urban design theory. • Field observations. • Organisations such as Kaduna ministry of lands and survey and the urban board Kaduna. (KASUPDA)	• Extrapolation of information from literature. • Formal questioning. • Personal contact. • Maps establishing history	• Writen form. • Sketches, charts. • Photographs.
Urban design components in Kaduna. Existing development control procedure and measures. Urban design constraints and potentials Detailed site analysis of part of city centre of Kaduna.	• To identify and understand the urban design components in Kaduna, the practise, problem and prospects. • To study in details issues on a small site in order to apply the curative measures.	• Field observations. • KASUPDA. • Local Government. • Min of lands & survey • Literature review on development control procedures.	—— do —— and • Field observation.	—— do —— and • Matrix. • Writen explanation.
Landuse map of Kaduna Visual analysis Topographic information	• Basic materials to show study area and basic for imperical study. • Show spatial structure.	—— do ——	—— do ——	—— do ——
Opinion survey on imagery quality of Kaduna.	Understand the public feeling on imagery quality of Kaduna.	• Public selective and general.	• Interview (Random) • Interview to technocrats and administrators.	- Summary of views. - Outline of conceptual drawings.

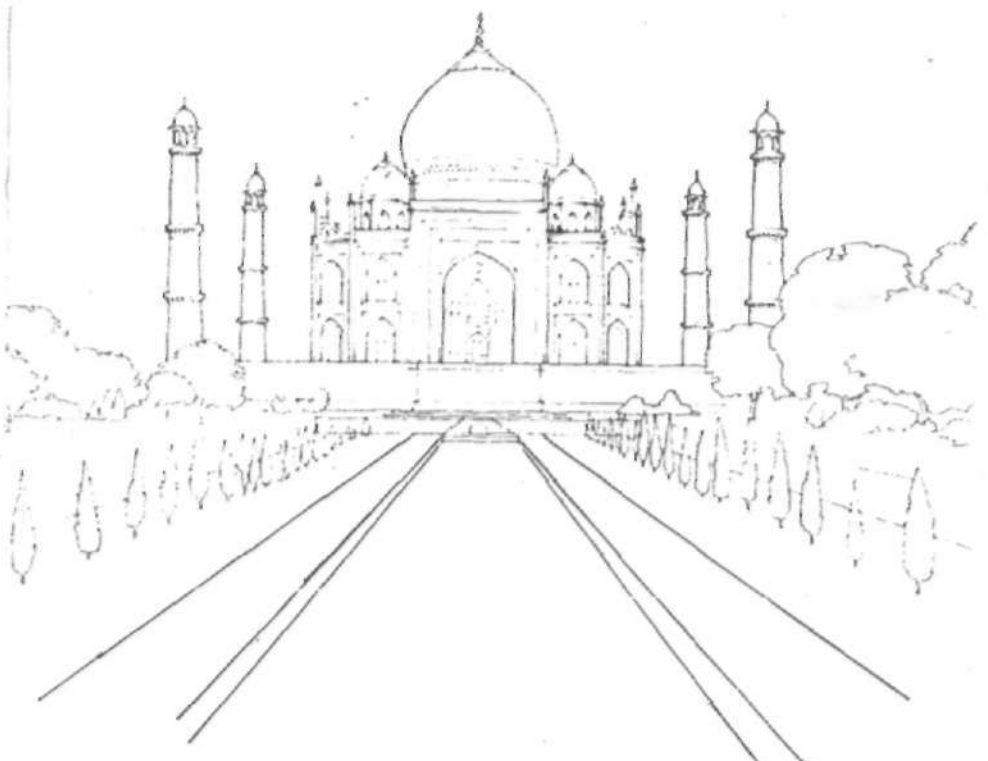
Table 1:1 DATA COLLECTION AND ANALYSIS SCHEDULE

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CHAPTER

2

A REVIEW OF URBAN DESIGN THEORY



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1989/90 session

CHAPTER TWO

2.0 A PREVIEW OF URBAN DESIGN THEORY

2.1 The Meaning and Scope of Urban Design

It is pertinent to start by attempting to understand what urban design is. It is often taken for granted that urban design is known by everybody, but it will seem to be the case that the subject area is still illusive even to the expert. There is no easy, single, agreed definition of urban design. However, some suggestions outlined below leave little doubt in one's mind what it is all about. Reckie, F. (1976: 1) suggest that it is the general design of groups of buildings and associated structures, road and open spaces forming parts of towns. Emphasis here is given to the general arrangement of building masses and the preservation and enhancement of amenities considered three-dimensionally.

Extracts from Tibbald s (1988: 15) article, see it as a vital bridge, giving structure and reality to two-dimensional master plans and abstract planning briefs, before detailed architectural or engineering design can take place. Here, emphasis is on the procedural aspects of urban design. The work of Rapoport, A. (1977: 6) which identified four aspects of organisation of space, constituting the attributes of urban design, points to the fact that the total package of urban design includes functional efficiency within and with adjoining environment, and with great sensitivity to aesthetics. One can go on and on, but taken together, it becomes quite clear that the central thrust of each attempt is that, urban design is concerned with the relationship between mass and void within the context of socio-economic activities, education, technological advancement and

the physical development of the urban centre in question. Hence as a phenomenon, it is closely associated with the activities of architecture and physical planning. It may manifest itself in the facade of a building, design of a street, or a plan for an entire town or sub-region. This is illustrated in figures 2.1 and 2.2.:

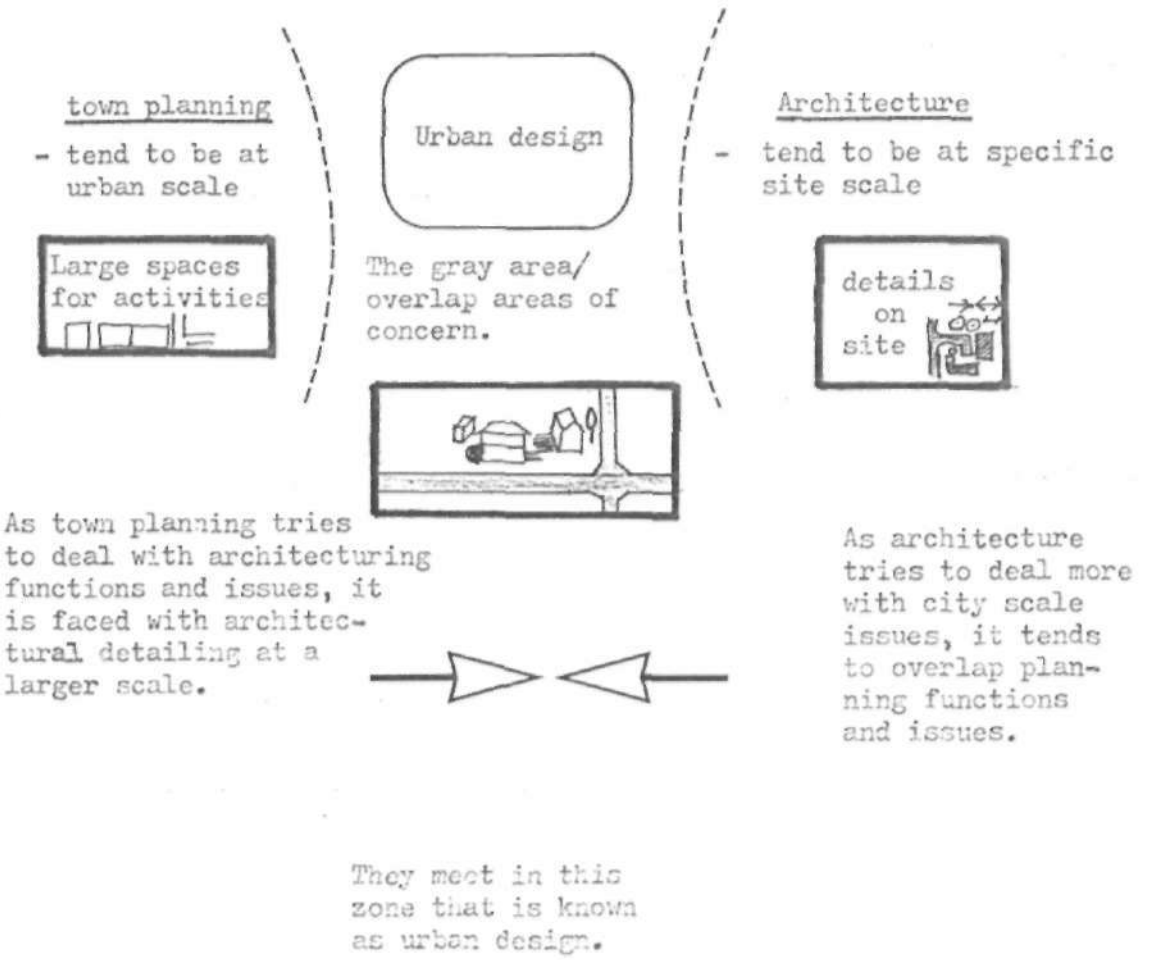


Fig.2:1: Relationship between Planning, Urban Design and Architecture.

Source: Compiled from:
Beckley, R.M. (1979: 62) in Catanese, A.J. and Synder,J.C. (1979) (ed.) Introduction to Urban Planning, McGraw-Hill, New York, Chapter 3.

In graphical form, urban design aspects of urban planning and development may be summarized as follows:



Fig. 2:2: Mathematical expression of meaning of urban design in graphic language.

The implications here are that, when natural and man-made elements are organised within the context of mass, spaces, scale and balance aesthetic qualities are created. Similarly, when these qualities are placed in the context of cultural values and heritage, the true quality of space seen from the view-point of the socio-cultural setting is formed. This then can be seen as the urban design aspects of urban development of that society.

2.2.0 ELEMENTS OF SPATIAL COMPOSITION

2.2.1 Language of Urban Design

The basic language of urban design is vision. Reekie (1972: 11), explains that the physical environment and its mental and emotional effects, result in the main from perception through sight. Hence, the appearance of things, of buildings and other structures of various kinds, is of great importance practically and psychologically. In this context, sight as a phenomenon is quite significant in the

placing of the urban components. According to Chambers Dictionary (p.797). Sight is the physical percention of light rays by the eye. The eye transforms the rays into sensations within the brain, which interprets them as lines, shapes, forms, colours, texture etc. This produces mental pictures that are either new or recognisable, and these in turn, cause certain reactions. Perception is constant for everyone with eyes, but the interpretation varies from person to person (Gihring, T.A. (1977: 5). This is so because, urban elements are real and constant; and the art of perception is the same for any abled person. However, the way one interpretes what he perceives will be related to his background, cultural values, education, environment he grew up and social status.(Gyuse, T. (1978)

Every perception has the following elements where the observer is static:-

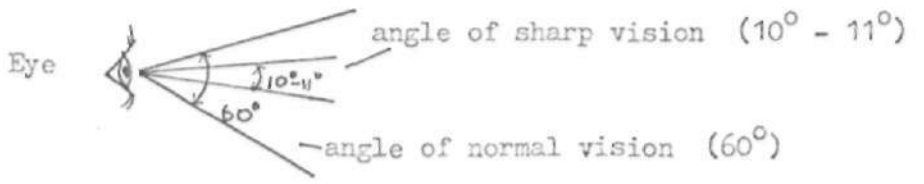


Fig. 2:3: Character of perception.

Source: Spreiregen, P.D. (1965: 71); Urban Design: Architecture of cities; McGraw-Hill, New York.

A clear picture is framed only within 10°. This is the angle of sharp vision. Anything beyond that creates what is blurred or a picture that is not clear. The movement of the eye-balls with head static permits the extention of the 10° to 60° both horizontally and vertically.

The basic implication of this phenomenon is that the attention of the observer can be focused to specific objects bearing in mind the restrictions. However, studies suggest that attention of the observer, not minding the angle, is directed towards the most attractive

urban composition. It is this incentive that attracts the observer. Such pictures remain in the mind of the observer for quite some time. Lynch (1960: 6); Bennett (1977: 16) and Ching, D.K. (1979: 332), Cutler and Cutler (1983: 70)

2.2.2 VISION IN SPATIAL COMPOSITION

Perception in any urban space consist of certain lines and plains. The two aspects are utilized to focus attention on certain urban elements. The plains control vision. They include the urban floor, wall and ceiling. Similarly, the lines can be grouped into dynamic and static. The dynamic lines direct one to certain elements to be observed. They are therefore parallel to direction of vision. The static lines hold vision and are therefore perpendicular to direction of vision.

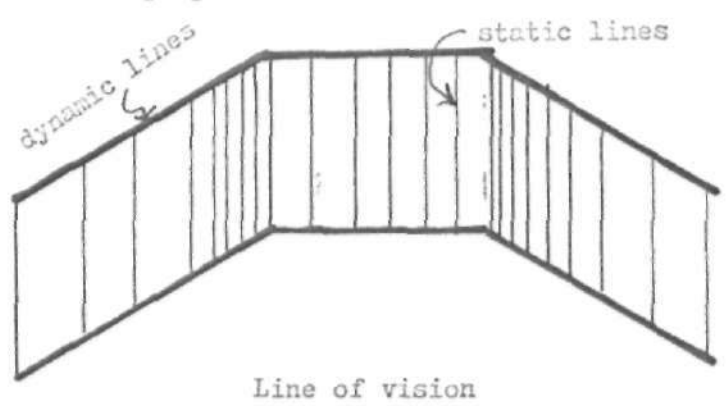


Fig. 2.4: Vision in spatial composition.

2.2.3 URBAN FORM:

The Oxford Dictionary define form as "the visible aspect, shape or configuration of an element". This refers to the three-dimensional objects consisting of lines and plains. Thus it can be seen in terms of geometry, and therefore it relates to the three co-ordinates of space that give the element its appearance. There is: (i) flat form which is characterized by the quality of two co-ordinates of space and a relatively short length along one co-ordinate.

ii) Volumenous form is characterised by the quality of the three co-ordinates of space.

iii) Linear form is characterised by a dominance along one co-ordinate.

The forms are illustrated in Figure 2.5. These are further illustrated by examples of real urban elements in plates 2.1, 2.2 and 2.3.

2.2.4 Relationship Between Viewpoint, Object and Viewing Station

a) Mass:- This is related to the degree of the volumenousness, flatness and linearness of form. The maximum quantity of mass is obtained in volumeneous form. The minimum quantity is obtained in the linear form. Therefore, it is related to the degree of compactness of form and sometimes number of openings in such form.



Fig. 2:6 Illustration of mass.

This illustrates the volume of space taken up by each block as an expression of mass. The observation point acquires significance, when one considers the phenomenon of apparent abbreviation of distance, which gives the observer a false size imagery of the observed object or form (Glinsky, A.S.; 1951).

Studies like those of Spreiregen (1965) and Bacon, E.N.(1967) show that when the observation point is 45° to the object, one will likely obtain a 1 to 1 relationship because the distance is equal to the height of the object. In this situation, one tends to notice the details more than the whole object. (Croft, M. (1974)

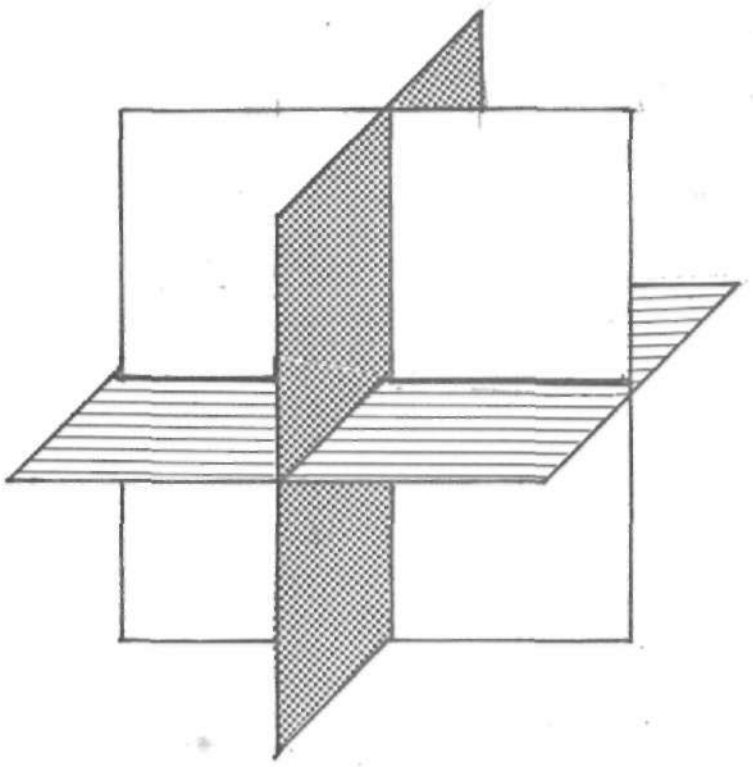
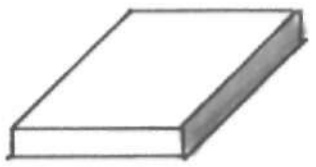
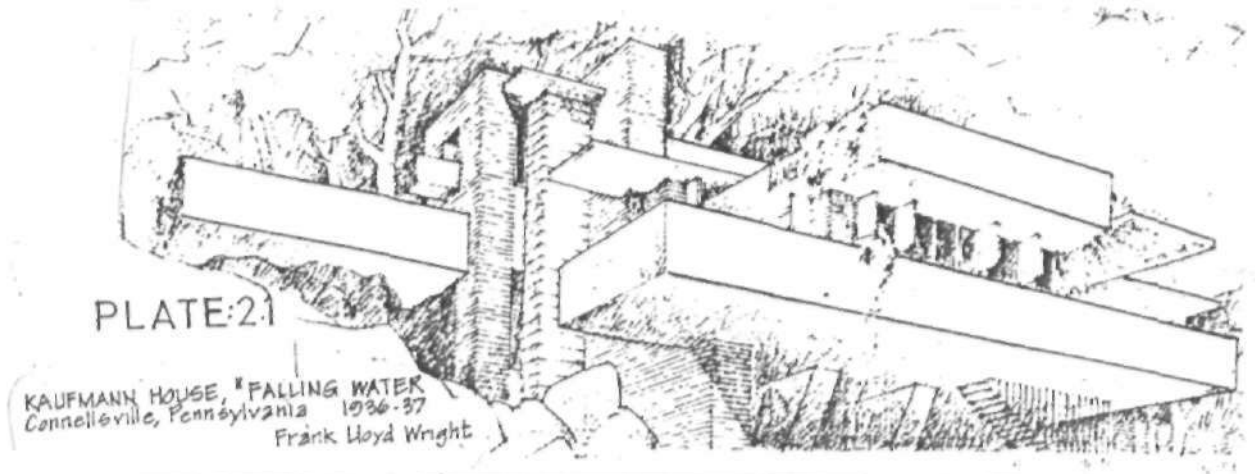


FIGURE 2.5 The three coordinates of space



FLAT FORM





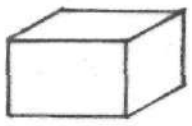


PLATE 2.2 VOLUMINOUS FORM.
(CATHEDRAL YAMOSUCRO - IVORY COAST)

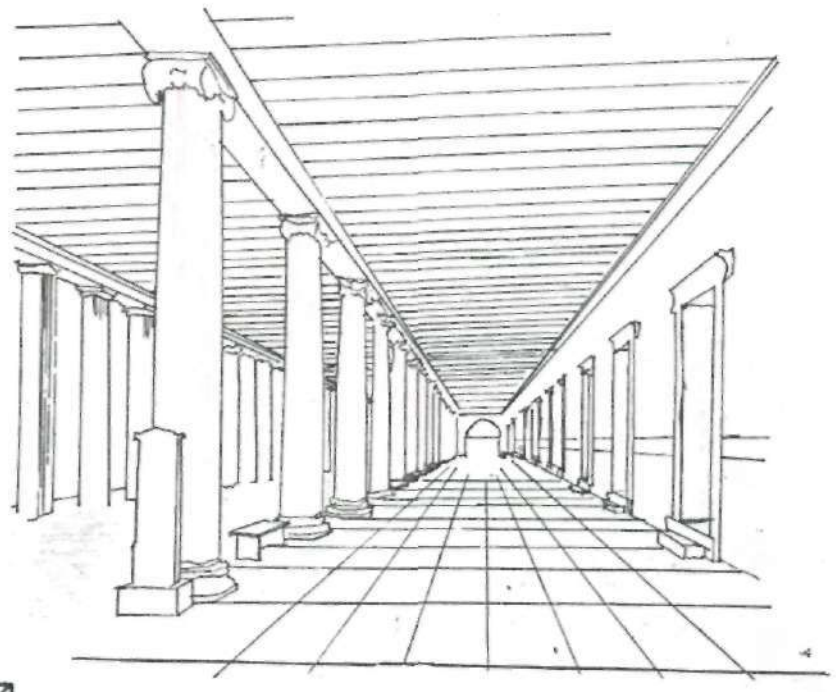




PLATE 2.3 LINEAR FORM.
(THE STOA OF ATTALOS; ATHENS)

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MSc (URP) THESIS
1989/90 session

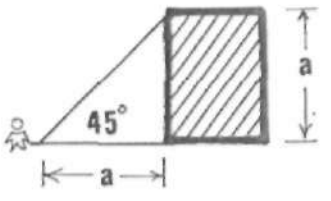


Figure 2.7: Illustration of sense of enclosre at 1:1.

If observation point is now at angle of 30°, relationship will be 1 to 2. Tendency is that one sees the form together with the details.

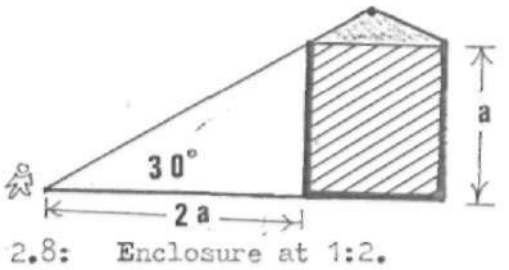


Figure 2.8: Enclosure at 1:2.

If observation point is now 18°, it will be a 1 to 3 relationship. Objects will now be seen in relation to the surrounding objects of form and details may not be seen.

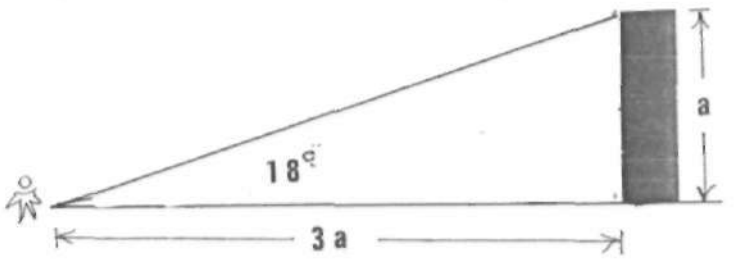


Figure 2.9: Enclosure at 1:3.

At 14°, the object will become as a forward edge of the surrounding environment. The mass of buildings and the volume of space between them is indeed fundamental to urban design.

b) SIZE:- Closely related to mass is the property of size. It can be determined either by the extent of form in relation to the three co-ordinates of space or extent of form in relation to human scale as illustrated below:

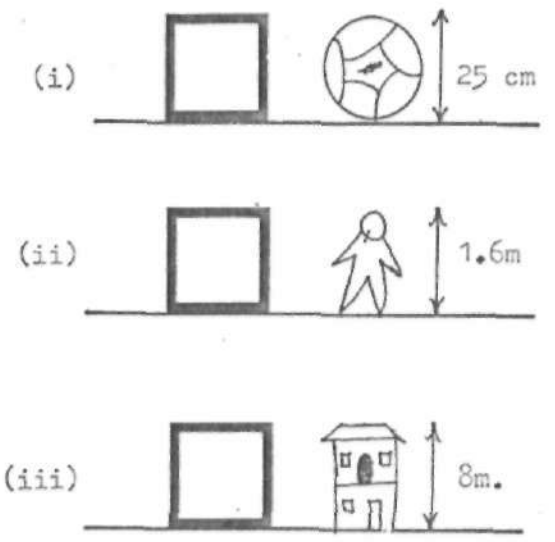


Figure 2.10: Determining size of objects with reference to human scale.

The illustrations suggest that to know the objects next to the observed form such as a ball, human being or house will give an idea of approximate size of the form.

c) MAGNITUDE:- This is the degree of importance of any urban form or object in relation to its surrounding. This can be emphasized either by placement or the location, scale or symmetry. Such structures serve as points of reference.

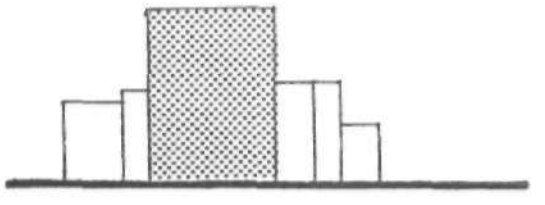


Fig. 2:11 : Illustration of magnitude.

d) TEXTURE:- This gives the surface character of an object. In Urban design, it can be determined by the number and sizes of elements of the urban form. Perception of texture depends on the distance of the observer to the object as already observed above in 2.2.4 (a).

A city can display a texture which is a reflection of organisation of activity patterns and their form. Studies show that city texture in Africa are different from those of European cities by the elements of skyline and compactness. (Bacon (1967); Cullen, G. (1971) and Urquhart (1977); Breeze, G. (1966)

e) TONE AND COLOUR

Colours can be used to distinguish a form or building from the surrounding thereby emphasising its identity. Similarly, it can be used to augment importance of a form. It can be used to break monotony of a view, and to regulate weather conditions with a particular form, depending on climatic zone.

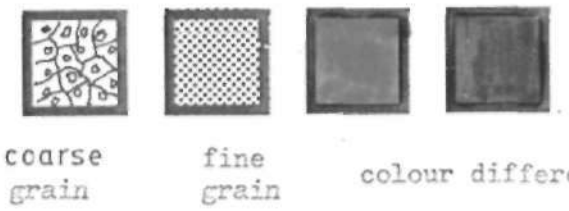


Figure 2:12 : Visual impact of tone and colour.

f) RYTHM: This occurs when the element of a form and intervals between them are clearly repeated. This could be used to break monotony.

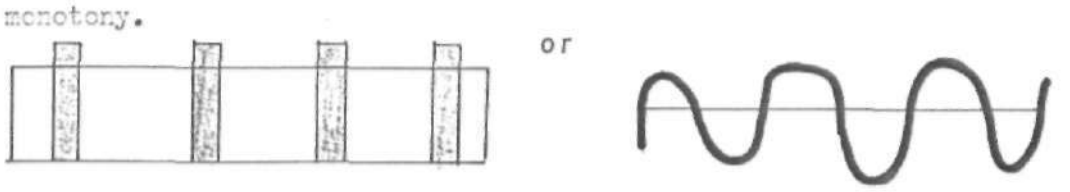


Figure 2:13 : Rythm which creates pattern.

g) VISUAL INERTIA: This refers to the degree of concentration and stability of a form. The visual inertia of a form would depend on its geometry as well as its orientation relative to the ground plane and the observer's line of vision. (Ching (1979: 51)

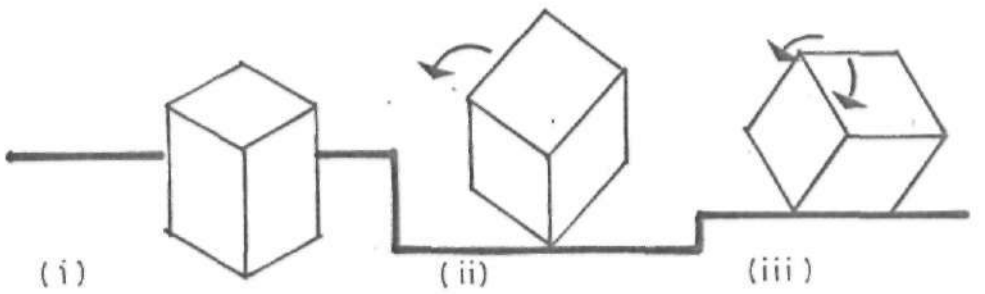


Figure 2:14 - Visual inertia phenomenon.

In (i), it gives visual impression of stability while (ii) and (iii) are unstable with (ii) the least stable.

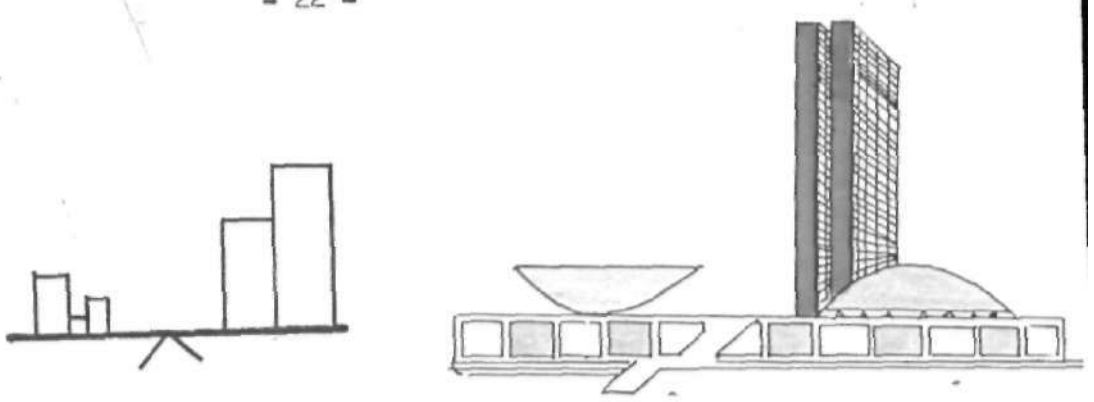
h) SHAPE: This concerns the edge contour of a plane or the silhouette of a volume. It is the primary means by which one recognises and identify the form of an object (CHING, 1979: 52). The perception of a form's shape will depend on the degree of visual contrast between the form and its background.



Figure 2:15 : Shapes leads to recognition.

All these properties of form are affected by the conditions under which one views them **i.e** the angle of vision; distance from the form; lighting condition and the visual field surrounding the form (Khanna; 1984).

i) BALANCE **AND** AXIS: This shows the visual equilibrium in perception. Distortions in the geometrical forms or in terms of mass and void proportions creates irritation in vision.



This way, it is not balanced, rather this.

Figure 2:16 - Creation of balance.

j) VISTA AND VIEWS: Vista is a confirmed view usually towards a terminal or dominant object or feature. Each vista has a viewing station, object observed and an intermediate ground.

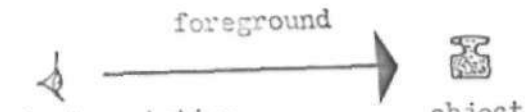


Figure 2:17 - Elements of vista.

As the topography or the route change course, new elements come into view in a set of sequence. This, Cullen, G. (1971) calls visual sequence.

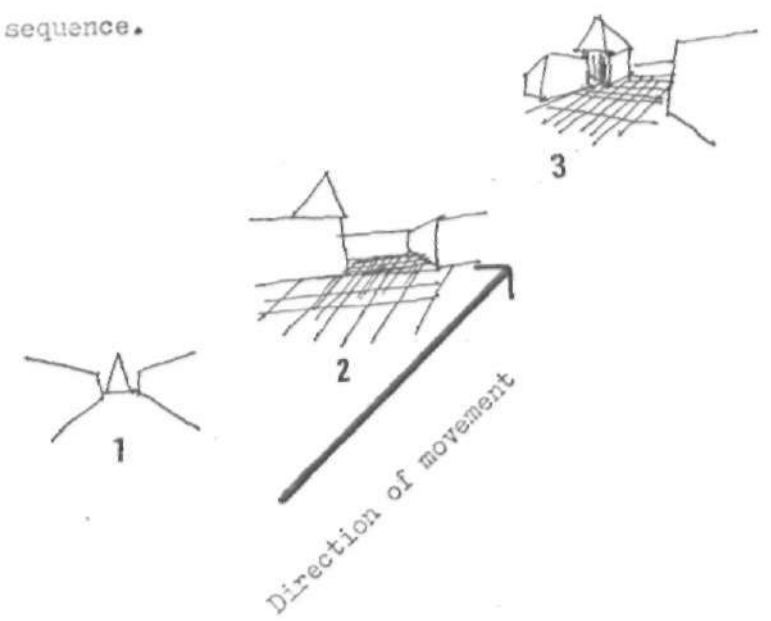


Figure 2:18 - Visual sequence.

2.30 URBAN DESIGN COMPONENTS

There are diversed but equally valid approaches towards explaining urban design components or the theory in urban design. They can be polarized into two groups, namely; studies that outline the procedural nature (including the forces responsible) of urban design (Wurster, 1963; Chapin (1975); Barnnett (1974; 982); Bacon (1967). The other pole deals with the imageability and phenomenology of space (Lynch (1960); Norbergschultz (1970); Hall,E.T. (1966), and Cullen (1971) and Rapoport (1977).

The former group seek to explain the circumstances that have led to the crystalization of the city elements. Here, the outcome is a categorization of urban design components into three, namely; factors, principles and elements (Sani, 1985).

The factors could be better described as urban design forces. Essentially, these are the various societal and environmental forces that trigger or initiate and sustain the urban elements found in the city. They represent the different aspects of needs for space and objects and their moulding into specific desired configuration, as well as the background on which the elements are based.

The principles are the applied set of rules evolved by society to meet these forces identified. The elements are the various physical representation of societal space requirements as crystalized in various forms of structures and spaces moulded and arranged according to the design factors and principles in operation. Their interrelativeness is outlined in figure 2.18 below:

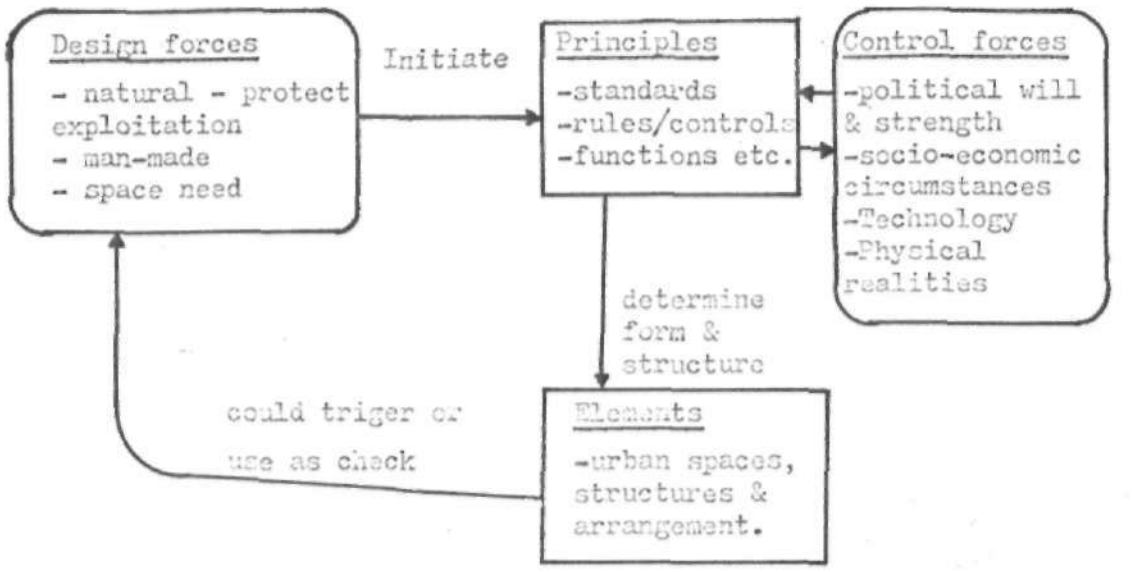


Figure 2.18a Flow diagram of interrelationship of urban design components.

The later group seek to explain the process by which certain built elements are selected out of a multitude and codified as transmittable images of a place. This is based on the premise that cities evoke particular sets of images that gives a certain legibility through which the city can be 'read' and understood.

Lynch (1960) concerns himself with the mechanism of codification which he associates with the imageability of an object or grouping. He identified five major elements, namely; path, edges, nodes, districts and landmarks. He submits that these elements can be applied in the rebuilding of our cities. Refer to figure 2:19:

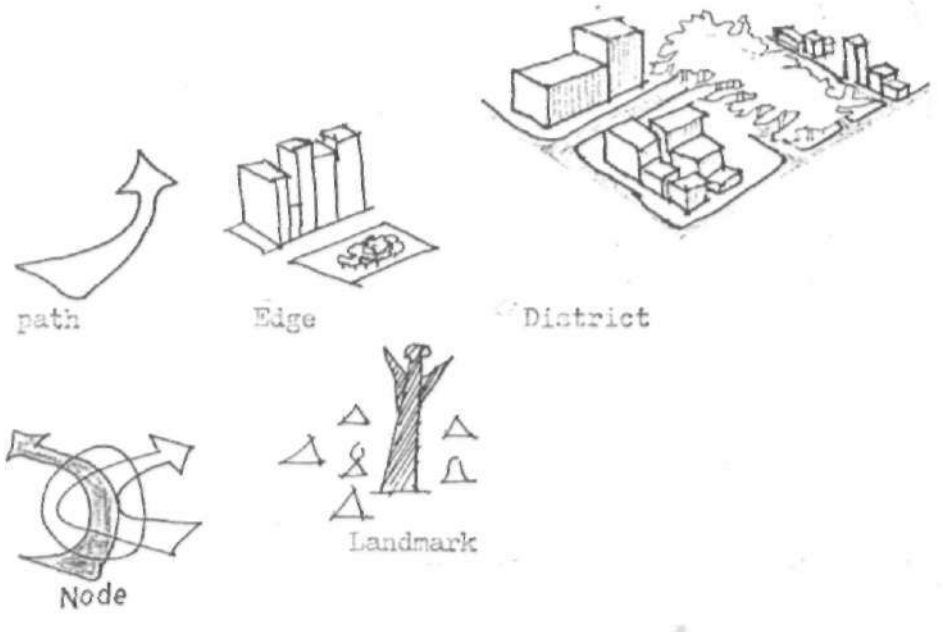


Figure 2:19 - The crystalining elements of imagery that have been used in reading the city.

2.4 - URBAN DESIGN AS A COMPONENT OF URBAN PLANNING AND DEVELOPMENT

2.4.1 Nature of Urban Development Activities

Urban planning and development is undertaken nowadays by the corporate efforts of trained and qualified professionals on the one hand i.e. town planners, Architect planners, Urban designers, Landscape Architects and Civil Engineers, assisted by various consultants and specialists, all working together in systematic and logical ways; and prospective developers and concerned citizens on the other hand. Reckè (1972: 2) regards design of the built environment as consisting of three parts:

i) planning; (ii) urban design; (iii) building design. Planning, in this division, is the general disposition of land areas for various uses, the general location of buildings and open spaces, and provisions for services and surface communications,

expressed more or less in a two dimensional manner.

Urban design, more specifically establishes relationships between man-made and natural elements by striking a rythmic aesthetic balance of scale.

Building design is the detail design, including constructional materials and methods, of individual groups of buildings, and of structures such as civil engineering works, within the context of the overall planning scheme and urban design. These three parts are not easily separatable. A wholistic view of the system reveals the following theoretical framework as outlined below: Note that each stage has its own peculiar process diagram.

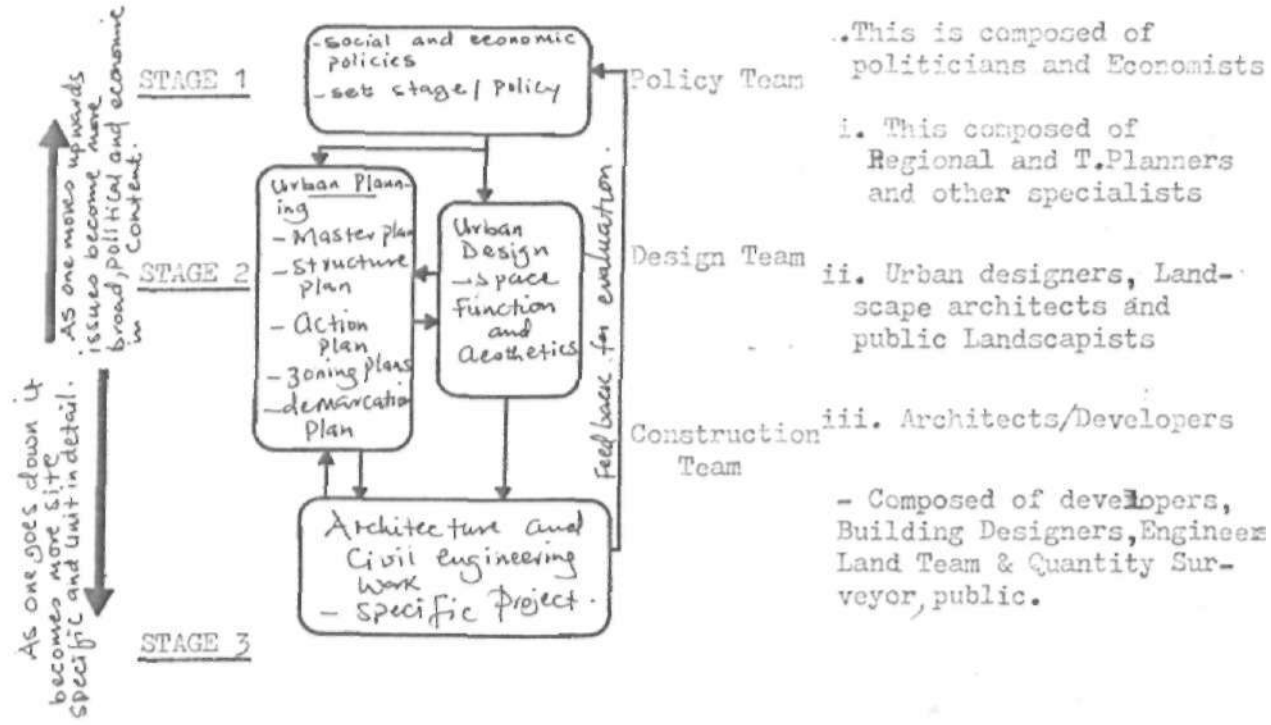


Figure 2:20 - Theoretical framework of process of urban development activities.

SOURCE: Compiled from Reekie (1972)

2.4.2 Urban Design within the Comprehensive Planning Process

A simplified theoretical framework of the planning process would include the following basic sequence:

i) A Recognition Stage: The need for planning and design activity is recognised at this stage. The specific problem areas and their contextual state of available resources etc. are made.

ii) Specification Stage: Alternative ends are identified and specific ends chosen. These are then specified in terms of goals, objectives, performance criteria and standards.

iii) Proposal Stage: Means for attaining the specified ends are identified. These are often expressed in terms of policies, programmes, design concepts, physical plans etc. depending on the scope of a particular problem.

iv) Evaluation State: Relative merits of alternative means are evaluated against the criteria specified earlier.

v) Decision Stage: Once a decision on a particular solution is made, it is developed and refined and means for effectuation and staging are formulated. These are expressed in terms of broad strategies and policies, regulatory measures capital programmes and other implementation means.

The urban design aspects inherent in this theoretical procedural steps may be considered under two conditions. Firstly, in a situation where the end product may be clearly defined; where the feedback accrues within the realm of the designer himself; where the complications of the public decision-making process are not overtly made part of the process of design. This may be referred to as generic design process. This is outlined in figure 2:21 below:

Secondly, in a situation where the end product is shaped by clientele response; where varieties of scale are involved and where implementation is shaped by public policies. This may be re referred to as 'responsible design'. This is outlined in figure 2:22.

By and large, the urban design aspects intrinsic in the comprehensive planning process would appear as shown on figure 2.23. Urban design aspects should involved at each stage otherwise it may not be effectively achieved at later stages of urban planning.

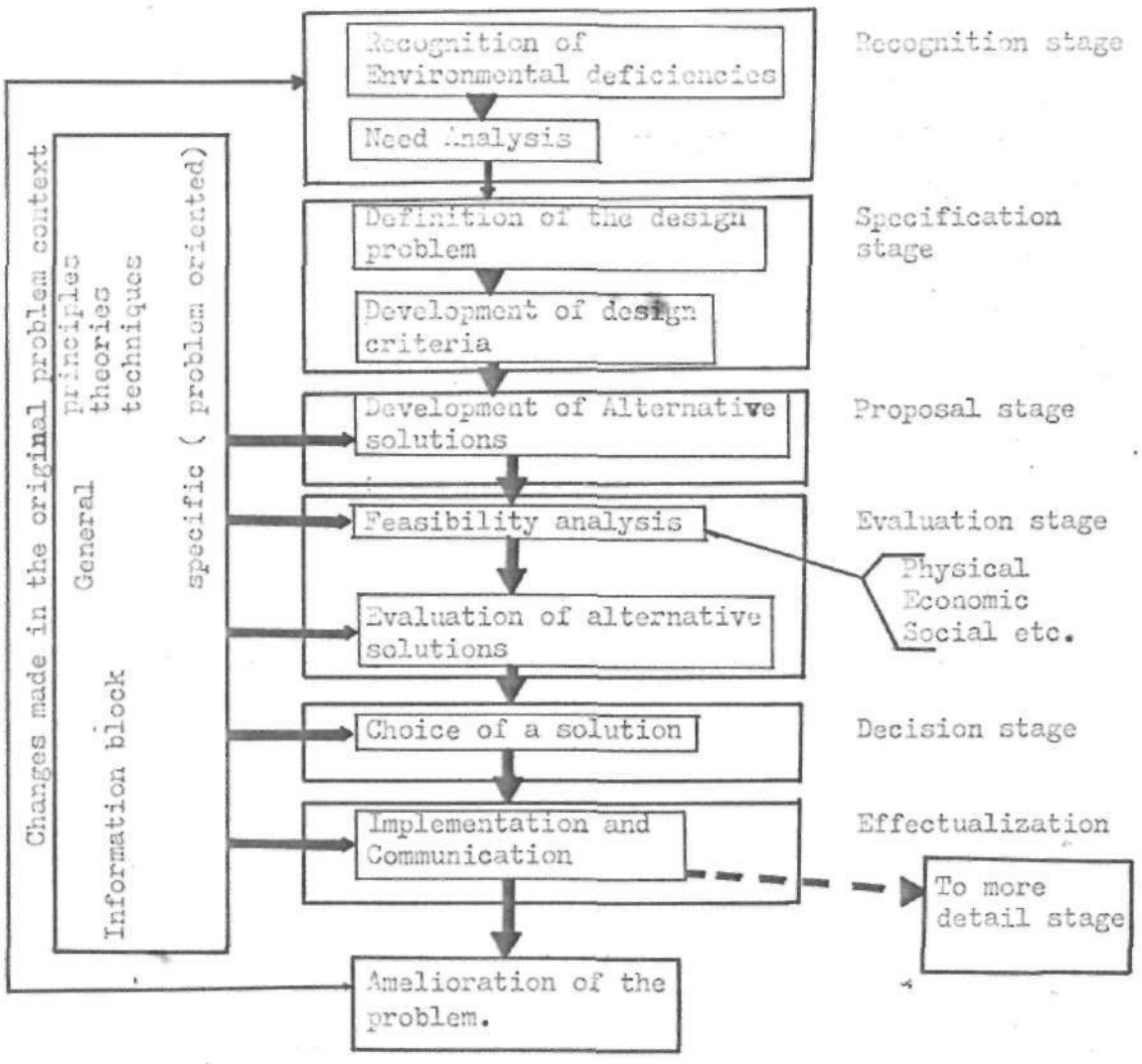


Figure 2:21 - Generic design process.

Source: Wolfe, M.R. and Shinn,R.D. (1970:28)

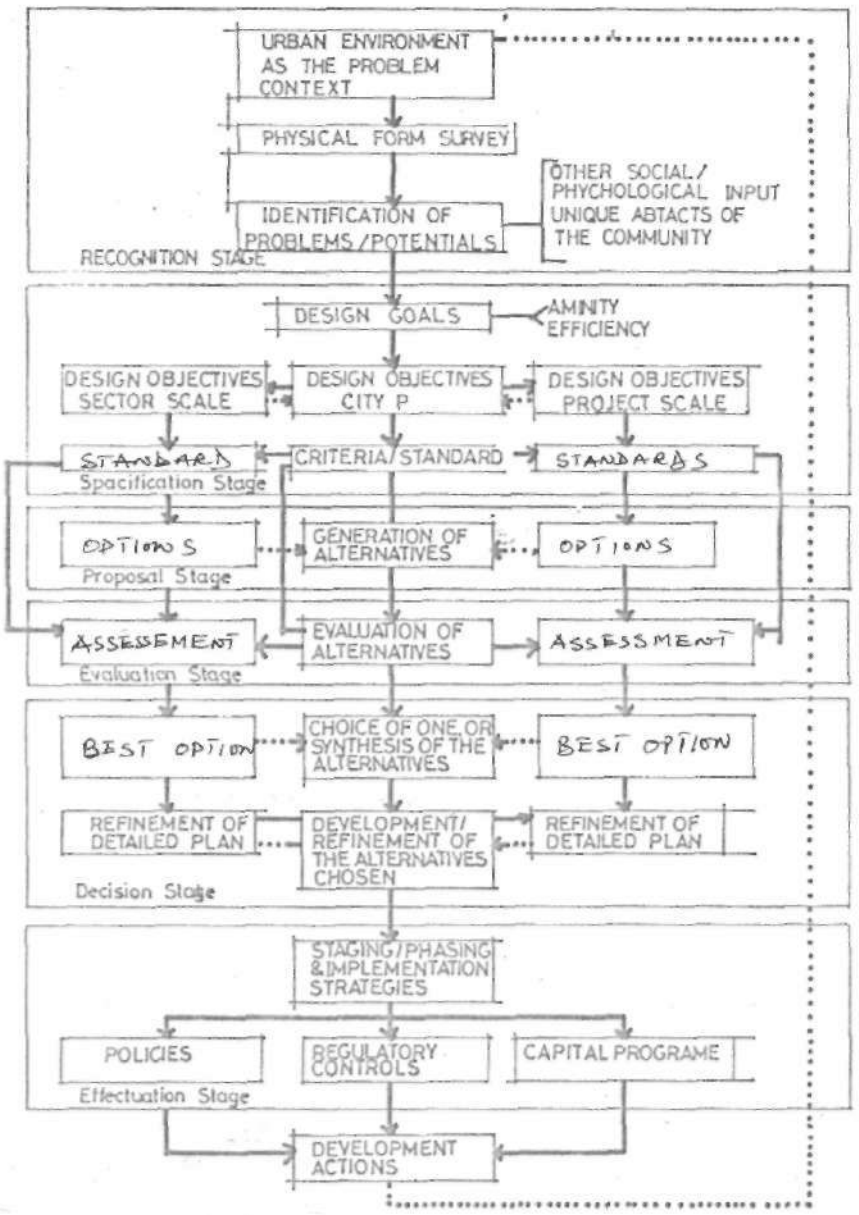


FIG:-2.22 RESPONSIVE DESIGN PROCESS

SOURCE Wolfe, M.R. and Shinn, R.D. (1970:29)

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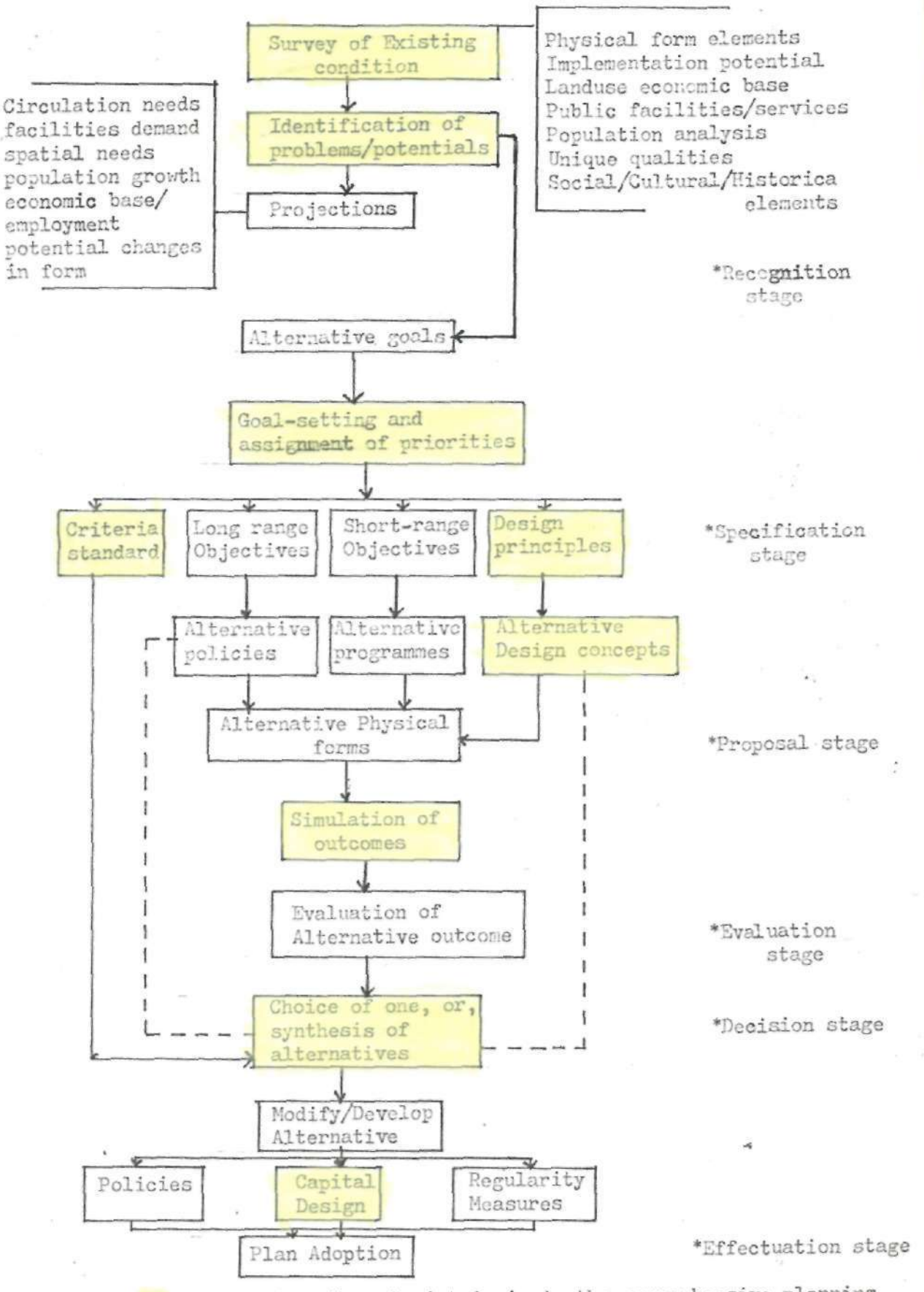


Fig. 2:23 - Urban design elements intrinsic in the comprehensive planning process.

Source: Wolfe, M.R. and Shinn, R.D. (1970: 29)

CHAPTER

3

THE CHANGING PATTERN OF URBAN DESIGN IN URBAN DEVELOPMENT THROUGH OUT THE WORLD



(1) Dawn of civilization



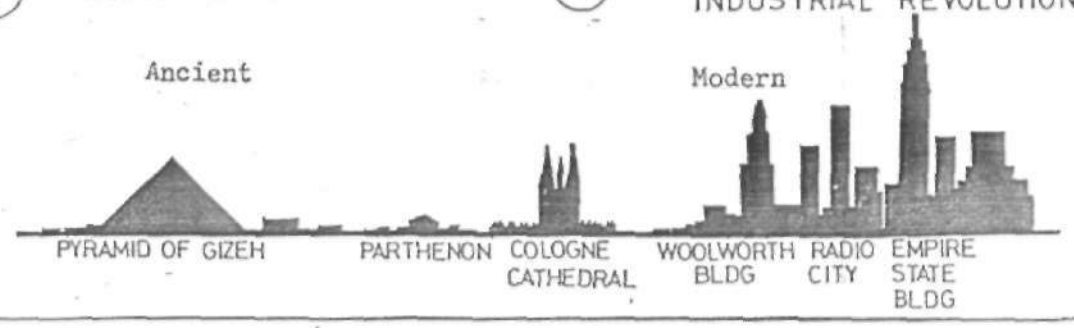
(3) Renaissance & Barque era



(2) Madieval Times



(4) INDUSTRIAL REVOLUTION



CHAPTER THREE

3.0 THE CHANGING PATTERN OF URBAN DESIGN IN URBAN DEVELOPMENT THROUGHOUT THE WORLD OVER TIME

The urban area is a vast construction in space. It is a product of many builders who are constantly modifying it. Hence the variety of forms created emanate from forces which prevailed during the successive periods of their history. In order to understand the nature of change as a component of urban development viewed from the platform of urban design, a historical review is necessary. For this purpose, the time/period has been divided into five, namely; ancient, medieval, renaissance, baroque and the industrial periods. The situation in Nigeria is examined.

3.1 THE DAWN OF CIVILIZATION (3000 B.C.)

Records available indicate that the world's first cities took shape around 3,500 B.C. i.e. the beginning of the Bronze age (Burke, 6; 1980). Generally, the regions which show evidence of the beginnings of extensive city building covered the fertile areas of Tigris and Euphrates rivers, the Nile Valley, the Indus Valley and the Yellow river areas (Yangse and Hwangho rivers) in China. Fig.3.1 shows the relative location of these ancient civilization. Fig. 3.2 shows the location of some of the major cities of the time.

According to Gallion, A.B. (1963:3) and Burke, G. (1980: 5) and Catanese, A.J. (1974: 4 & 5) cities here built as fortress and market places. City life centred on 100 feet (30 metres) high buildings called the ziggurats, which were both temples and observatory. Figure 3.3 illustrates.



FIG: 3.1 EARLY CIVILIZATIONS THROUGHOUT THE WORLD

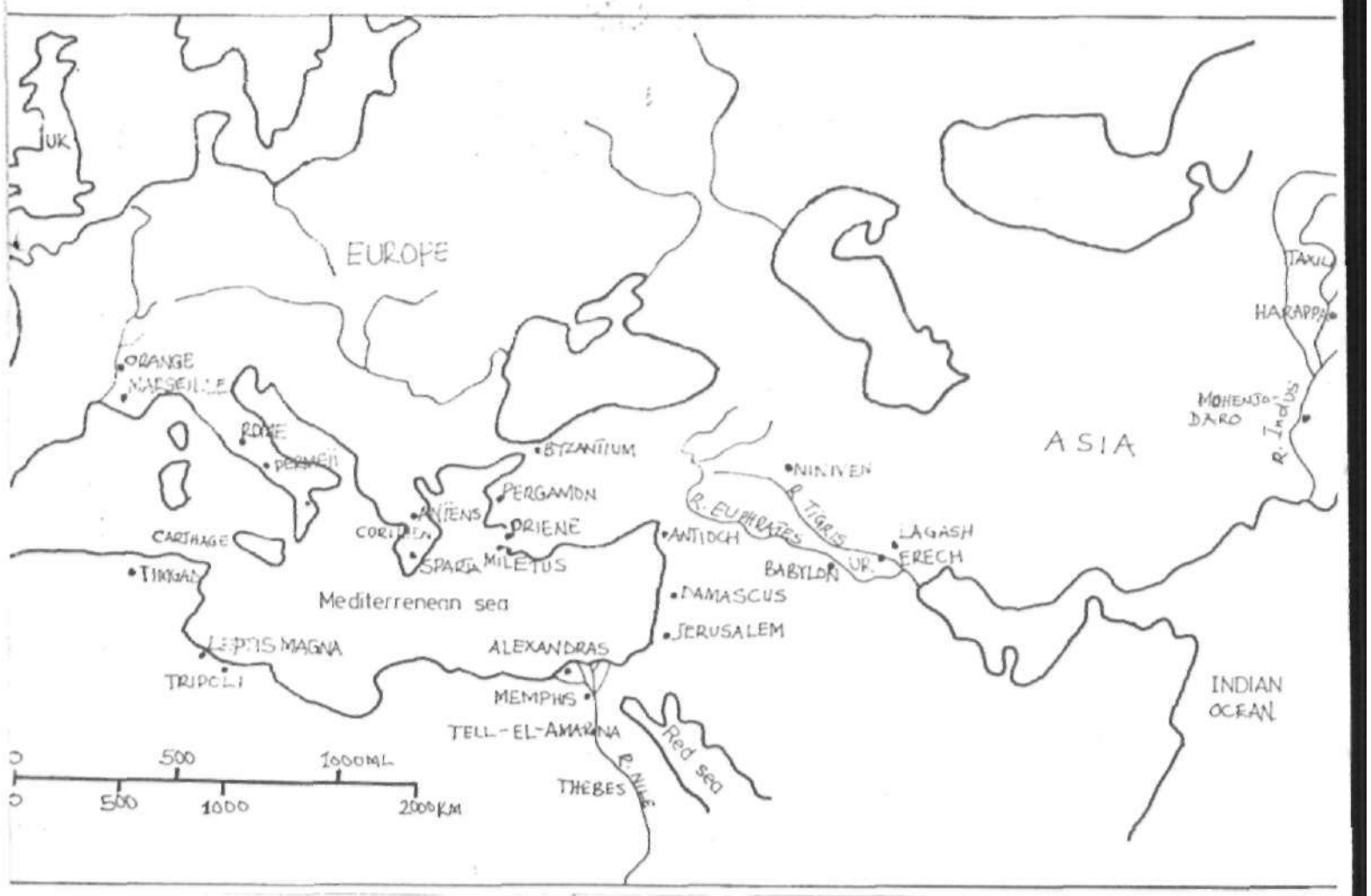


FIG:3.2 LOCATION OF SOME ANCIENT CITIES

SOURCE: Towns in the making by Gerald Burke (1980)

In Egypt, the settlements were built around the pyramids in the form of barracks in which the cells and compartments of sun-dried bricks were crowded about common courtyards. Along the Indus Valley, the Mohenjo-Daro settlement existed around the same time. Other cities include Babylon (Fig. 3.4), Langash and Niniveh.

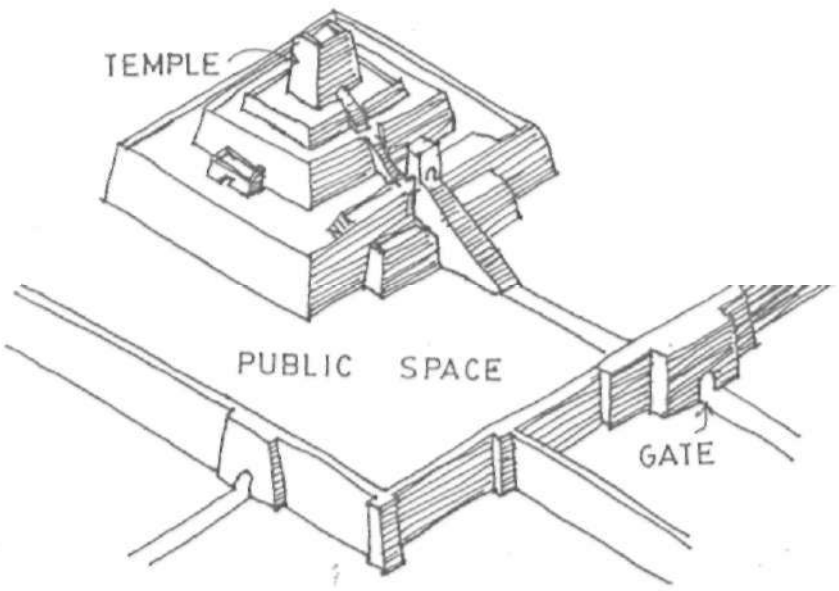


FIGURE:-3.3 EXAMPLE OF THE ZIGGURAT, UR, TURKEY
Source:- Catanese,(1974:4)

The significant urban issues included the gates, temples and public meeting spaces. The main forces responsible were the development control measures, topographic restrictions, defence and religious inclinations. In ancient Greece, one notes that they ascribed values to particularly prominent or unique pieces in the land became sacred. In Athens, the high place was originally a fortified hill-top, which, with the later growth of the town, became the sacred precint, the Acropolis. It was a site for the temples of the gods, the treasures, and their

attendant artifacts. (Refer to fig. 3.5).

Athens properly developed below the Acropolis, starting at the entrance to the fortress hill and expanding along the major routes as a circular concept of settlement. The agora developed at the foot of the Acropolis along the route leading to Athens port, Piraeus, and was the city's political and commercial centre. (Spreiregen 1965: 3)

The street in early Greek cities was not treated as a principle design element but as the minimal left-over space for circulation. The design principle was to make the man-made elements graciously asserted as another component of nature and not overwhelm it. Man was used as the scaling factor.

Salient features of the Greek urban design principles include the following: Firstly, although the buildings of the Acropolis did not have a geometrical axial relationship, they had a very definite visual relationship. Spaces were articulated as a series of purposefully sculptured masses.

Secondly, the Agora served as facades to form an enclosed urban space. The idea here was that it was both a place and a space.

Thirdly, the general design ideas which they applied came from long experience and observation. These principles were mostly expressed in the works of Hippodamus who lived in the 5thC B.C.). He proposed regular street layouts along grid-iron patterns. Some of his inspirations probably derived from ancient Babylonia, where open plazas were interspersed through the grid layout. Miletus colonial town illustrates Hippodamus concepts. (Fig. 3.6)

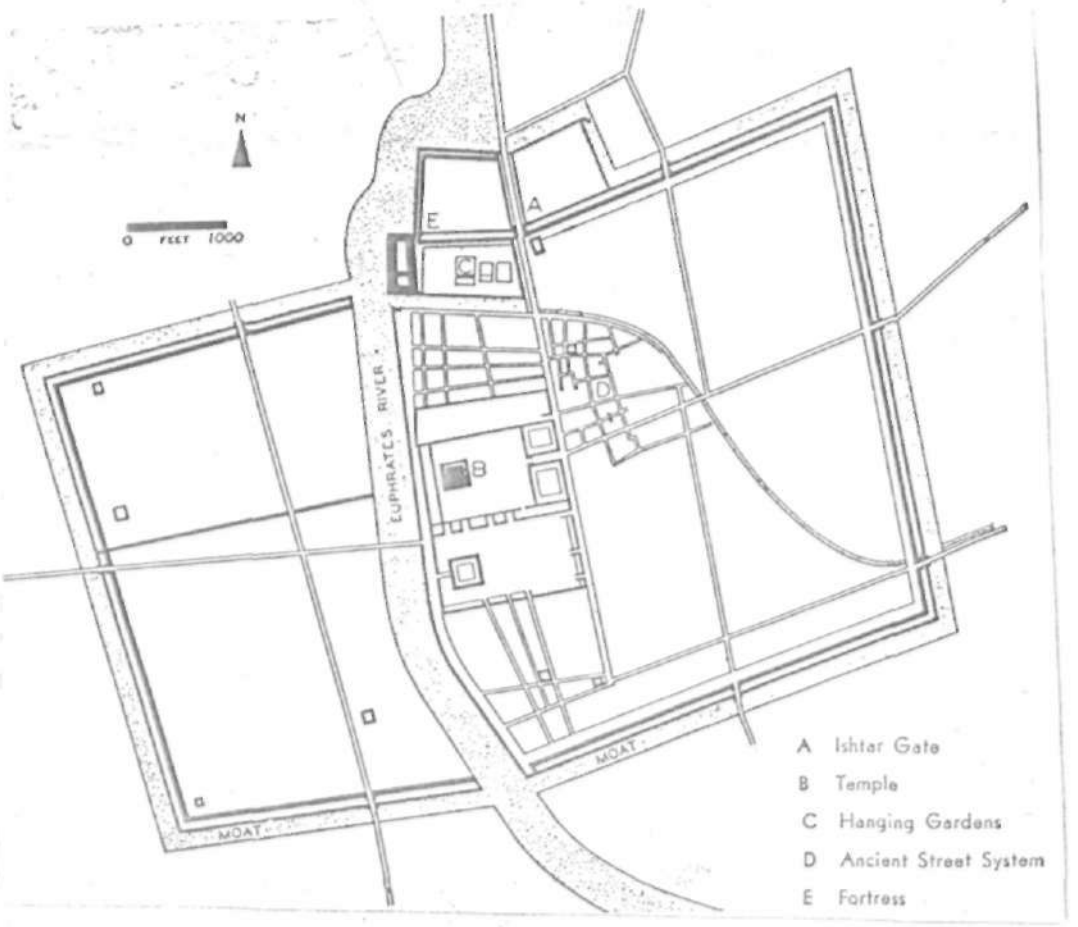
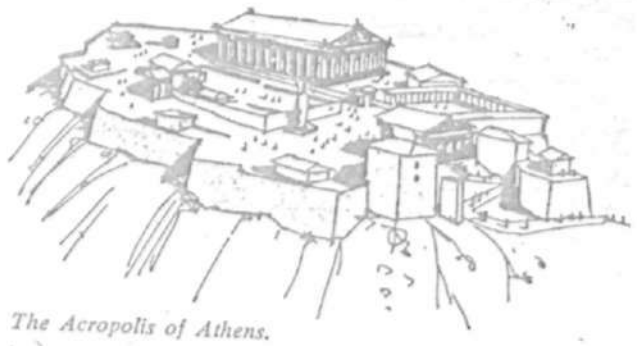


FIGURE:-3.4 BABYLON CITY STRUCTURE
Source:- Gallion (1963:5)



Ancient Athens ca. 400 B.C., showing the agora and the Acropolis in relation to the city's walls and hills.



The Acropolis of Athens.

FIGURE:- 3:5 THE ACROPOLIS OF ATHENS
Source:- Spreiregen (1965:3)



FIGURE:- 3:6 MILETUS STRUCTURE

The Greek colonial town of Miletus, illustrating the principles of Hippodamus, although built before his time.

Source:- Spreiregen (1965:5)

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Whereas the Greeks were motivated by a sense of the finite in their towns and buildings, the Romans were motivated by political power and organisation. The proportions and sizes of Greek architecture were based primarily on human measurements. The Romans, on the other hand, used a set of proportions, that would harmoniously relate the various parts of a building to each other but not necessarily to human measure. (Fig. 3.7)



FIGURE :3.7 *The Republican Forum. The Curia (Assembly) is the center building.*
Source:-Spreiregen (1965:7)

The places of public assembly were the theatre, the arena, and the market. Public buildings were treated as subordinate to the street. The development of fully-monumental design concepts came in ancient Rome in its clustered central area. Gradually, Roman urban design moved from massing and detailing to creating urban spaces. Thus the imperial forum was created. (Fig.3.8). The significant issue here is that they recognised and applied the utility of the concept of enclosed space.

(fig. 3.9 illustrates)

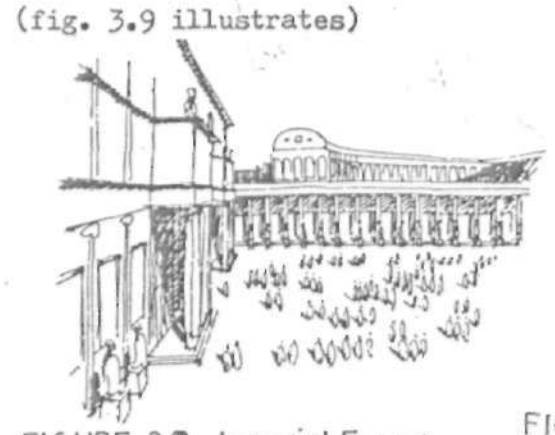


FIGURE-3.8 Imperial Forum
Source: Spreiregen 1965:7

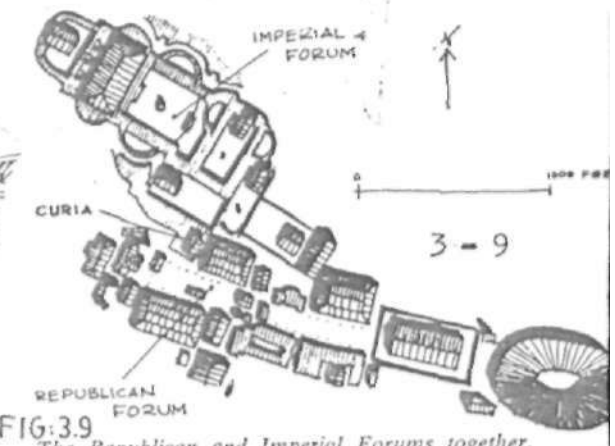


FIG:3.9 *The Republican and Imperial Forums together.*

3.2 MEDIEVAL TIMES (5TH CENTURY TO 14 A.D.)

The decline of Rome's power left many outpost settlements all over Europe which became the nuclei of new societies. Castle towns and Monastery towns emerged. Essentially, the castle was seen as an object in the landscape - dominating and aloof. However, as the towns grew, the medieval town was developed in relation to the human scale.

The character of the town pattern was such that the streets were winding precluding long vistas and thus direct one's attention to immediate details. These conditions induced designers to design the visible exteriors of their buildings to best suit the total viewing conditions of small spaces. Thus the basic urban design elements were the houses, gardens, walls, plazas, churches, public buildings and the streets. Although the street pattern appeared to be a maze with no logical form because it lacked pure geometry, the street layout was functional.

3.3 THE RENAISSANCE PERIOD

The Renaissance period started in 1440 (Spreiregen; 1965:12). This period exhibited strictly geometric form mostly with shape of a star with roads radiating from the centre. The works of Leon Battista Alberti is regarded as the foremost early theoretician. His concept for an 'ideal city' triggered the

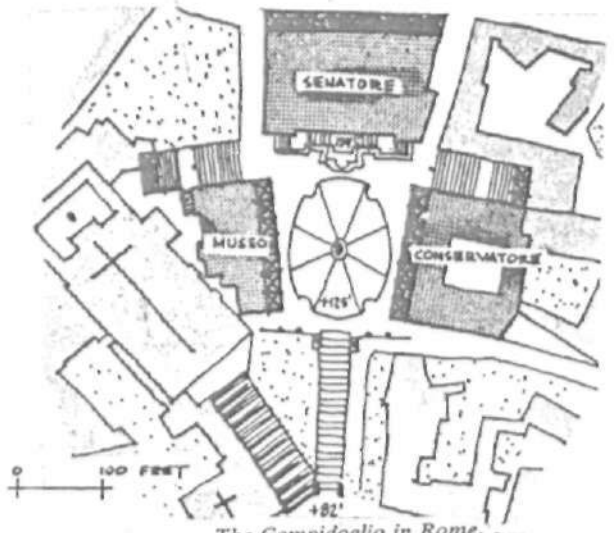


FIG. 3:10 *The Campidoglio in Rome. Michelangelo's masterpiece of urban design.*



Approaching the Campidoglio via the ramped stair. The gigantic order unifies the facade from this viewing distance.

Source : Spreiregen 1965: 17.

thoughts that there is the possibilities of perfectly symmetrical composition of city design. The major urban design issues related to the road geometry which was changed from the medieval winding to straight lines; slum clearance was done to improve quality of life through design; spacious'plazza' surrounded by new buildings were created as illustrated by the works of Michelangelo - The campidoglio in Rome (Fig. 3.10) Pope Sixtus V wanted the city of Rome to be glorified as the centre of christianity. Streets, squares and buildings were geometrically linked so that all the major religious buildings of Rome were spatially and visually connected. Fountains and monuments were later added. (Fig. 3.11 illustrates)

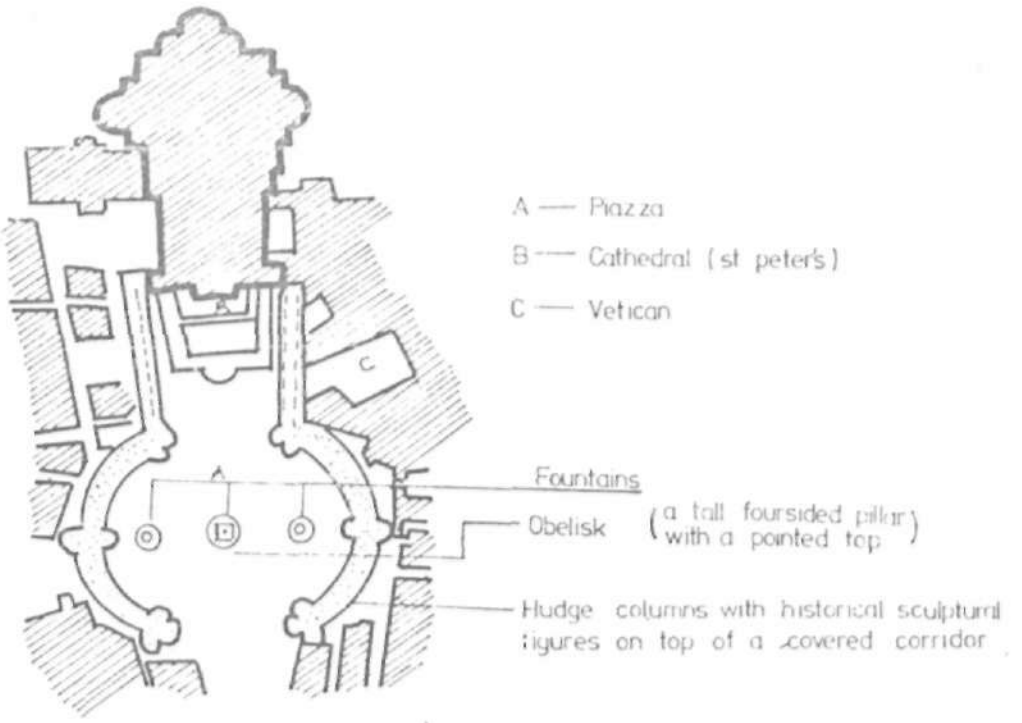
The introduction of landscaping principles as perfected in the work of Lenotre in plan for Versailles, gave urban design principles impetus as the system of land design. (Fig. 3.12)

3.4 THE BAROQUE PERIOD (16th - 18th Century)

This period witnessed further dominance of rulers. City was structured to give ruler dominance. Design shifted from walled in architectural form to an extension and expansion of open space. Figures 3.13 and 3.14 illustrate. Avenues focused upon the royal palace as expressed by the Versailles. Continuity replaced the enclosure of open space as the new direction in Civic design.

3.5 THE INDUSTRIAL CITY (18th C. - todate)

The industrial revolution changed both dimension and direction of urban design, and urban development city growth became rapid creating congestion, inaccessibility and incompatibility in space use. Social reforms emergedwith new ideas.



Formal plazas of Renaissance were carved out of the medieval town and given monumental scale and form reminiscent of classic antiquity.

Exterior space was enclosed with formal facades and the shapes were modelled like sculptural pieces isolated from the rest of the city

FIG. 3.11 PIAZZA DI SAN PIETRO (ST PETERS SQUARE) ROME, ITALY

SOURCE:- GALLION, (1963:23)

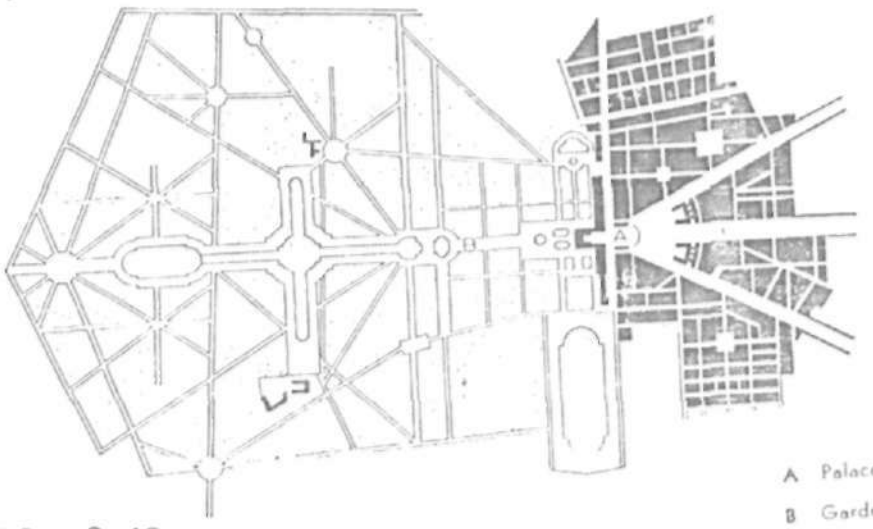


FIG:- 3.12 VERSAILLES (France)

SOURCE:- BAIRD/SAMPSON ASS.(1984:7)

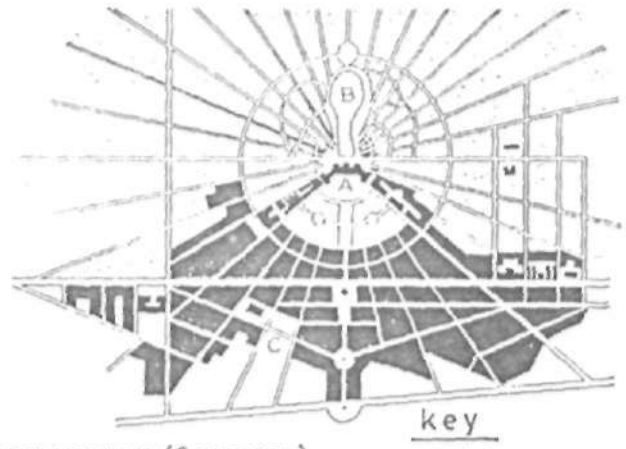
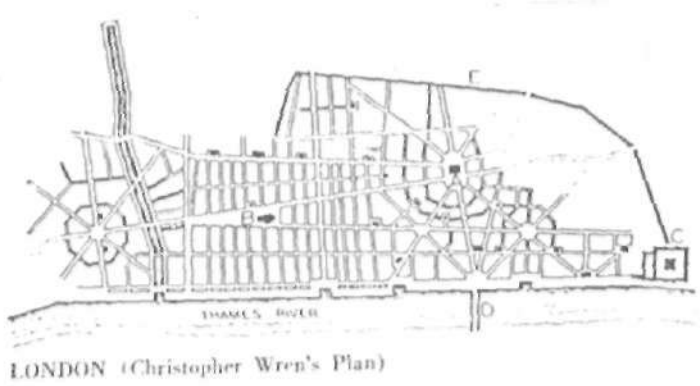


FIG:3.13 KARLSRUHE (Germany)
SOURCE: Spreiregen (1965:20)

Note:- The baroque planners designed big avenues, connecting the open and important places of the cities.



LONDON (Christopher Wren's Plan)

FIG:- 3:14
Source:- Gallion (1963:30)

key

A Stock Exchange
B St. Paul's Cathedral
C Tower of London
D London Bridge
E Old Walls

Note: The long approach and the vista are typical marks of the Baroque plan.

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These started getting expression in the new town syndrome. Ebenezer Howard's Garden city gained popularity. Here, a practical solution to the problems of the industrial revolution was outlined in physical terms. As the industrial revolution began to settle its dust, democracy and more established economic system stablized city development. It is at this point that explorations intensified and the transfer of new city design to new colonies strengthened.

The 19th Century saw many reactions to city planning. As a result certain reactionary and philantropic movement emerged to put forward their demands in respect of town designs as they affect the total environment. These included housing reform groups; the park planners group and city beautification movement group. The thrust of their presentations was that urban design considerations in town development would solve the problems of the slums and poor environmental aesthetics.

Figure 3.15 illustrates the changing structure of the city between the 17th century to the 20th century.

CHANGE IN URBAN PATTERN AND SCALE

The new transport means spread the landuse distribution and thus spread the city areal coverage. Population growth suddenly changed pace to create congestion and slums. (Marshall, 1966: 21)

DETERIORATION OF THE ENVIRONMENT

Unplanned urban development increased tempo beyond the capacity of the city to accommodate the migrants. Congestion resulted with deterioration of environment created.

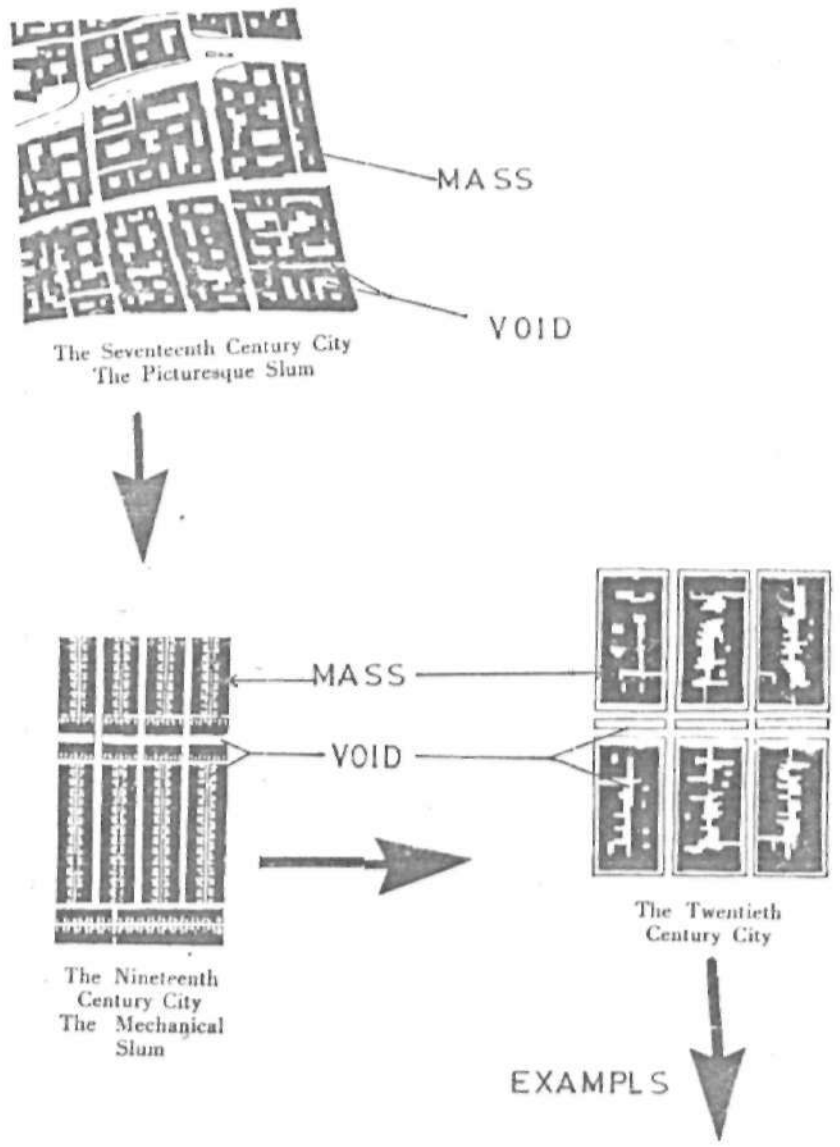


Fig. 3:15 - Changed structure of the city (17th - 20th C.)

Source: Marshall, P. (1966: 21)

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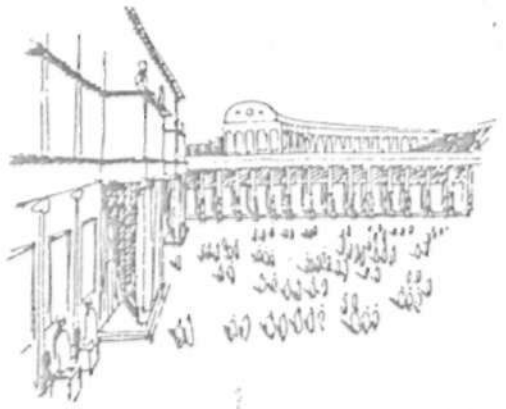
The Athenian agora with the Odeon against a background of stoas. In the distance, the Acropolis.

i. Urban form based on human scale (Greek)



The Republican Forum. The Curia (Assembly) is the center building.

ii. Emphasis on buildings (Romans)



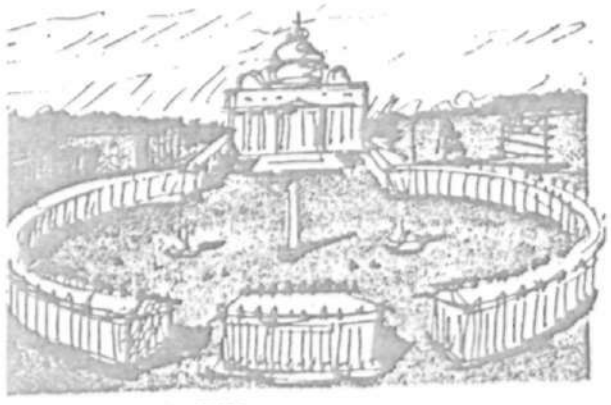
The Imperial Forum. The buildings were designed to form large regular spaces.

iii. Medieval times featured human scale and focal points.



The main cathedral of Siena climaxes the architectural massing of the town.

iv. Renaissance time, emphasis was city control and artistic quality.



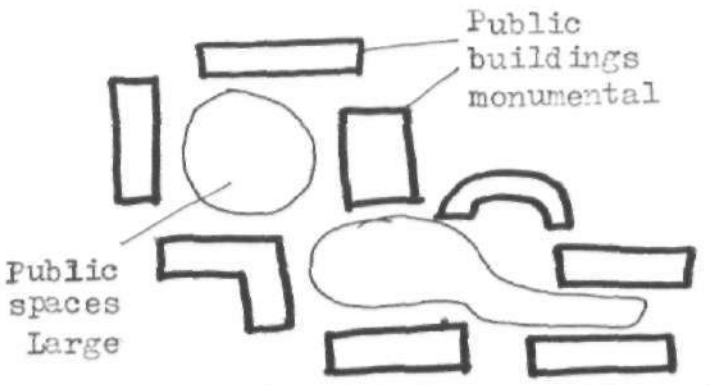
t. Peter's Square in 1660.

v. Ideas of city design in 18th and 19th C. to accommodate people.

FIGURE:- 3:16 CHANGING CONCEPT OF URBAN DESIGN UP TO (18th Century)

Source: Spreiregen (1965)

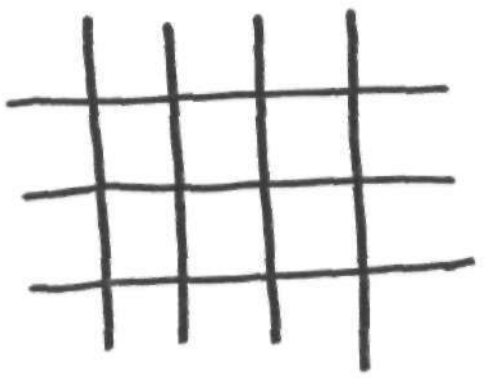
SALIENT URBAN DESIGN FEATURES



● Spaces articulated as series of purposefully Secultared Masses



● Buildings were detailed to give good facade.



● Road Layout Basically grid



● Skyline Compact and Continious

THE CHANGING CONCEPT OF URBAN DESIGN IN WESTERN COUNTRIES OVER TIME.

CHANGE IN THE TRADITIONAL CONCEPT OF THE CITY

From the Greek city based on human scale, through the Roman's with concern for activities, to the renaissance, the idea of city design was creating a place to live for all, with particular emphasis on the needs of the working class. Figure 3:16 illustrates the changing pattern of city design.

THE 'IDEAL CITY DESIGN'

As a reaction on the deterioration of the cities, many designers came with ideal concepts for industrial towns. Claude Ledoux, a French Architect produced a design for Chaux (1775). The plural symetry of the plan and of the buildings as well as the large scale of the details, could be distinguished from far. All buildings were designed in a special way: half-functional, half-symbolic.

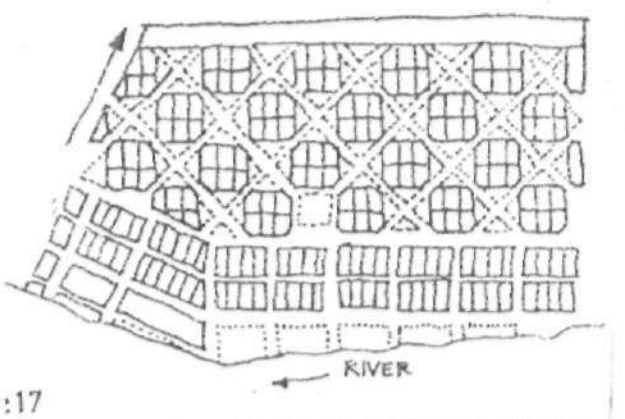


FIG. 3:17
CHECKERBLOCK LAY-OUT OF JEFFERSON-VILLE
source:- Bacon E. (1968).

In England, the social reformer, Robert Owen, constructed an industrial village (1799) near Manchester. His ideas were that the city would be self-sufficient with community spirit in-built in the design. These model villages were set up in England and the United States.

In the United States, the planners searched for spaciously town layouts for 'fresh air and health' like the plan of Thomas Jefferson, President, 1802. The plan is a grid-pattern in which every other block was a park. (Fig. 3.17 illustrates)

There are many more concepts that were developed.

The most significant development for urban design is the time between 1890 and the economic depression before the second world war. Although most city designs looked formal, broad-social motives were supporting the design.

First, the city centre is the area where everything happens: trade, commerce, culture and social. People who could afford it lived there. Expansion took place along major roads and railways.

The city centres became overcrowded and gradually decayed. These areas get renewed but for commercial use. City designers were now challenged to apply 'visions' on these new centres and new towns. The plan for Washington was a result of a conference on city beautification. The principles used included landscape architecture, malls, focal points and pools, city hall, court-house, museum and plaza.

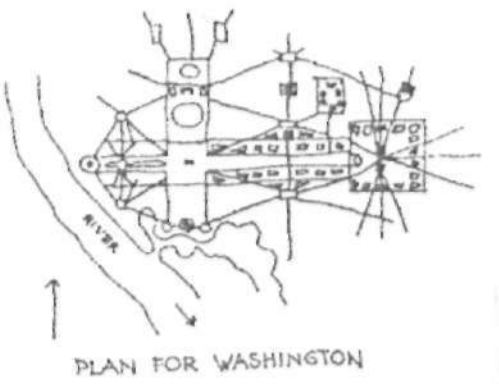


Fig. 3:18 - Plan for Washington.

This arrangement is a vision of the classical world. It became the model for building Columbia, and California Universities. The whole spectrum of these changes is summarised in Fig.3.19.

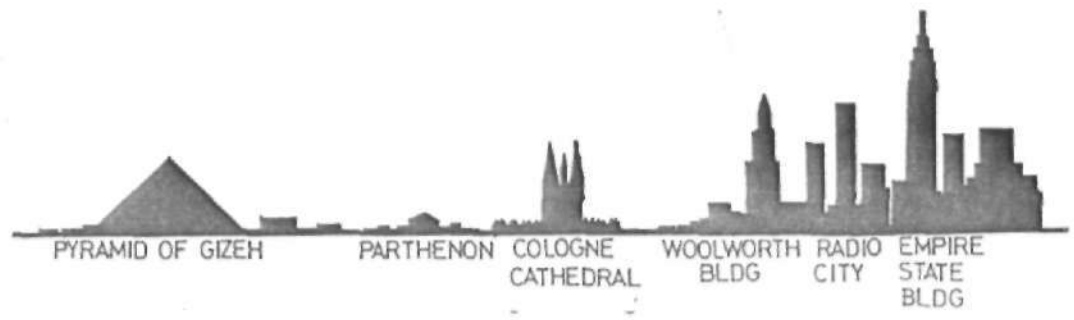


Figure 3:19 - Spectrum of the city from Ancient to Modern.

The salient features of the city design reviewed above of relevance today include: system of space links, focal points, monuments, symetry, axis, vista and open spaces.

3.6 URBAN DESIGN PRINCIPLES AND PRACTICE IN NIGERIA

Written records do not exist on city development in the geographical area called Nigeria covering the ancient world period to the renaissance period. That is not conclusive that African civilization did not include city formation during that time. The erroneous impression often given by writers is that city development is a European culture exported to the third world, should seriously be challenged and corrected. By the same token, urban design characteristics observable in European cities vary from the composition of indigenous cities found in Nigeria. (Breeze, 1966)

Evidence from Mabogunje, A.L. (1968) shows that cities existed and thrived long before European intervention. These urban centres had over time developed design principles based on forces peculiar to their culture, the inhabitants' expectations and the physical and economic possibilities. Some evidence to this is contained in the work of Sani (1985).

Basically, the urban design characteristics include the walls, gates, city square, dandali (cultural space in front of the emir's palace) narrow winding paths, burrow pits, the market square and religious grounds. The combination of these elements vary from one cultural setting to the other in the country. In broad terms, there are three dominant cultural settings with a history of urban development. These are, the Hausa/Fulani, the Yoruba and Ibo cultures.

In view of the significant influence of European activity, the analysis of the situation in Nigeria would be appropriate by looking at the period namely; before the Europeans (i.e. the indigenous city development);during the Europeans (the development of the colonial cities) and after independence. Each period has its special function and expression depicting the historical context. However, regional variations exist in the socio-cultural settings and hence method of expression. (Achi, L.B. (1990)

3.6.1 PRE-COLONIAL PERIOD

a) THE HAUSA/FULANI CULTURAL SETTING

Under the Hausa/Fulani cultural setting in the urban area is organised on various hierarchy of social and physical units; these being the city (Birni), neighbourhood (Wakili), Ward (Ungwar), housing cluster (Sashe) and compound or house (gida), (Khanna, G.P (1990: 1).

Because of extensive wars and the technological limitations of the time, the principle of community security and survival was applied to effect the urban structure. Thus the resultant form at the city level, especially as exemplified in the pre-Fulani towns of Katsina, Kano, Daura and Zaria consisted of comglomeration

surrounded with irregular walls having gates connected with paths leading to the emir's palace and markets. This structure was retained and strengthened after the Jihad. Fig.3.20 illustrates.

During times of relative peace, after the Jihad, the forces of culture and religion emphasised the needs and values of emir glorification and wealth depiction to impress on residents of other cities in the kingdom. Accordingly, the principle of expressive leadership power and wealth was evolved. This found expression in the decoration of the gates, the emir's palace and the cultural space (DANDALI) in front of the emir's palace. Similarly, the religious expression was in the location and relative size, decoration of the central mosque near the emir's palace. Fig. 3.21 illustrates. In view of the requirements of both segregation of domestic life and participation in the economic, cultural and religious life of the community set out by the new religion, the city characteristically comprises a tripartite system of public, semi-public and private spaces, varying in degree of accessibility and enclosure. (Urquhart, 1977: 12).

The main public areas of the town are the market, palace/dandali and the Juma'at mosque. The Islamic dictates meant that these public places be considered the domain of men, to which they needed maximum accessibility and urestricted social, religious and commercial contact. To meet this need and considerdd value of the elements, the planning principles of centrality of location was eveolved. This gave the radial pattern of urban design. Means of movement was by horse-back and predominantly on foot. The building materials and technology were irregular and manual respectively. Hence the geometry of the urban routes was narrow and irregular.

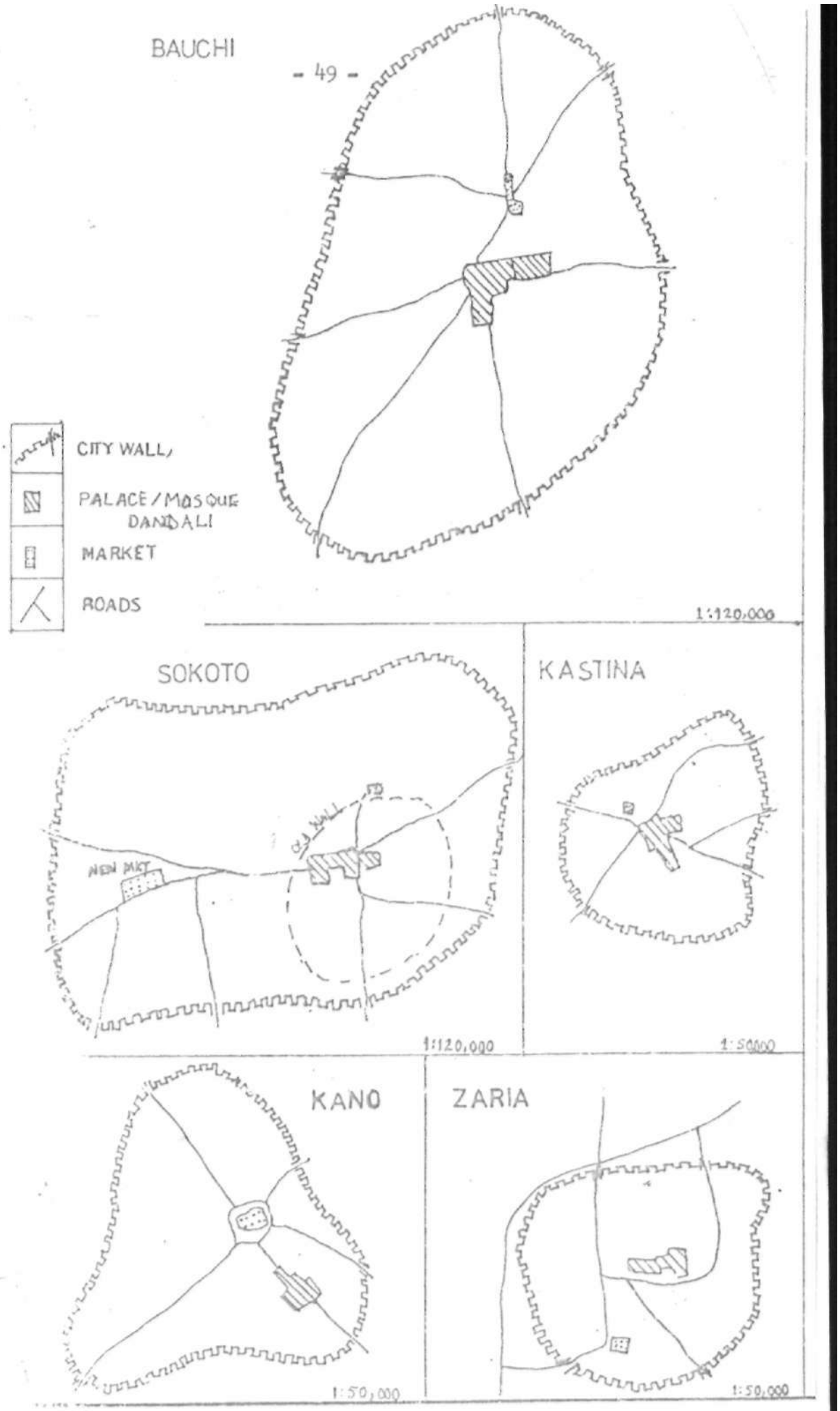


FIG:- 3.20 Some Hausa - Fulani cities in pre-colonial times.
Source Urquhart (1977)

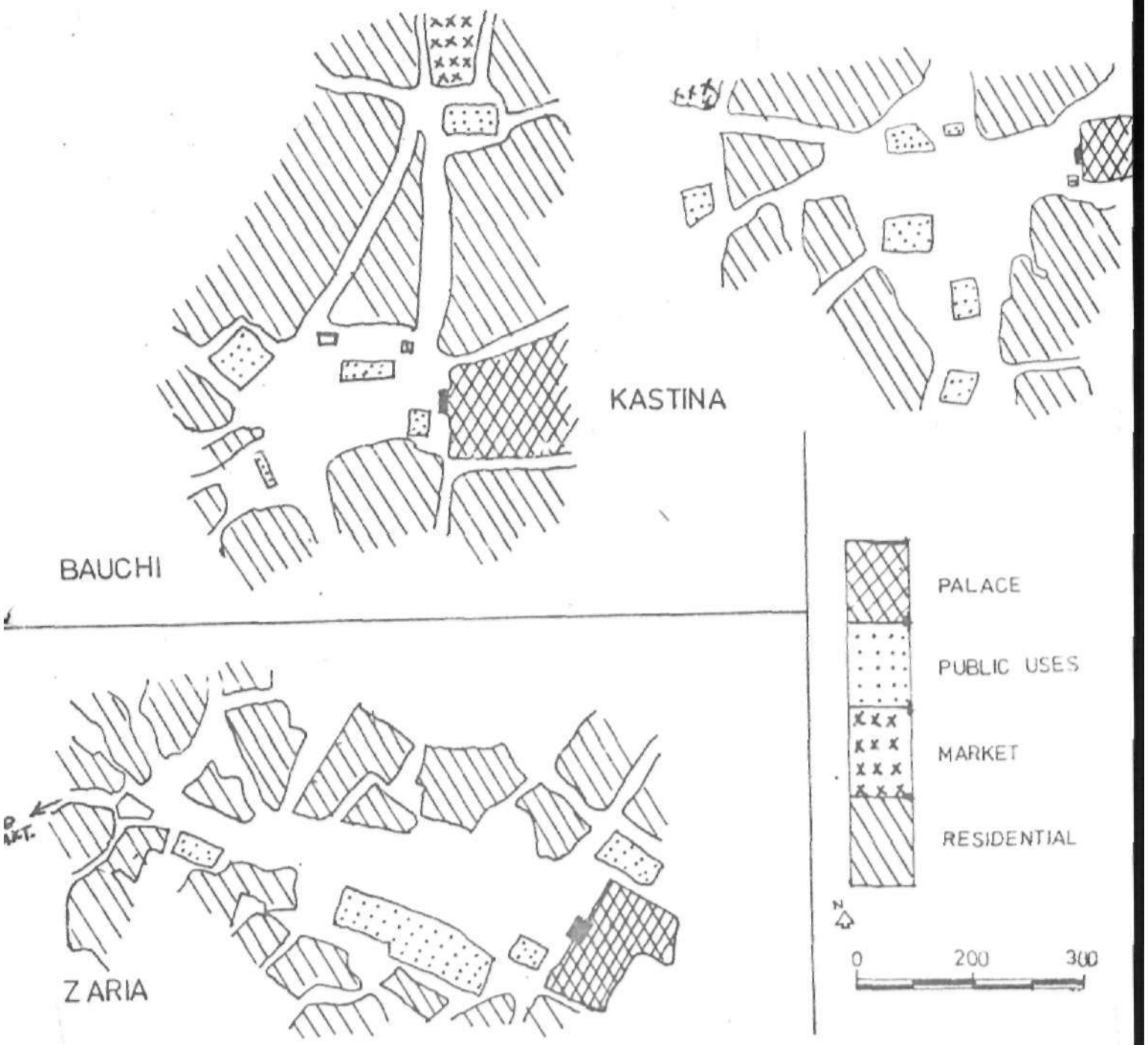


FIG:- 3.21 Styles of organising structures around the dandali.

SOURCE:- URQUHART (1977).

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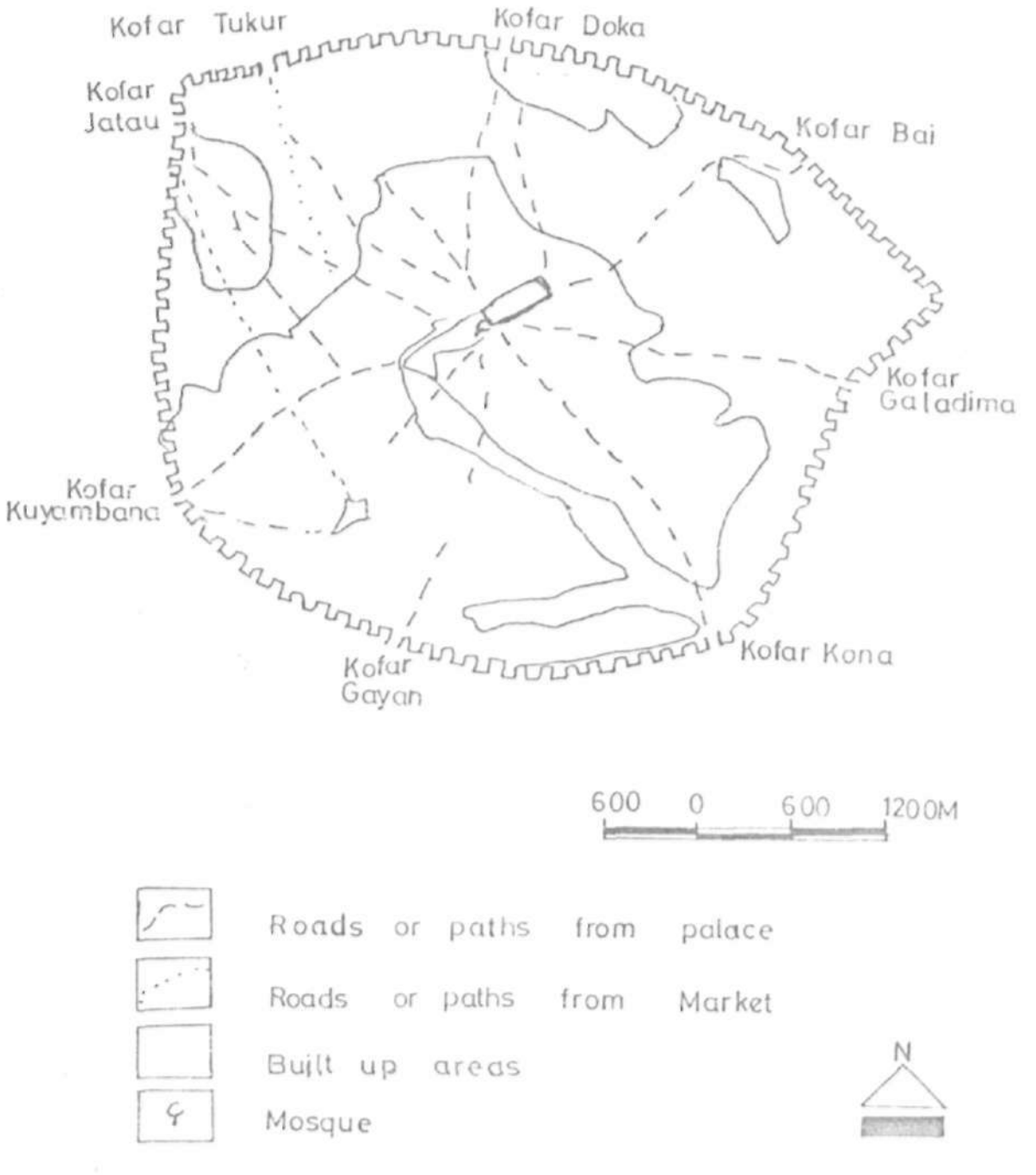


FIG:- 3.22 Some urban components of Hausa-Fulani cities.
(ZARIA)
SOURCE:-URQUHART.(1977)

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In contrast with the Hausa Cities, the Yoruba towns have their farmlands far away (5-7 miles) from the city. This compares with European medieval cities where agricultural land is located outside the fortification structures. Yoruba traditional towns are identical with Greek towns in terms of design principels of public and private spaces. Figure 3.25 illustrate the similarities. Basically the geometry of the respective compounds is a square full of quadrangles, open space or courtyard and a verandah.

The Oba's palace is built on the highest place just as Greek Acropolis is sited on the hill-top. The open space in front of the Oba's palace in Yoruba land is for assembly and festivals. The Greek had enclosed open space called Agora near the Acropolis. However, the Agora had nothing to do with the head of government of Greek cities. It was merely an open space where people gathered and discussed.

c) In the Igbo cultural setting, two basic patterns are identified. These are the linear and scattered settlements in the upland and escarpment regions of Okigwe, Awgu and Enugu and the clustered or densely populated lowland areas of Onitsha and Owerri on the basin of Imo river.

There are no traditional cities in Igboland, however, it is possible to observe planning and environmental design forms, elements and concepts of unique character within the large village settlements. Fig. 3.26 illustrates the arrangement.

The components include a village centre where important meetings, settlement of disputes, festivals and wrestling take place. It forms the natural convergence of all footpaths which

originate from individual compounds. The main elements in the layout design of the village centre are the main avenue which links the village to the central market. This wide road (about five metres wide) is swept by women of the village, every market day. Secondly, there is the village hall, which is the meeting ground particularly in the rainy season.

Thirdly, the ancestral shrine is the symbol of the religious belief that unified the people of the village. Oaths taken on this shrine end many disputes between individuals or groups and justice is accordingly believed to have been done.

Fourthly, a very big open space for occasional festivities and other space-demanding activities and public entertainments.

Fifthly, a maze of footpaths which grew from individual households and terminated in the village square.

d) SYNTHESIS OF INDIGENOUS URBAN DESIGN ASPECTS

Space utilization and organisation is a universal phenomenon characterised by the social, cultural, economic and political circumstances of the respective societies. The situation in each culture may not always stay the same, however, it would revolve round strongly-held believes and options for resources endownment commitment. The eventual urban structure would be a manifestation of the complex decisions taken and expressed in physical terms. The salient features of urban design of indigenous cities include the following:

i) SPACE SYSTEM AND ARRANGEMENT

The indigeneous cities emphasised on place rather than buildings per se. The structures built in such spaces were meant to express further the relative importance of such places. It is felt that, technological limitations prevented greater

expressions of the relativity of space functions and roles in the socio-cultural context.

A hierarchical arrangement and classification existed for the public, semi-public and private spaces. Treatment of surrounding environment including the structure also followed suit. This order of arrangement was derived from the social structure of the community. While this was pronounced in the Hausa and Yoruba cultures, there is a notable absence in Igboland.

The practice of mixed landuse is most evident in the usage of spaces. This is a significant urban design principle totally at variance with European concept of space used and hence disbursement of landuses. The relevance of this mixed landuse to city, development is examined in Simon (1989) article. By suggesting principles and speculative patterns expressing desirable use combinations, he attempts to rationalise the utility of the concept such that its environmental impact is understood and given planning resolution.

ii) FOCAL POINTS: According to Urquhart (1977: 17) as the walls mark the limits of just city boundaries and roads and gateways mark the links with surrounding districts and country-side, so the Emir's palace, Juma'at Mosque, Market and Dandali mark the main focal points. In view of their political, social and economic importance, they were located in the centre for equity of access.

iii) FACADE CONTROL AND EXPRESSION

This was used to distinguish the different important public structures. Rich memebers of the community would also express such by the type of decoration on the walls of their compounds. In the Yoruba culture, it is the levels of storeys

one builds that reflect his relative importance and affluence.

From the above discussion, it is clear that in Nigeria, the indigeneous urban centres had over time developed design principles based on forces peculiar to its culture, the inhabitants' expectations and possibilities.

When Nigeria was colonized, a new political, economic and social order was introduced. The implications of this is discussed below:

3.6.2 THE COLONIAL PERIOD

a) THE HAUSA/FULANI SETTLEMENTS

Colonization brought in a different context of urban design. According to Urqhuart (1977), probably stronger than any other single influence on colonial town building, especially in Northern Nigeria was the policy of indirect rule as developed by Lord Lugard. Under this system, the native political, administrative, and governmental bodies were left more or less intact but were supervised by the colonial government through its governors and their local representative, the residents and the district officers. By implication, changes to the landscape of the indigenous city were minimal. However, the new social, political and economic order stimulated revolutionary landscape changes which were concentrated in entirely new sections of the indigenous cities. In some cases, new towns were built entirely on the principles of colonialism. Communication by rail set the pace of change. Colonial standards were introduced.

This period saw the development of three main types of cities: The new towns of colonial creation e.g. Jos, Kaduna, Zungeru and Makurdi; the cities with dual centres e.g. Zaria, Kano, Katsina; and the super-imposed cities. Fig. 3.27 illustrate these structures. Approach to urban design was that the larger planning units of the township would be dominated by British rule, while the occupants planned for and gave character to the smaller elements of the urban

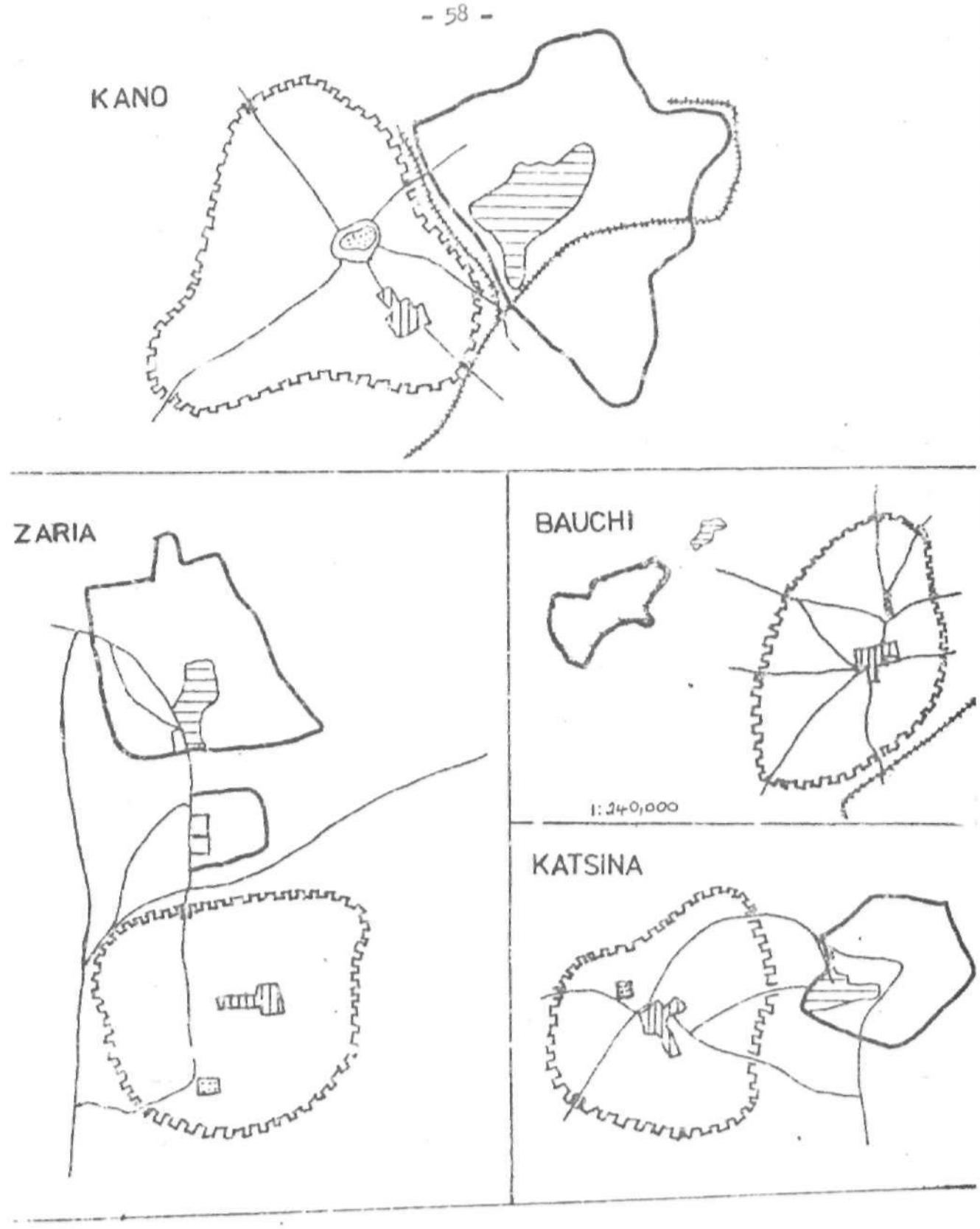
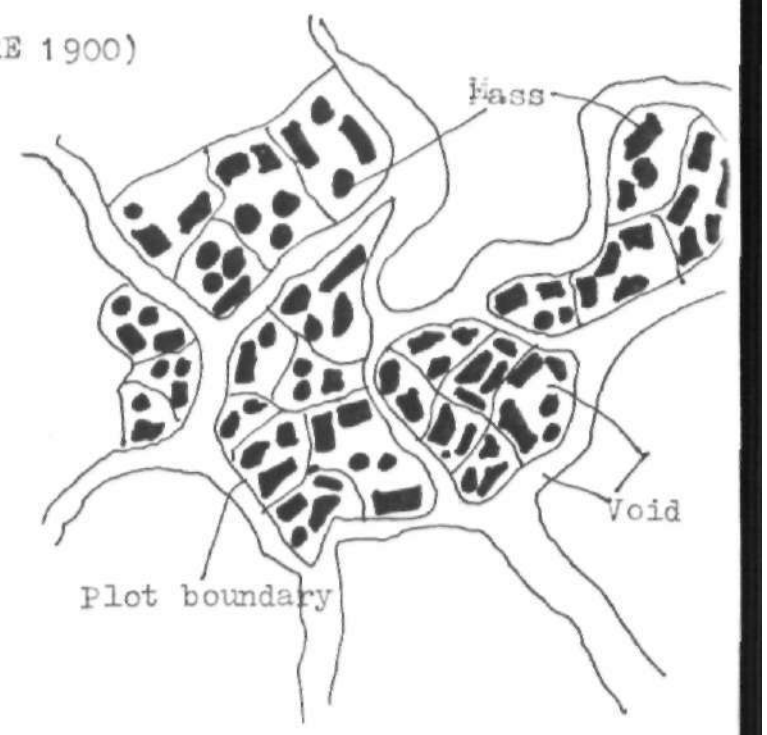


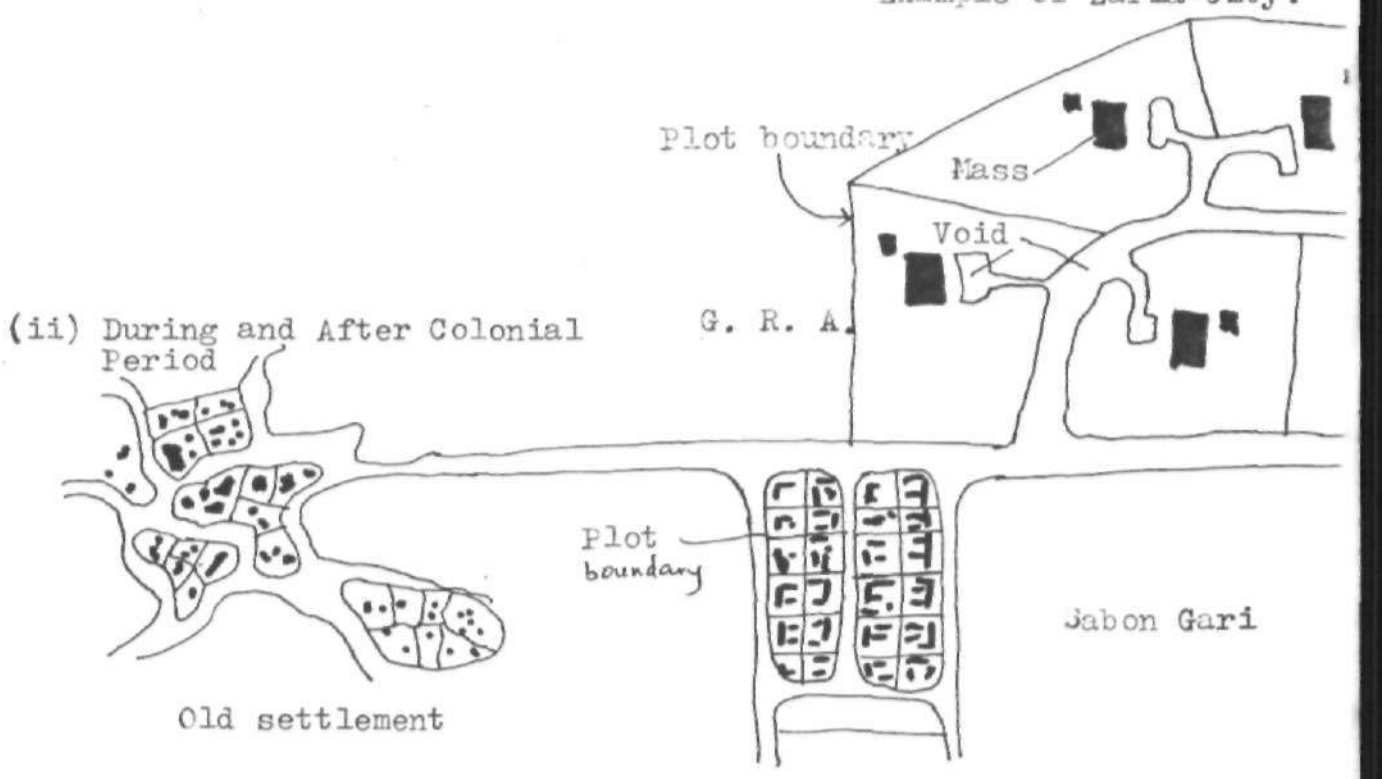
FIG. 3.27 THE DUAL CITY CONCEPT IN HAUSA CITY DEVELOPMENT.
SOURCE:- URQUHART (1977)

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(i) PRE COLONIAL PERIOD (BEFORE 1900)



Example of Zaria-City.



THE CHANGING STRUCTURE OF THE CITY IN NIGERIA

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landscape. In the indigenous city, the traditional ruler continued to play an important role in the management and major decisions about location and space use.

So right from the onset, a point of conflict in urban planning and development was set in motion. Planning would stop at city wide disbursement of space but the third dimensional composition and arrangement would be a matter for individual developers. This was a very strong omission that is now creating serious problems for urban development under new planning concepts.

At the city level, was applied the principle of residential segregation. This gave rise to the European reservation (residential) areas later Government Reservation Areas (GRA); Sabon Garis, and indigenous zones. These areas were separated by building free zones.

The principles of zonation was introduced to strengthen the areas of new developments. Thus landuses were curved out according to function with little room for mixed use. At the compound/house level, design was according to the principle of self-contained housing owing to the needs and values of individuality and house privacy. By this practice, individualism became more common than unity and communalism. This was another design concept that adulterated design principles of indigenous development at the compound/house level. This practice has not only passed on to present day urban design practice without question but re-inforced by law and the capitalistic tendencies of the economy of the country.

The new technology accompanying this led to the extensive use of cement and corrugated iron sheets as wall and roof materials respectively. However, these houses were lacking in the application of decoration as a factor of urban design which characterised the indigenous compound.

The street pattern in the new areas was grid-iron to accommodate

the new movement means, but the compounds remained fundamentally the same as the those of the indigenous city. Fig. 3.28 shows an example.

The immediate urban design issue here is the imbalance in mass/void relationship created by the new dispensation.

b) THE YORUBA SETTLEMENT

The colonial activities in Yorubaland also created the dual city effect, however, the economic activity was strengthened by the establishment of more trading centres and industrial activity. Fig. 3.29 illustrates the structure.

c) THE IGBOLAND SETTLEMENT

Different urban geographers in Nigeria agree in the classification of the towns in Igbo as colonial towns. The chief characteristics of such towns are their modern design and rigid pattern of streets. They lack any distinct dichotomy between traditional settlements and modern layouts. The only focal centre is the market.

d) SYNTHESIS

The new dispensation introduced by the colonial activity introduced alien urban design techniques and standards that lack the expression of the people's social system. The implications were that, firstly, it disrupted indigenous urban process through the establishment of new forces and requirements, and secondly, new urban development style under alien design standards emerged.

This was the beginning of conflict in development styles and principles between indigenous and European. This was manifested in the confrontation faced in the need for modern standards on the one hand, and the established spatial structure on the other. This led to a haphazard application of new standards and techniques unrelated to requirements and aspirations of the indigenous population.

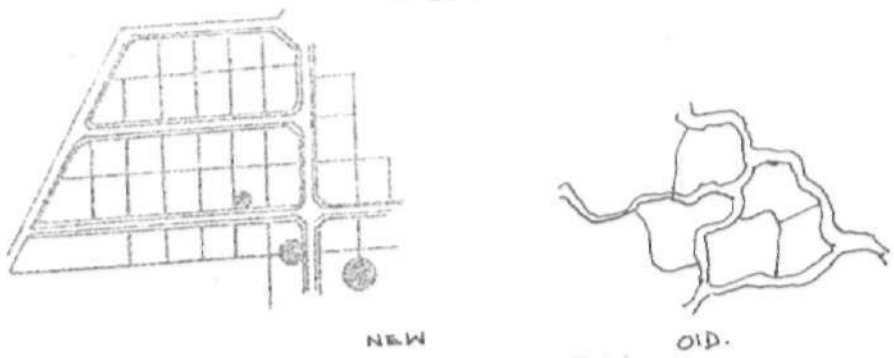


FIG:- 3.28 Example of street pattern in new settlements.



FIG:-

3.29 New structural composition in Yoruba cities.

Source:- Mante. E.C. (1987).

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In spatial terms, the living environment gradually degenerated by the incapacitation of some indigenous spatial patterns in the face of modern requirement. Secondly, it paved way for the emergence of a spatial pattern lacking in sound technical foundation and social basis.

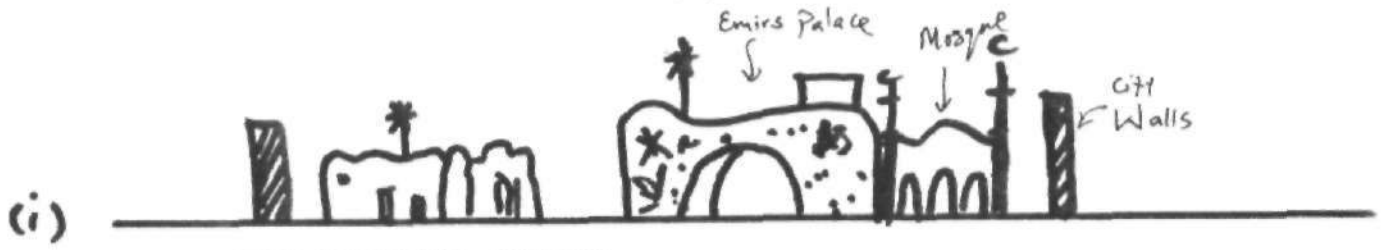
ii. The colonial urban design specifications may have been suitable at the time it was introduced, but the serious damage it was creating for future urban planning and development was never assessed and resolutions devised.

iii. The second set of conflicts concerns the imposition of new forces that was contradictory to previous beliefs and understanding. In the first place, the economic factor changed the concept of work and living styles in the frontier of money making. Industries, new marketing system and the role of money changed design considerations and specifications. The concept of mix use is strong and thus residential units are used as work places and other industrial activities. This distorts the standards expected by the new dispensation.

Secondly, the new administrative powers meant new focal points in terms of administrative buildings such as the Lugard Hall in Kaduna. This distorted the legibility of the city structure in terms of the hierarchical arrangement previously known.

Thirdly, the religious disruption of the previous set-up influence space allocation in the cities and the implications for using them as public focal points.

Public outcry appear not to have been possible during this period as a sign of disapproval mainly because of the oppressive system of government and the concession on separate development.



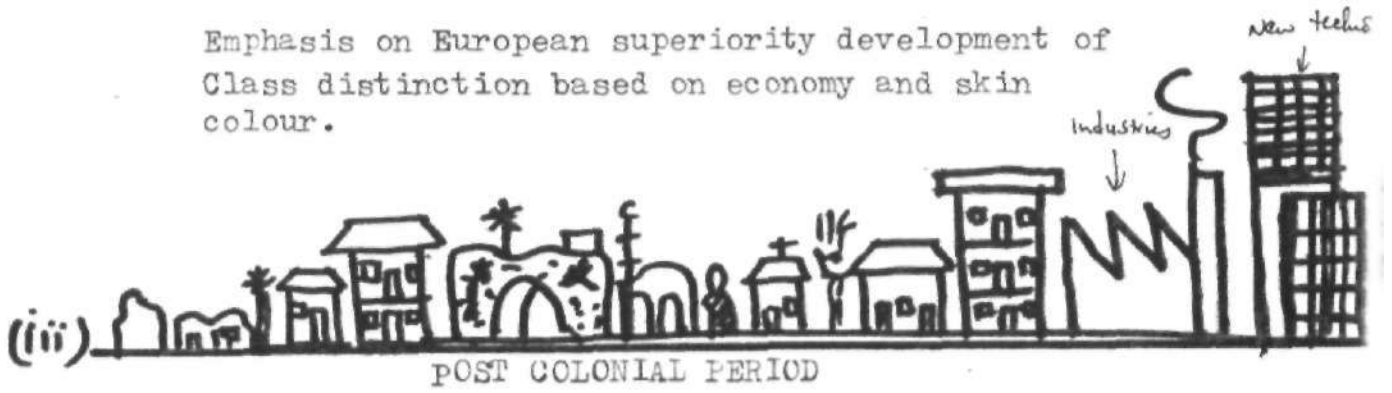
PRE-COLONIAL PERIOD

Urban Farm based on human scale and focus was rulers Palace



COLONIAL PERIOD

Emphasis on European superiority development of Class distinction based on economy and skin colour.



POST COLONIAL PERIOD

Emphasis on economic development.
Physical implication least Considered.



Pre-Colonial Period | Colonial Period | Post-Colonial Period

The Silhuette of development

THE CHANGING PATTERN OF URBAN DESIGN IN NIGERIA OVER TIME

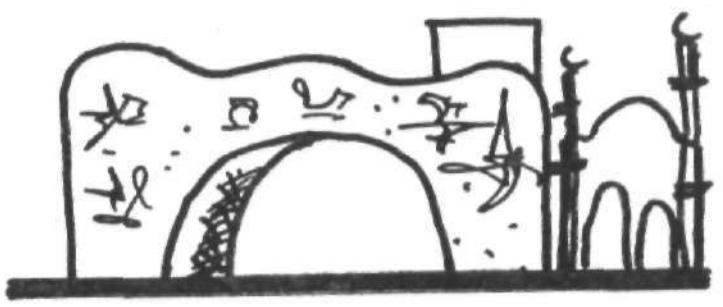
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SALIENT URBAN DESIGN FEATURE

Before Colonial Influence



- Spaces Organise on various hierarchy of Social and Physical Units

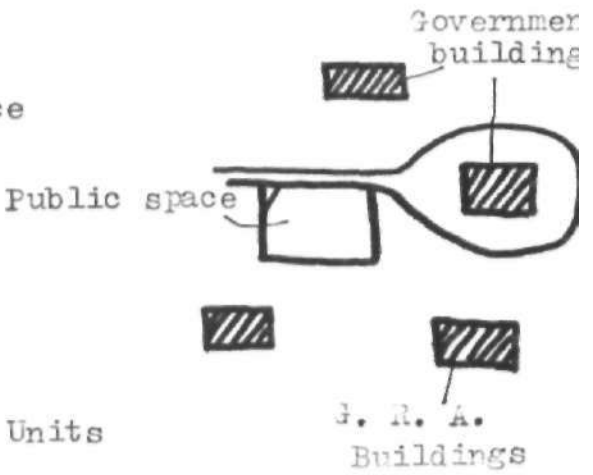


- Only Emirs Palace, City gates, Mosque/ Shrine were detailed.



- Layout narrow windiy Paths

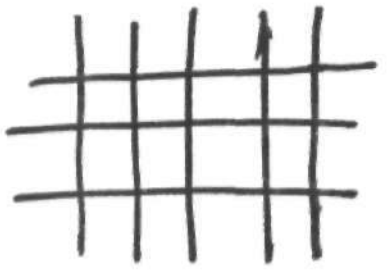
After Colonial influence



- New order required emphasis on G.R.A. Government buildings



- Details now in Government Structure



- Grid Pattern

E CHANGING PATTERN OF URBAN DESIGN IN NIGERIA OVER TIME

3.6.3 THE POST COLONIAL ERA

The situation described under the colonial creation was inherited in total. These rules are being applied without question, even though they are relatively unsuitable for the needs of the present-day Nigeria.

A few modifications have been introduced purely on the initiatives of individual government personnel with the vision of a need to re-address urban development styles to suit new needs.

In general, the tendency has been for successive governments to introduce elements either consciously or unconsciously into the urban fabric in an attempt to leave an imprint. Thus large public housing units, street naming, road alignment such as the double carriage-way through State Capitals, renewal schemes and new round-abouts and street-lighting. (Plates 3.1 & 3.2)

The most significant change in direction that may hold the basis for a birth of the'new Nigeria' urban design culture is the development of Abuja, the new Federal Capital. (Fig. 3:30)

However, the concepts developed for the implementation of Abuja leaves a lot to be desired. The space standards are still alien, in some cases, very outrageous as in the case of total space given for the city centre (over 40% of total development). The urban design aspects are left again to the individual developers to dictate.

The major conclusions are that a dual city concept of development has emerged for the indigenous settlements. These settlements feature two different growth pattern in the same city. Application of standards are uniform and alien.

In the colonial towns, development while featuring elements of colonial pattern of development, has by its side uncontrolled organic settlements growing with indigenous concept and pattern.



(a) (W.A.I. ROUNDABOUT KADUNA)

PLATE 3.1 Example of roundabout beautification.

(b)



(LEVENTIS ROUNDABOUT KADUNA)

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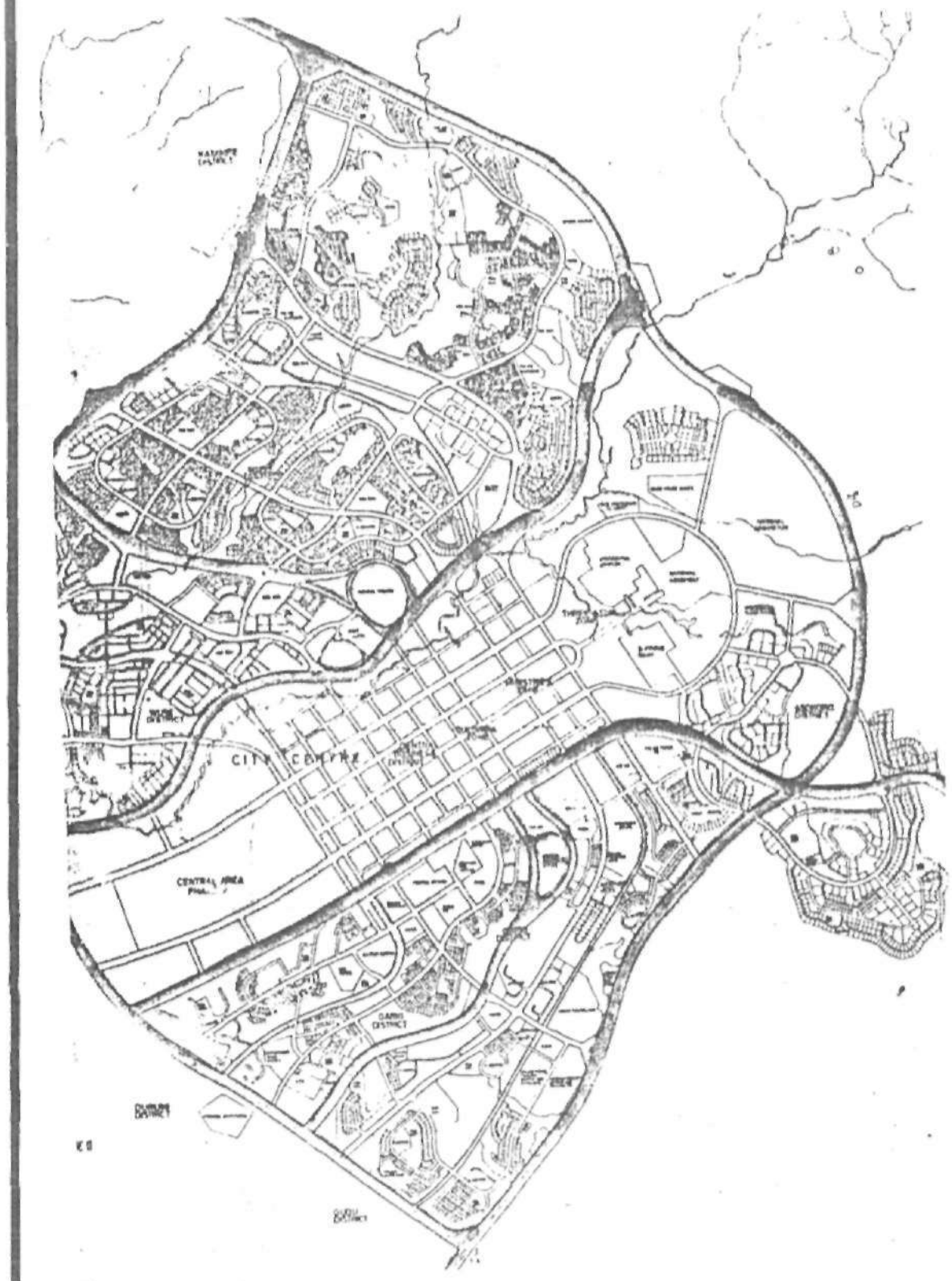


FIG:- 3.30 Structure of Abuja, Nigeria.
Source: FCDA (1986) (PHASE 1).

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Again the issue of lack of character and inconsistency to urban design principles are manifested.



Pre-Colonial Colonial Post-Colonial

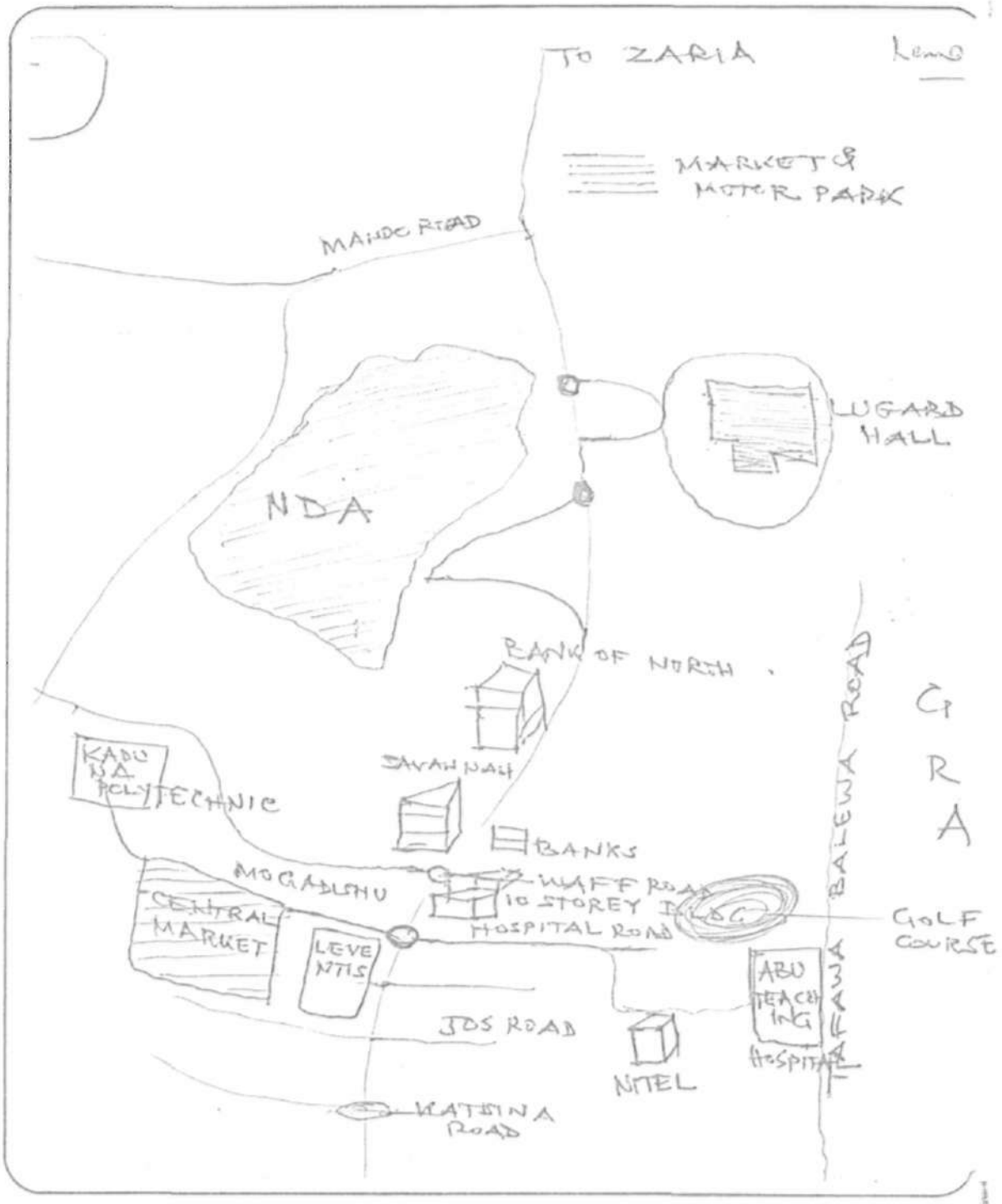
Fig. 3.31: Silhouette pre-colonial to post-independence.

From the above analysis, it is clear that there are useful concepts that can be retained in the Nigeria case and those that can be incorporated from those of European areas etc. These have already been explained in the respective synthesis.

CHAPTER

4

THE ROLE AND CONTRIBUTION OF URBAN DESIGN IN THE PLANNING AND DEVELOPMENT OF KADUNA METROPOLIS



CHAPTER FOUR

4.0 THE ROLE AND CONTRIBUTION OF URBAN DESIGN IN THE PLANNING AND DEVELOPMENT OF KADUNA METROPOLIS

4.1 The Regional Setting

Kaduna is situated on altitude 10.30 North and longitude 7.28 East, where the Lagos-Kano railway line crosses the Kaduna River, and where the Eastern Railway line branches off south of the railway bridge. Figures 4.1 and 4.2 outline the location of Kaduna in the National and State setting.

Kaduna Metropolis stands in rolling park land, 2,116 feet above sea level; the soil is good, and the average rainfall is about fifty inches. (Bryant (1969:1)

The climate is equable and invigorating and compares favourably with that of any other town in Nigeria. The area had been devastated by the slave trade, and so has had no dominant native asscciations large enough to build large cities. Thus, Kaduna as a settlement was conceived as a new colonial township of a second class status (Maxlock, 1967: 84). Essentially, Kaduna was selected as a site for the Capital of the Northern Region of Nigeria. It is expected that the character of the city would bear resemblanceto the conceptual views of the ruler of the time and the socio-economic realities of the time Kaduna was conceived. This is discussed below:

4.2 The Development of Kaduna in Historical Perspectives

Although the removal of the seat of government from Zungeru was delayed by the World War until 1917, other activities had already begun to put Kaduna on the map. The railway was opened in 1911, and probably the earliest buildings to be erected in the Kaduna area were those of the railway construction staff at nearby Kakuri (Bryant 1969:3).



Figure. 4:1. LOCATION OF KADUNA IN NIGERIA

Source: NATIONAL ATLAS (1980)



Figure. 4:2. KADUNA IN THE REGIONAL SETTING (SHOWS LOCAL GOVERNMENT AREA)

Source: MINISTRY OF LANDS AND SURVEY (1990)

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By 1913, the army transferred some of its units from Zaria to Kaduna. The actual move from Zungeru was made in 1917. Kaduna has been fortunate since its inception in always having a plan. The original plan (the first plan) was drawn up in 1913 for Lugard with his wife's advice (Lock, 1967: 84). The plan showed the precise, labelling, rank-conscious military mind at work with plots for senior and junior officers drawn up as on a parade ground about the governor's house on the highest point. The furthr away from this summit the lower the rank, the smaller the plots, and the closer together the houses. Figure 4.3 outlines the original plan by Lugard.

The plan was essentially grid-iron in nature. Landuse especially residential quarters was separated on the basis of race. The government reserved areas meant to house the Europeans was given over generous land space, 100 feet by 200 feet (30m by 60m). In contrast, the 'Sabon gari' areas were laid out in a straight and rigid grid-iron pattern. Here, fifty foot wide street reservations, lined with plots of fifty feet frontage and one hundred feet deep, ten in a row, backed by a ten foot sanitary lane and a further ten plots facing the next fifty foot wide street. A standard bungalow, two rooms deep and three or four across was built on each plot frontage leaving an access path at one side leading to the yard behind. (Lock 1967: 84). Figures 4.4 and 4.5 outline the government reservation areas layout and the Sabon Gari areas. Across the railway from the Sabon Gari was another grid-iron layout, now Tudun Wada. The buildings were indigenous with high walls, no outward windows and small doors. This area was not rigidly controlled, but allowed to grow on its own.

The Lugard plan had been largely carried out. An early post-war plan was proposed by the town planning officer in 1955. This basic landuse zonings shows the beginnings of the concentration of the army

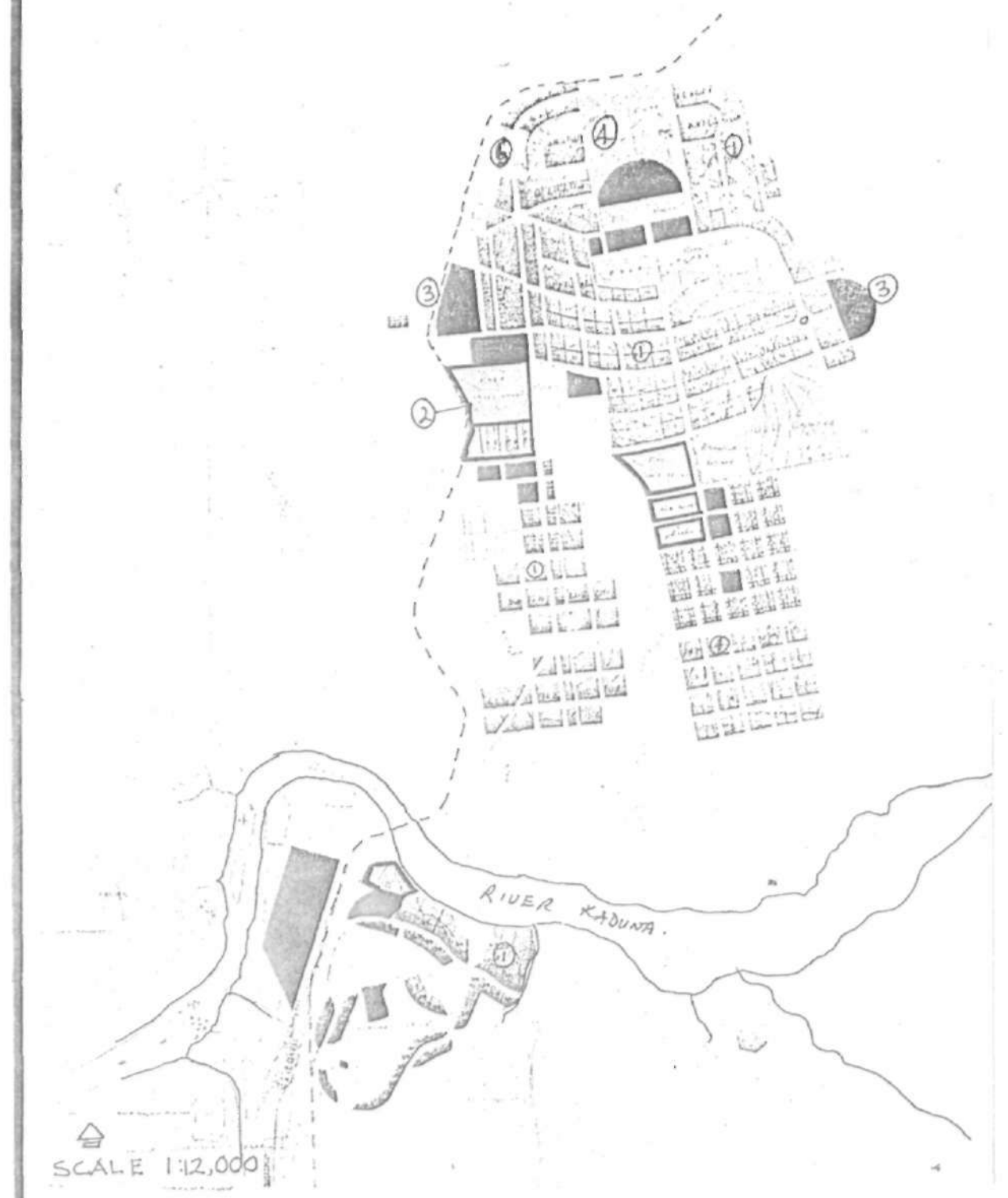


FIGURE: 4:3 **The Original Lugard Plan**

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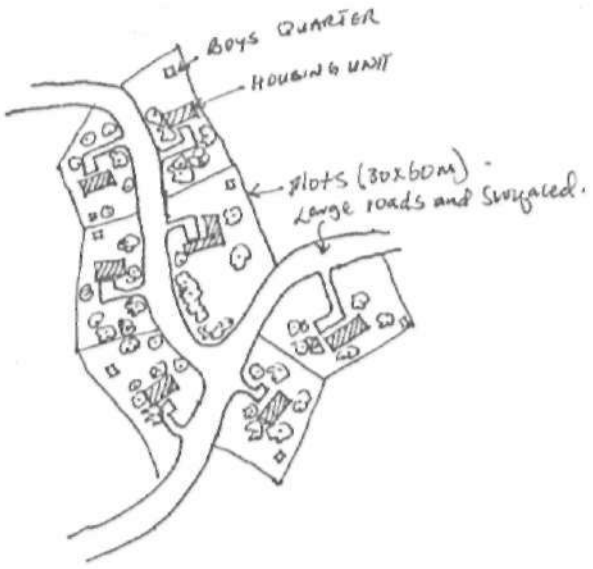


FIG:-

4.4 Space allocation and layout for Government Reservation Areas.

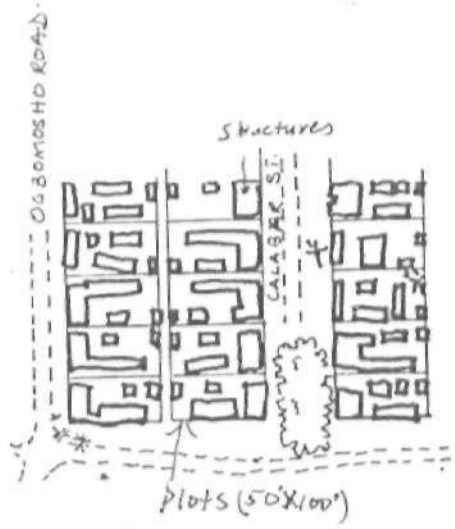




FIG:- 4.5 Layout of Sabon Gari areas.

into the cantonment in the north of the town and industry in the south. Further indigenous districts unenvisaged in the Lugard Plan, became established. It is significant to note that the introduction of new urban development and alien design standards gave rise to spatial patterns lacking in sound technical foundation and social bases. The resulting environment thus fails to satisfy urban design principles that enable the improvement of quality of life.

Another issue to note is that there are limits to the designers control. The conceptual plans are not usually achieved, largely because the variables involved in urban development are not only numerous and varied but also subject to changes in taste, time, technology and political will. Thus one of the constraints of planned development is the inability to control the dynamic elements of change. They can however be guided.

Other plans were prepared by Mrs Burnside in 1962 and the Maxlock Plan in 1965. Figure 4.6 outlines the subsequent growth of Kaduna from 1915 to 1990, grouped according to available data and plans.

Given that Kaduna was planned from the grassroots, the basic design concept that emerged was a hierarchical grid-iron pattern within the context of the symbol of power and centre for controlling commerce and economic activities. In sharp contrast to other traditional cities in Nigeria, British Colonial cities were based on different political, economic and social assumptions (Wraith, 1966). While it was easy to control and regulate the urban landscape during the colonial period, it has not been easy after independence for the emergence of a good administrative will to organise the urban environment with town planning ideals.

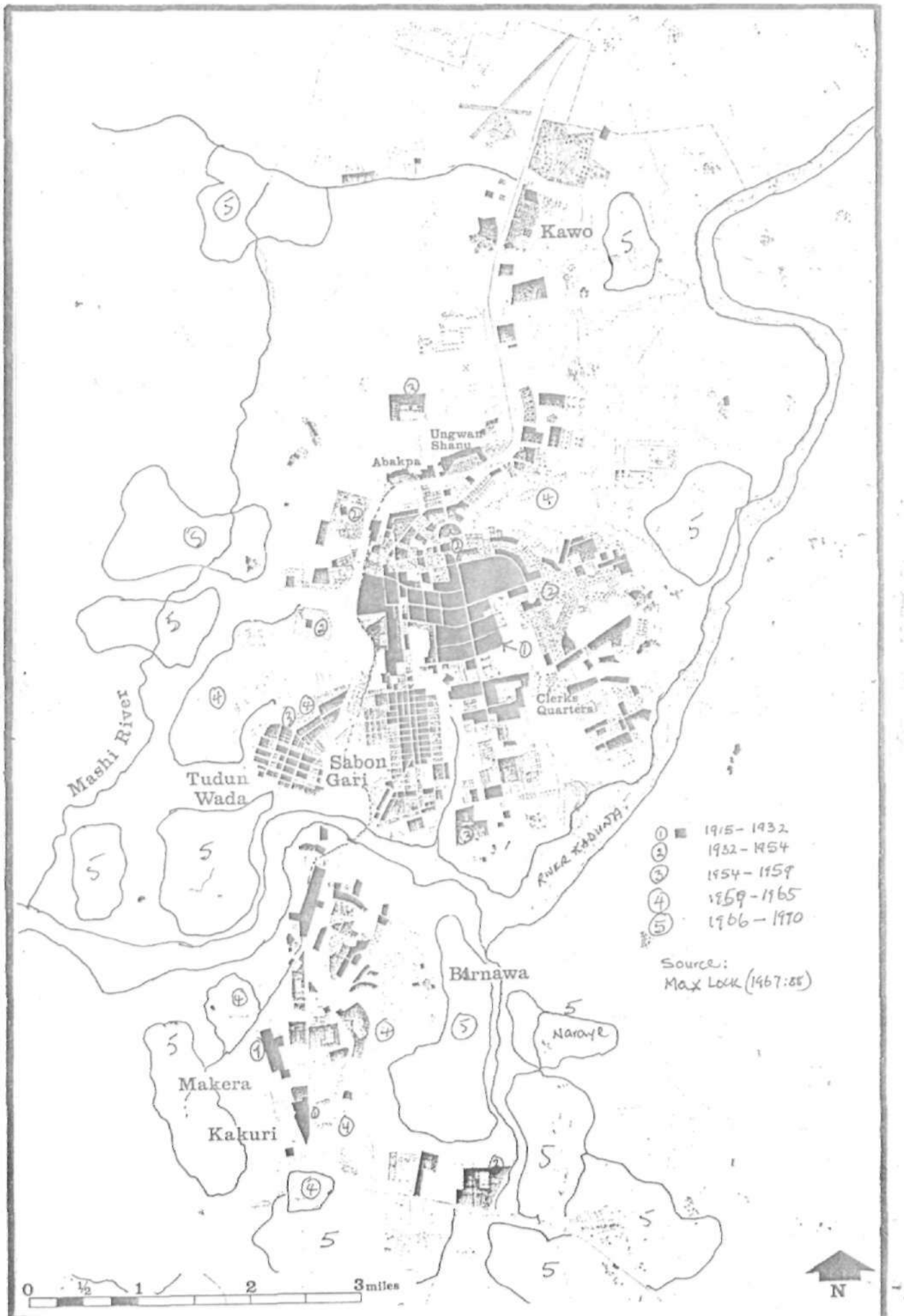


FIG:- 4.6 GROWTH OF KADUNA 1915 – 1990

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This must be a result of the attitude of leaders of developing countries who see and treat the arrangement of urban elements as a tertiary and insignificant issue. Unfortunately, this attitude still persist which Allen (1972) observed as being responsible for the absence of a broadly-based municipal tradition. This has meant that urban growth has been uncontrolled and administration inefficient.

It is natural that at independence, new priorities would be set and direction of concern re-defined. However, in respective of the changes, the final action would still have to have a physical expression. The qualities of the decisions taken and subsequent actions, to a large extent, would depend on the juxtapositioning of the new forces and requirements on the ground. Uncontrolled development need not be the case. Every urban environment is made up of wide variety of elements, which when articulated in urban development planning leads to better quality of life. The remaining sections of this chapter developes the argument further by identifying and analysing urban design elements in terms of their potentials and constraints.

4.3 KADUNA URBAN SPATIAL STRUCTURE

The present structure of Kaduna Metropolis is shown in figure 4.7. It outlines the resultant spatial decisions taken over time.

From the imagery analysis of Kaduna, the field survey revealed the outline in figure 4.8 while these of the public interviewed is summarised in figure 4.9.

The distinctive elements of Kaduna Metropolis is summarized in figure 4.10. From the above imagery outlines, some indications of the urban design problems can be obtained. This is summarized in figure 4.11. However, in order to obtain the clear art, science and level of urban design in Kaduna, the Maxlock Master plan has been

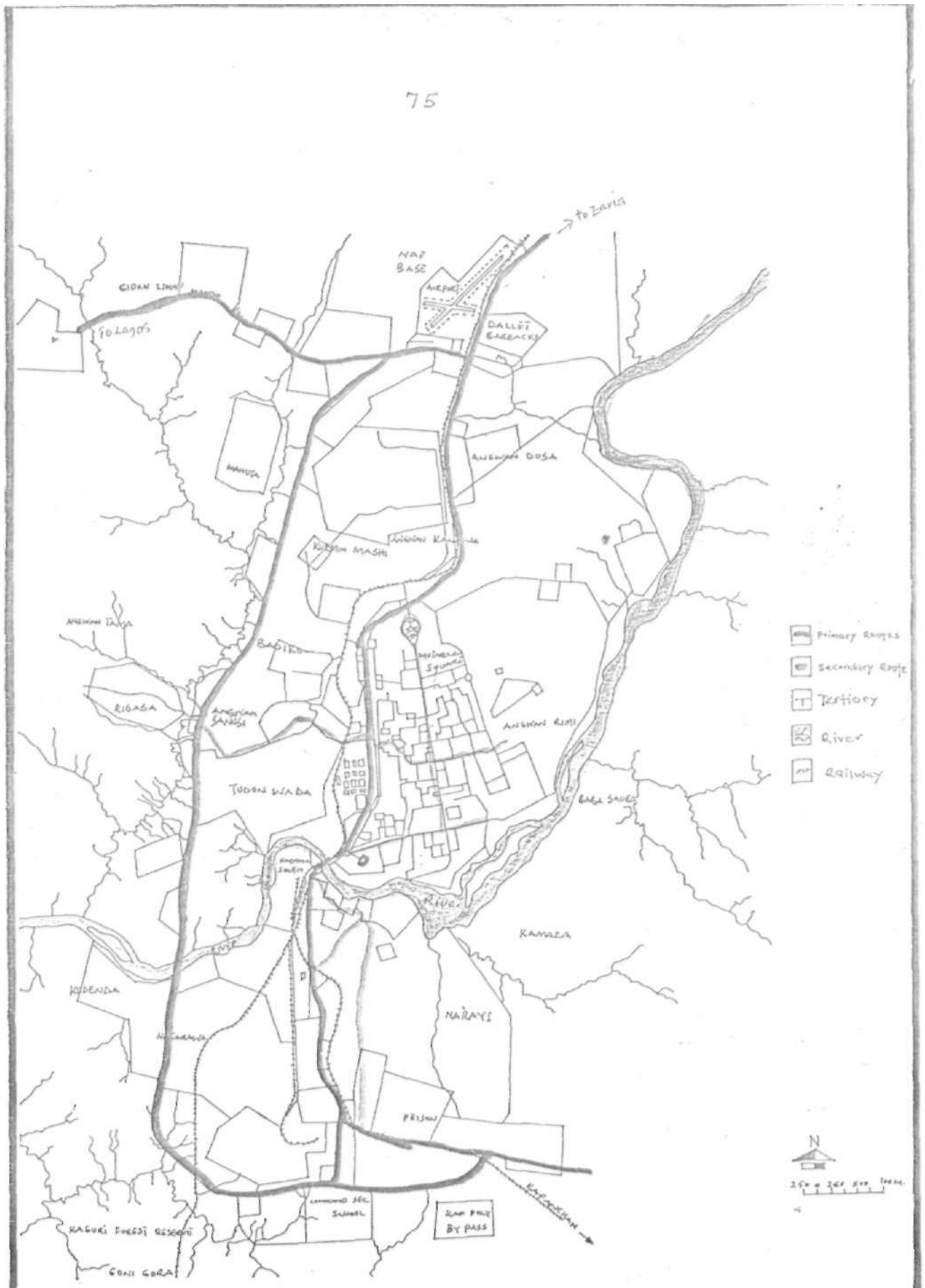


FIG:- 4.7 Kaduna urban spatial structure.

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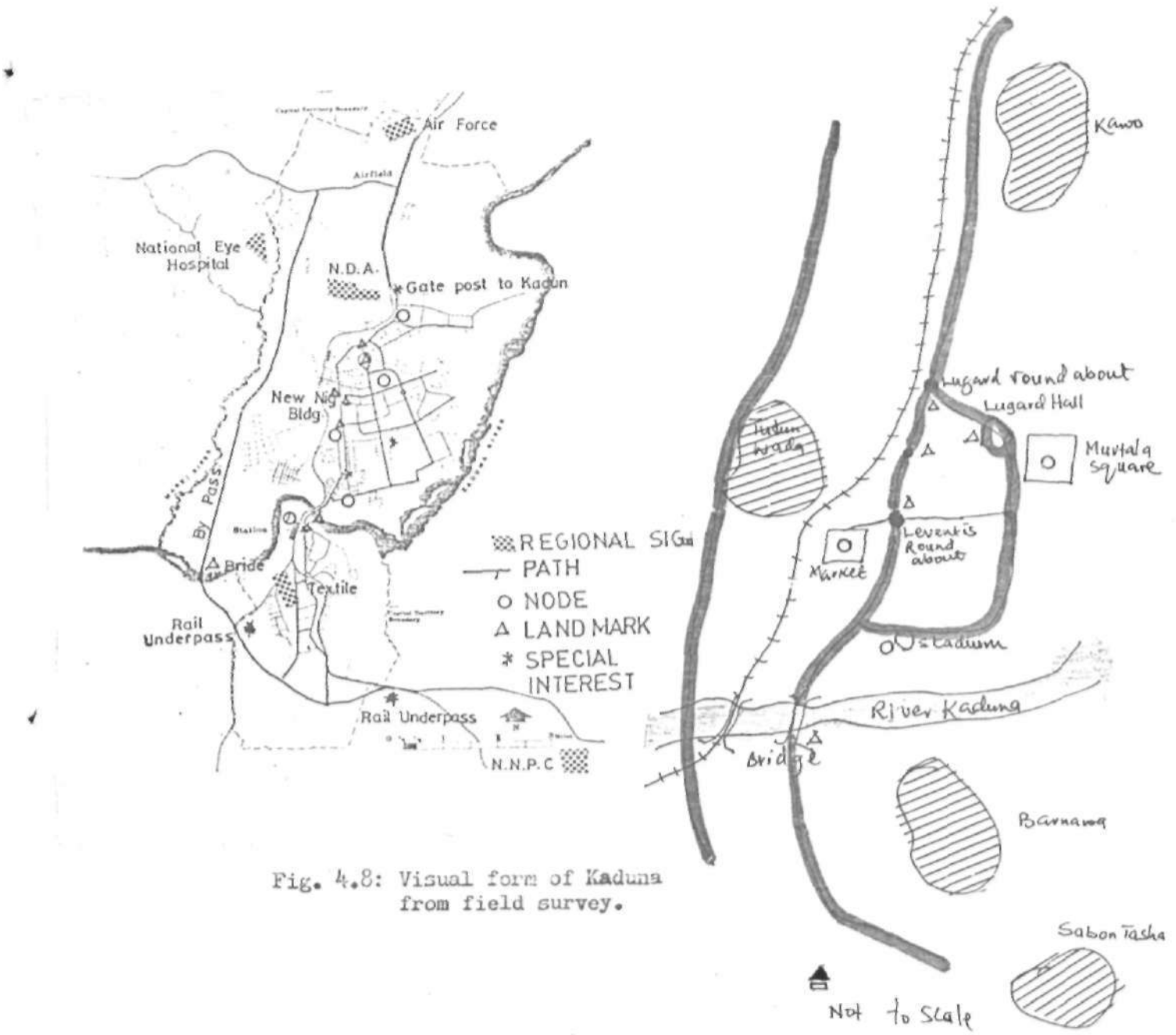


Fig. 4.8: Visual form of Kaduna from field survey.

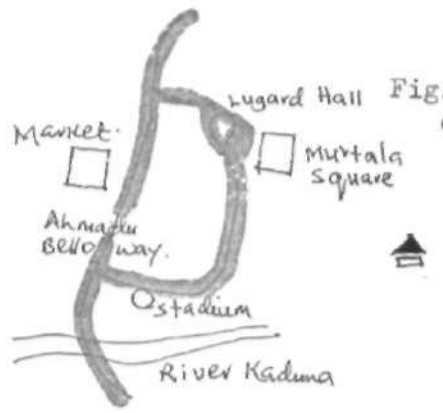


Fig. 4.9: The Kaduna image derived from the interviews.

Fig. 4.10: Distinct elements.

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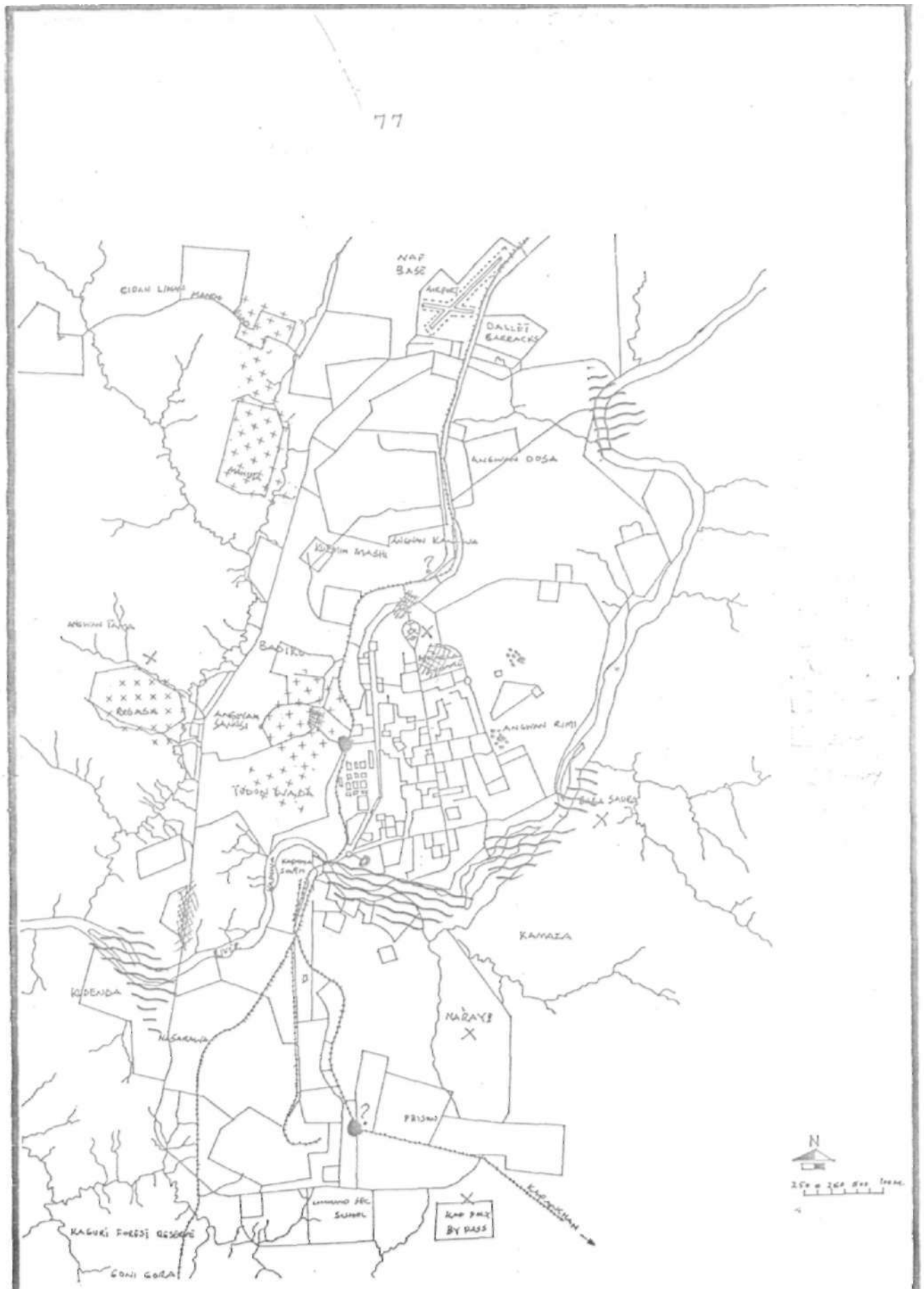


FIG:- 4.11 Legibility problems of Kaduna.

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reviewed for the town level and Mogadishu scheme at district level. Maxleck's proposals are shown in figure 4.25 and 4.26.

The proposals provided a conscious effort to bring into play urban design elements, principles and concepts. Vistas, axis, focal points, nodes, edges, landmarks and routes were carefully considered. Development and nature of circulation had sympathy for the pedestrian.

The essential cultural context was attempted in this design with the forms of structures bearing resemblance to urban form of indigenous development and religious affliations.

4.4 REVIEW OF MAGADISHU PROPERTY SCHEME IN SEARCH FOR URBAN DESIGN IMPUT

Maxleck's proposals for the redevelopment of the city centre was never realised. Habitat Associates later prepared another scheme. This scheme was accepted but not implemented on the grounds of cost. Again, BESTAC Consultants prepared another. This was not developed either. The Magadishu property development agency proposed another set of schemes, but only a filling station and some roads were started. Now the Ministry of Lands and Survey has developed a new proposal. The BESTAC scheme which is a built-up on the Habitat Associates outline is shown in figure 4.27.

At the district level, the Magadishu proposals appear to be devoid of cultural flavour. The emphasis is on vehicular traffic. The pedestrian is far removed to intimacy of compact units of development on which pedestrian movement is superior. Not much balance would be achieved by that development. There is a clear absence of a focal point of dominance.

Evidence seems to suggest that Kaduna was made the testing ground for acquired design principles from outside the country; which may not be compatible with the needs of the country. The absence of a clear guide has its implications outlined in the summary of issues at the end of the chapter.

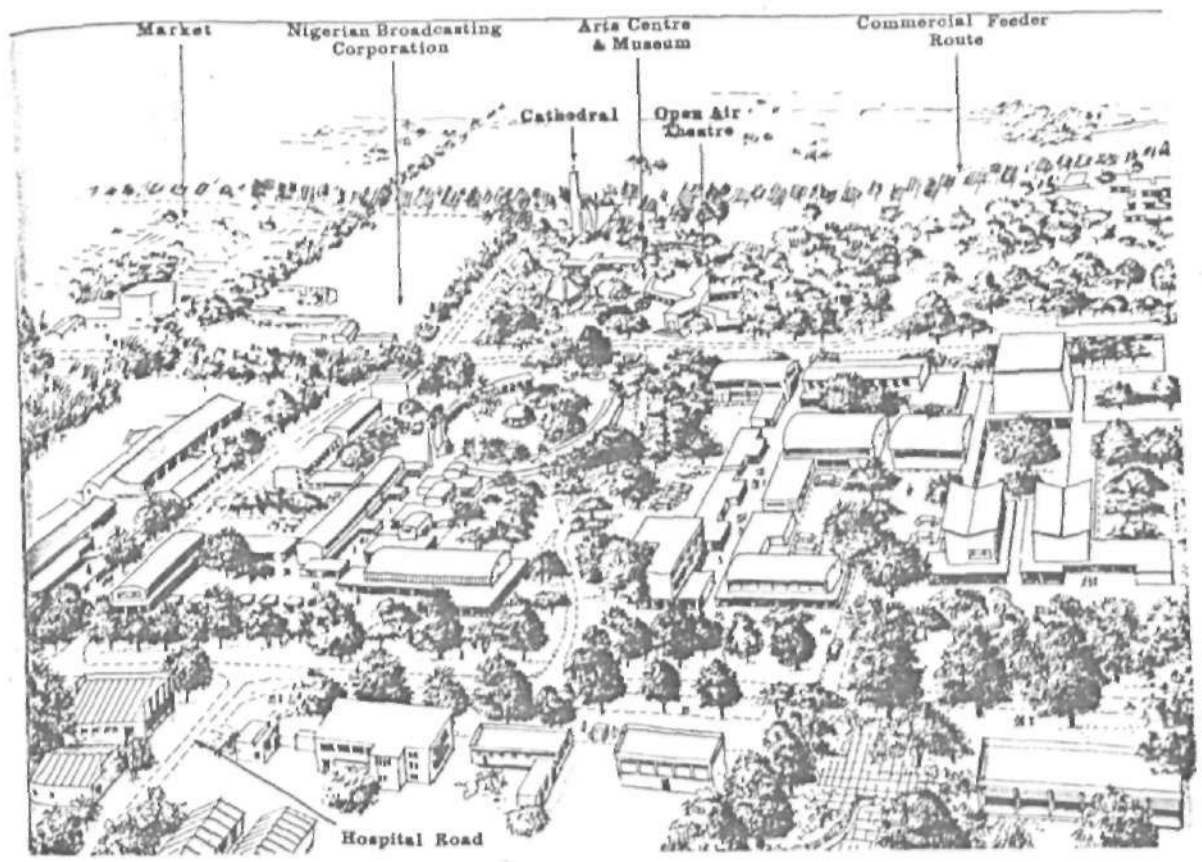


FIGURE 4:25 THE COMMERCIAL AND CULTURAL CENTRE LOOKING WEST

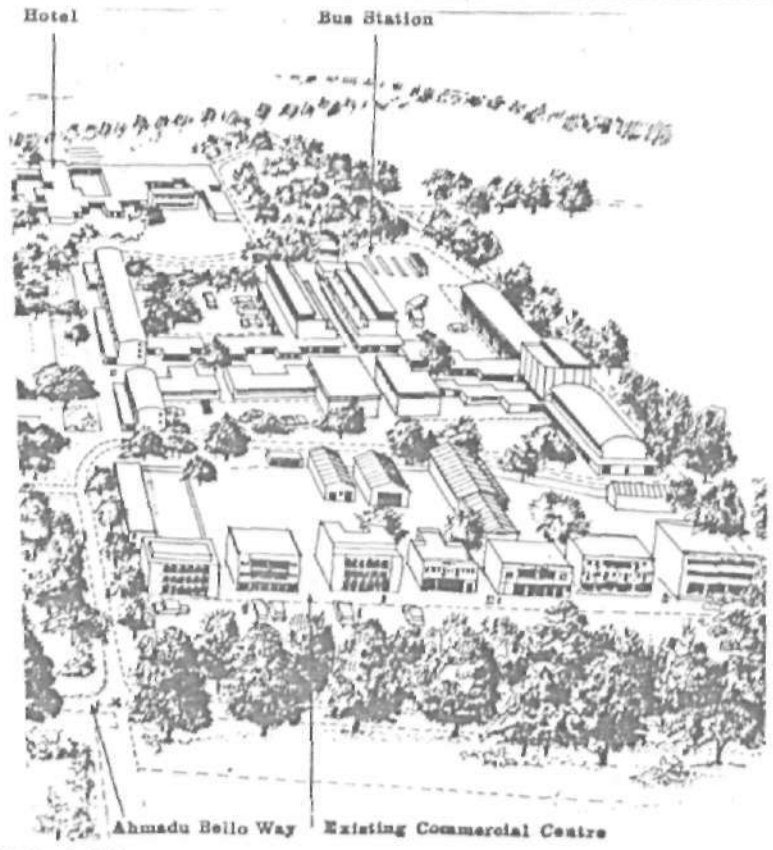


FIGURE 4:26

Source: Lock (1964).

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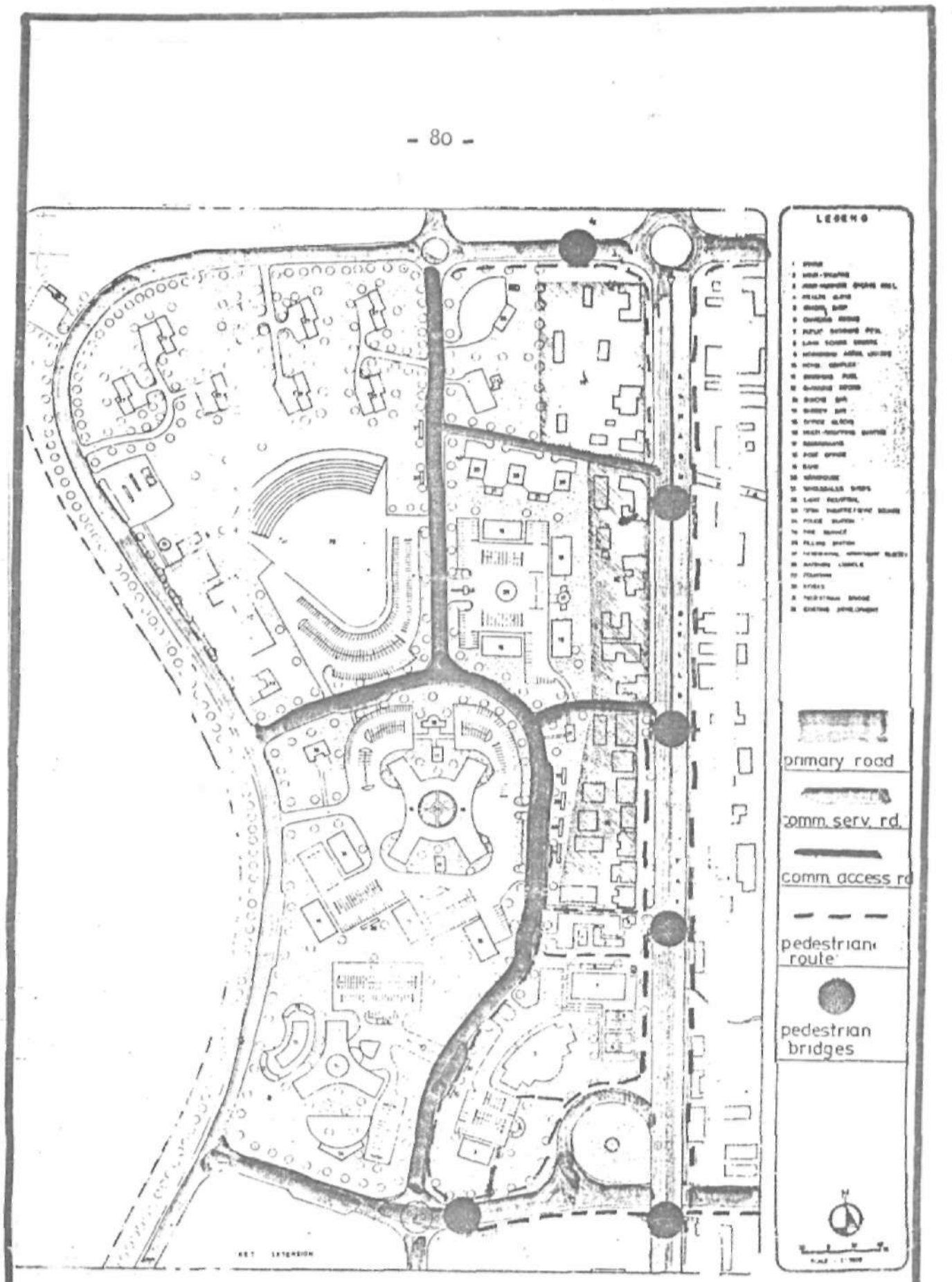


FIGURE 4.27 DEVELOPMENT PROPOSALS BY BESTAC 1983

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4.5 AN APPRAISAL OF URBAN DESIGN ASPECTS OF KADUNA METROPOLIS

There is an infinite variety of urban design elements that are found in the urban environment. However, they can be classified into two bread categories, namely; Natural elements and Man-made elements. This classification is based on their origin. In respective of the class groupings, each element has a certain imagery characteristics and exhibit some constraint and potential qualities for urban design. When these qualities are known and utilized in urban design, the quality of urban development planning will be maximized and lead to better quality of life. This has to be viewed with caution, since the variables involved in achieving this maximization are subject to change, level of technology and political manoeuvre. The fundamental assumption is that the decisions to organise landuses and commit resources for the betterment of the larger society is based on sincerity, commitment and a deep sense of responsibility to humanity.

A. NATURAL URBAN DESIGN ELEMENTS

These are the physical objects provided by nature that form part of the three dimensional space recognised as being the constituent of the urban environment. The discipline of Geography provides the explanatory tools for identifying such elements. Thus the parent groupings are employed for the purposes of identifying these elements.

i) WATER BODIES: This include; rivers, streams, springs, seas, pools, ponds, barrow pits, ice caps, lakes etc. Figures 4.12 and 4.13 gives the imagery characteristics. Similarly, plates 4.1 gives an actual example. In the context of urban design, the constraints of water bodies include; limitation of the useability of space, depending on the level of technology and economic bouyancy. They influence the choice of development in terms of height, the density, linkages, texture, colour, building materials and treatment of structures and their surrounding. The basic design principles here would be the

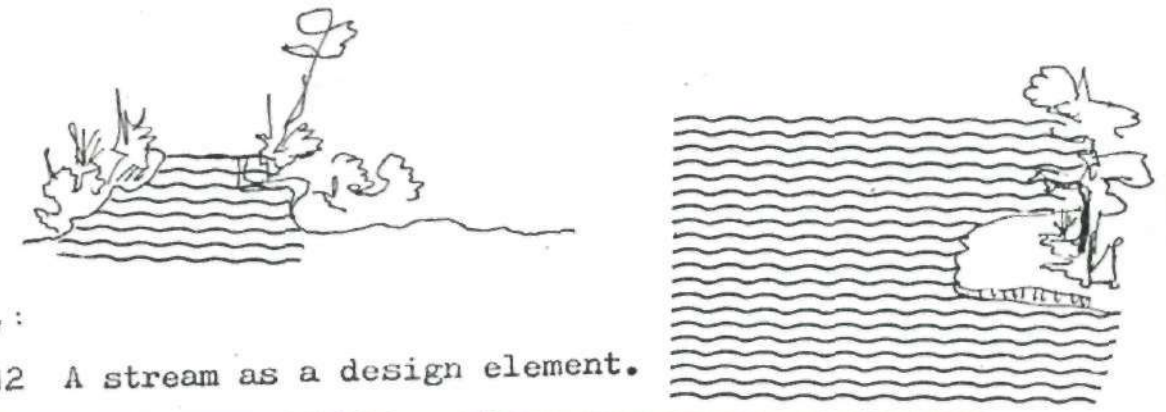


FIG:

4.12 A stream as a design element.





Fig: 4.13 Shore line as it affects design.

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achievement of compatibility of landuse arrangement in three dimension; functionality of the individual and collective spaces without jeopardizing others and socio-economic considerations in resource commitment. (Barnett 1982: 5)

The potentials include its useability as a focal point, as a break to change design character and levels of development. They are useful for the application of human scale development and water-based landuses. They are also useful for applying the principles of symmetry in design. It should be noted that these constraints and potentials are two sides of the same coin. On the one side, they would act as constraints and on the other act as potentials. Thus, depending on the combination of elements and desired landuse, an infinite variety of applications for urban design exist.

ii. ROCK OUTCROPS: These may be small boulders, a hill or mountain range. Each type would generate a different potential and constraint. Plate 4.2 is an example. However, in general terms, the constraints of rock outcrops in urban design includes its limitation of useability of space; influential capabilities on choice of foundation, orientation, materials and treatment of structures and surroundings. As a result, they influence type of man-made structures that can be developed. They also influence the choice of linkages and their alighment.

In terms of their potentials, they serve as landmarks (as explained in Lynch, 1960: 78-83). If treated, they add to street furniture and landscaping imputs to the imagery of the city. It enables a human sense of belonging to be created in the built environment by giving the surrounding built-up areas a natural appearance. This is a basic principle strongly held and reflected in the works of Frank Lloyd Wright (1958) and Lynch (1981).



PLATE:-4:2 ROCK OUT CROP

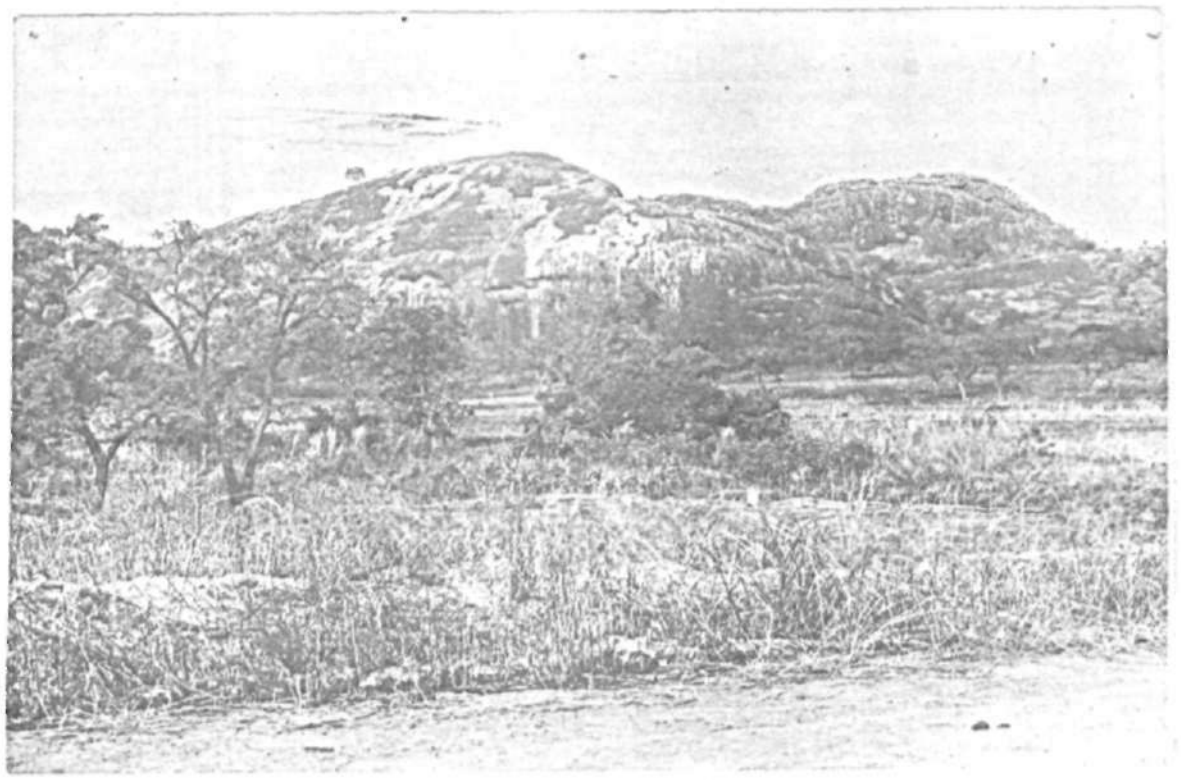


FIG: 4.15 Example of topography.

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A further verture of rock outcrops in urban design is that, it can be applied to create suspension in vision. This is manifested by the good example of Zuma Rock effect on the Abuja-Suleja Road. Figure 4:14 illustreates this point.

iii. TOPOGRAPHY: This describes the general geometric formation of the earth surface. Figure 4.15 outlines the imagery characteristics. The topography of a place influences the choice of foundations, orientation, texture, linkages, building materials and treatment of structure and its surrounding. These constraints have profound implications on the resource commitments to development, the convinience of space users and imagery qualities. The undulating character of the surface is useful for varying development height; potentials for acheiving panoramic views, and useful for pattern development in line with topography.

iv) THICK VEGETATION: This element can be recreated by landscaping and varies in shape, character and content. Thick vegetation influences orientation, choice of openings in buildings and shape of the structures. It is useful for creating suspension in serial vision along paths as evident in the garden of Chima.

Similarly, it gives man-made structures a natural look. It is useful for screening unwanted views or leading vision to specific direction. Figure 4.16 illustrates. Plate 4.3 also outlines an example of application in real life situations.

v) SOIL CHARACTERISTICS: This is more of a scientific assessment of soil behaviour in accommodating man-made development. Experience shows that soil characteristics affects the landscape specification, and to a large extent influence town structure, choice of foundation and pattern of services. Similarly, it affects the compactness appearance or scatteredness depending on available developable space on basis of soil quality. The colour of the soil adds to the choice of colour combinations of other urban elements.



FIGURE

4.14 Zuma rock, Abuja creating suspension in vision along the movement route.

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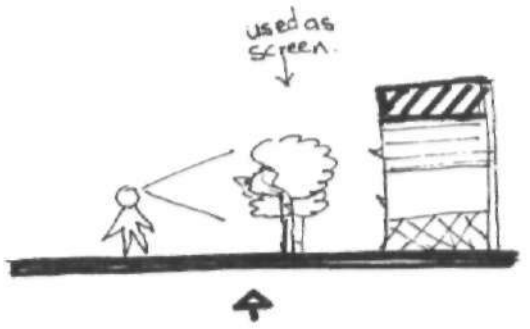


FIG:- 4.16 Landscaping elements.



vi) CLIMATIC FORCES: These are forces that have a media of manifesting their existence with implications for urban design. These include the sunshine, wind and rain/snow. These forces determine choice of orientation; building materials; shape and size of openings and comfort conditions. They determine the compactness and scatteredness of the urban elements.

B. MAN-MADE URBAN DESIGN ELEMENTS

These are the physical objects that have been created by man in the context of his technological know-how, social background, economic and physical possibilities. The variety here is very extensive and this work does not pretend to be capable of listing all of them. For convinience, these elements are grouped according to known urban land-uses, namely; Recreational,; industrial; commercial; Institutional; Utilities; religious; military installations; facilities and services; linkages and street furniture. The list is unexhaustable.

i) INDUSTRIAL DEVELOPMENT: This refers to spaces containing buildings or open spaces that are used for manufacturing or processing of some form of basic raw materials to produce another product. The nature of the activities here tend to require structures that are massive in size and coverage. There are distinct characteristics associated with them. These include; the shape, scale in relation to humans, need for access rather large, building materials of a coarse nature and a skyline that is rather harsh.

The major urban design constraints associated with such development include the possibilities of creating monotonous pockets e.g. labour colonies and sheds. It creates contrast in building height, shape materials within its type of landuse and against adjoining land. Figure 4.17_a and Plate 4.4 illustrates.

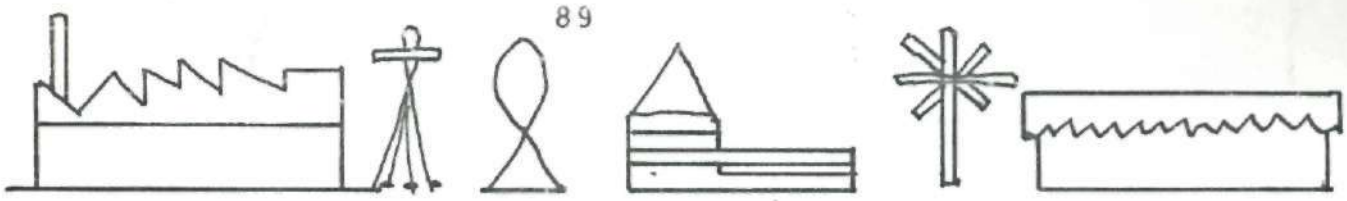


FIGURE 4:17 IMAGE CHARACTER OF INDUSTRIAL DEVELOPMENT



PLATE:- 4:4 EXAMPLE OF INDUSTRIAL DEVELOPMENT

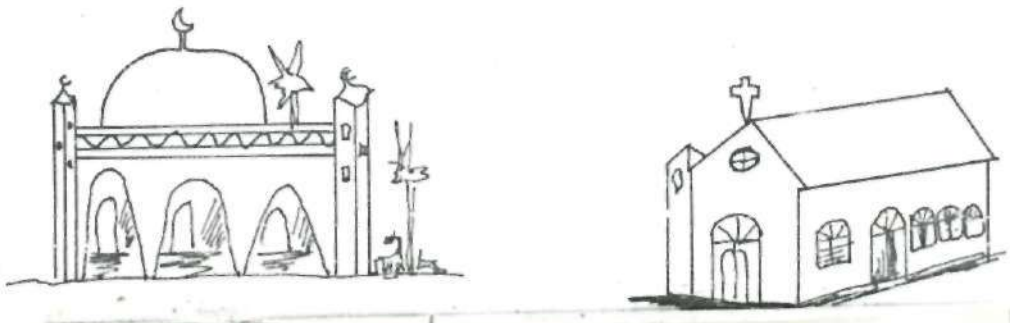


FIG. 4.17a



PLATE: 4.5 RELIGIOUS BUILDINGS

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The structures tend to be out of proportion to human scale and could be unsympathetic to landform. These nagative qualities, notwithstanding, can be used to show fine grain and also coarse grain in an urban development expression. The monotonous pockets can be combined to create rythm in design. In the context of the urban image, they enable identification of districts and serve as demarcation to urban design character.

Similarly, they act as landmarks or reference points to pedestrians.

ii) RELIGIOUS DEVELOPMENT: These are based on socio-cultural values, so strong that they may dominate the entire urban design philosophy for the urban area. As earlier noted above in Chapter 3, the strong religious force influenced the spatial pattern and urban design practice in Rome during the reign of Pope Sixtus V. Similarly, in Kuwait, the strong Islamic believe has influenced the urban design of the capital. (It is hoped it will regain its souvereingty)

The major constraints of religious buildings and spaces in urban design, is that its appreciation would be limited to a section of society or community (especially in a multi-religious society). These buildings tend to have forms and character of spaces that are not compromising to other landuses, and thus have domineering effects. In terms of the imagery qualities, they serve as landmarks, focal points, vistas and their facade adds to the quality of surrounding environment. They may add to or be detrimental to economic value of surrounding property. Figures 4:17$_a$ and Plate 4.5 illustrate the issues raised.

iii) RESIDENTIAL DEVELOPMENT

This landuse tends to dominate the urban scene in terms of quantity and area coverage. Generally, residential development contains a variety of small scale pattern of styles which has a mixture of grain that may not be compatible. It can create monotonous pattern and the

manner for attaining a system of spaces is limited. It has segregational tendencies that restrict design choice especially with the type of controls imposed on the spaces through plot boundaries. Again, the density controls limit choice of height, orientation and building materials. A s a resource imput for urban design, it is most related to human scale. It has infinite pattern of space organisation and can create focal points, enclosures, vistas, serial vision by share arrangement and orientation of the elements. Plate 4.6 illustrate the issues raised.

vi) COMMERCIAL DEVELOPMENT: This varies in scale and context. From the corner shop to the regional market. Each has its own peculiarities and qualities. However, in general terms, the constrainst include its limitations on choice of location; absence of consistent functional tempo; it alters form at different levels,creating need for different design considerations that may not be,easily applicable to conform with contextual development. It can be monotonous in form, shape and texture. Figure 4:18 illustrate.

Commercial spaces can be multi-functional. They can define edges and relates to human scale. It has the highest concentration of colour, texture and landuse mix, allowing for a variety of formation and choice of appropriate design elements. Invariably, each location present unique conditions for imaginative design form.

v) INSTITUTIONAL DEVELOPMENT: These include both public, semi-public building, education buildings, administrative and health buildings and spaces. Trends suggest that they limit choice of location because of their socio-political role and function. They tend to be massive, individualistic and distinct component that breaks visual harmony.

Such individual component establish individual distinction and expression without identifiable character of distinct quality. Admittedly, they are components that need to be individualistic in view of their social and political symbol. Thus they allow the creation of unique micro-environment in terms of design composition and expression. They can also serve as landmarks, edges and districts. Plates 4:7 and 4:8 illustrate the issues raised.

vi) LINKAGES: These include roads, airways, railways, waterways and footpaths. They tend to limit mobility to spaces, restricts choice of materials, orientation, heights, landscape specification and treatment. In terms of potentials, linkages serve as break-points for altering design characteristics. Similarly, they allow alteration of orientation and introduction of other urban design elements. Linkages give meaning to spaces by forming a pattern and functional relationships. Linkages are one of the strong controllers of direction of vision, thus they can be applied to direct vision to focal points. Figure 4.19 illustrate the issues raised.

vii) STREET FURNITURE: According to Reekie (1972), this is a term used to describe collectively the many minor but mainly essential elements in urban design. They include such items as: light standards, electricity and telephone poles, traffic sighs, refuges, street names, adverts etc. The building facade adjoining streets form part of the furniture. Essentially, functionality of the street is paramount and the visual impression quite significant in urban design.

Since streets are corridors of movement and means by which spaces are linked, their furniture is expected to add to the quality of route; give directives and information; compliment space organisation and decorate other urban fabric. However, if neglected during design and subsequent development, rather than add to quality of appearance, it



PLATE:- 4.6 RESIDENTIAL DEVELOPMENT

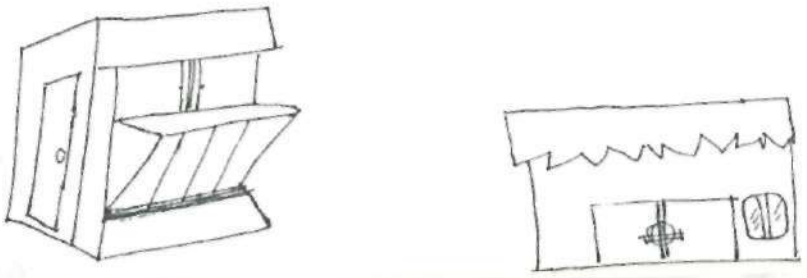




FIG: 4.18 Commercial outlets.

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PLATE 4.7 Investment house, Kano.



FIG: 4.19 Example of linkages.

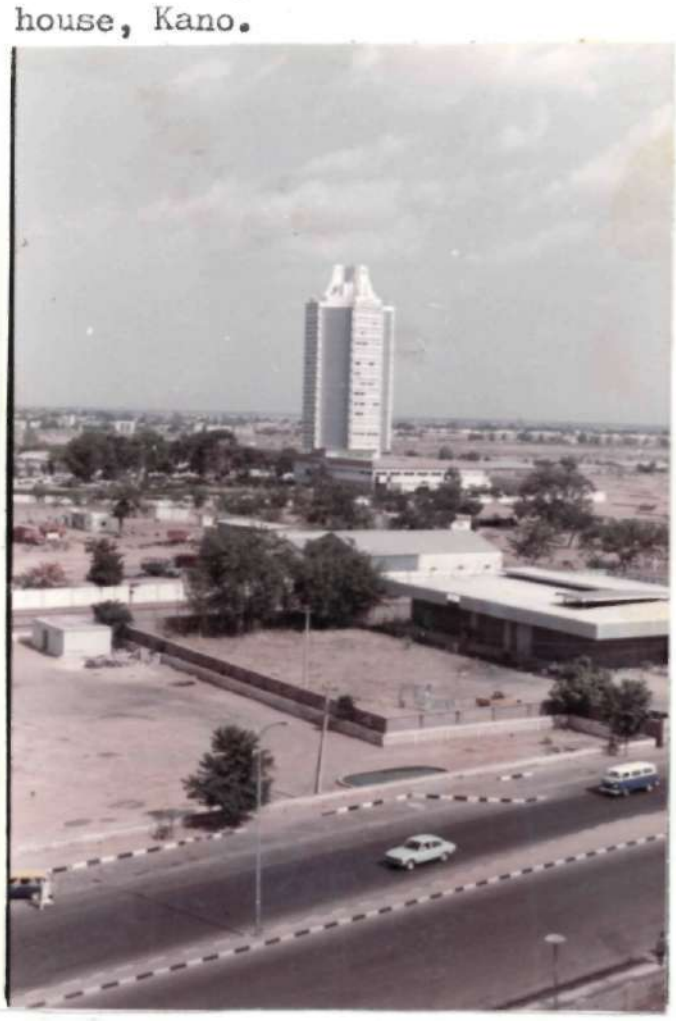


PLATE: 4.8 Bank of the North building in Kano.

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can create unrelatedness to facade and texture. It may jeopardize functiam of spaces and thus confuse the observer further. Figure 4.20 illustrate.

viii) MILITARY INSTALLATIONS: These are of National significance and for security. They are monumental and individualistic and restrict space use. They tend to have coarse grain totally unrelated to other city grain. The grain of the surface is illustrated by figure 4.21.

ix) RECREATIONAL DEVELOPMENT: Such development include; botanical gardens, zoo, golf courses and stadia, parks and picnic grounds. The main constaints to urban design is the limits of choice of buildings and colour. They tend to generate large voids in the whole package of urban fabric. The voids would have to be co-ordinated to obtain balance. Potentially a means for obtaining breaks in skyline formation. It allows quality of landscaping to stand out as distinct character in urban design. Fig.4.22 illustrates.

x) PHYSICAL PLANNING REGULATIONS: These include the development control tools and general planning procedures and layout plans. The major constraints to urban design comes from planning regulations. This argument is developed in the next chapter. Here, the issue raised is that, by putting a boundary line either as a plot line demarcating boundaries or limits to design imputs, it immediately breaks the link in design for a whole area and makes it piece-meal. This in turn prevents viewing the city from a wholistic point of view but as broken pieces of the urban fabric that are being pieced back by different artist at different times and scale, with diverse objectives. Certainly, the pieces would not fit together and may create visual conflict and ineffective space use and function. This situation when allowed to operate leads to resource waste, inconviniences and lack of prudence in space use.

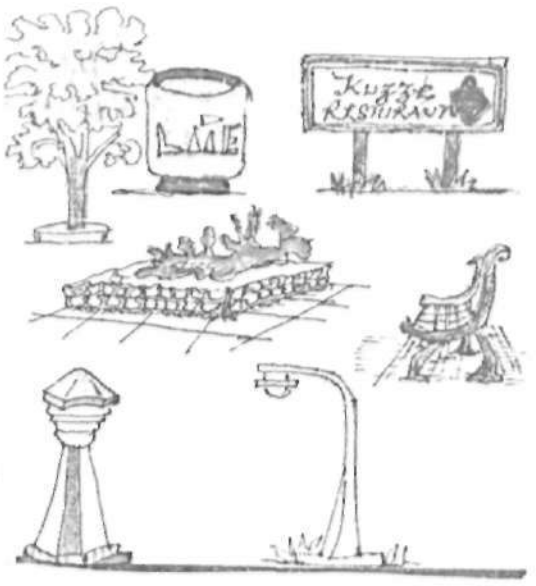


FIG:-
4.20 Example of street furniture.

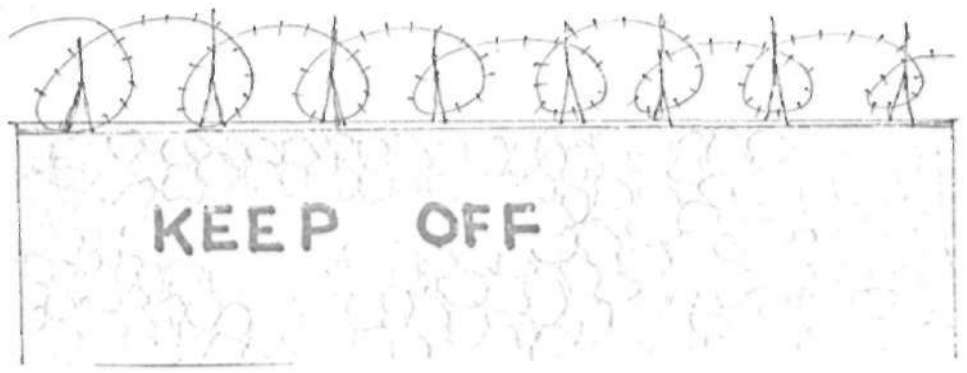


FIG:-
4.21 Familiar signs that depict such military installations.

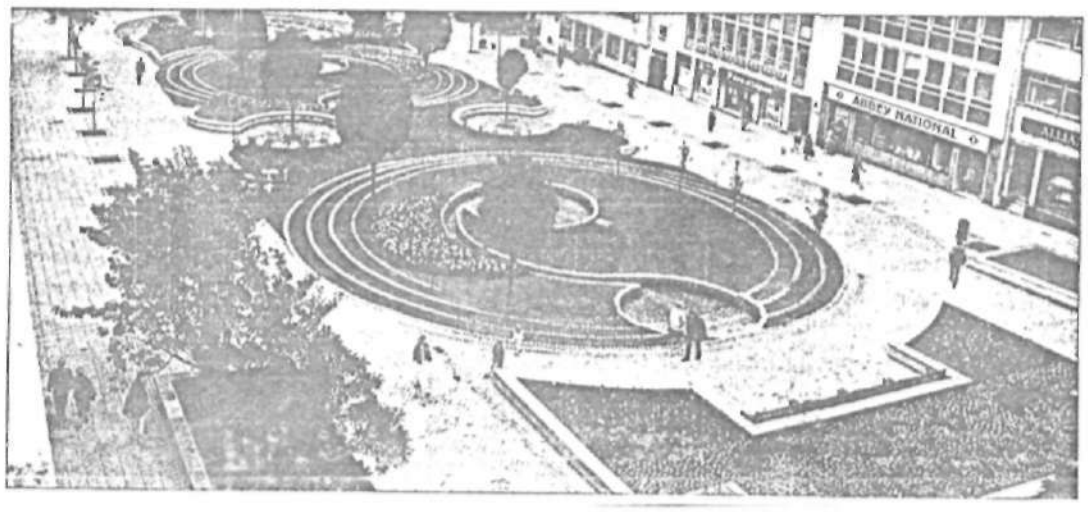


FIG:- 4.22 Example of recreational space.

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4.6 THE CRYSTALINING ELEMENTS IN KADUNA

From the analysis made above (4.3), and the elements reviewed in 4.5, above, distinct physical spatial elements manifest in Kaduna Metropolis can be identified. These include landmarks, nodal points, areas of special identity and regional elements. This is shown in figure 4:10.

LANDMARKS:- These are monumental in character point locations. In Kaduna, these include the sculptural elements on the island of the major round-abouts (Leventis, NEPA, Lugard Hall, Challenge, Stadium, Tafawa Balewa Way round-abouts); New Nigerian Building and Ten-Storey; Refinery; Governor's Lodge; State House; Tudum-Wada Water tank; the Kaduna River and Rigasa River.

Their form is either unique in facade or massive with foreground and background elements. The spatial relationship of these elements with their surroundings is that of a towering effect or of a height observable from most part of the metropolis. They create strong vista, but views are informal and panoramic in nature. The major forces responsible for their creation are political and economic.

NODAL POINTS: These are spaces where social interraction take place and promotes a meeting ground for the people at varying degrees and complexity. Thus the structures and total area serve as identity mark for functionality of city spaces. In Kaduna Metropolis, such places include the commercial zones e.g. Central Market, Leventis/ Chellerams corridor, Panteka Market, Tudun Wada Market, Kawo Market, Kasuwa Monday; Religious buildings and grounds (e.g. Kano Road Central Mosque, Anguwar Sarki Musulmi Jummaat Mosque, Maiduguri Road Mosque, Catholic Centre, St. Michael Church, Deeper Life Church); Recreational centres (e.g. General Hassan Katsina Park, Murtala Square and Golf Course).

The form and physical fabric are individual units with a large foreground and background and stands freely. In the case of recreational spaces and open markets the structures may be both few and temporary in nature. So when not in use, such urban spaces might give an erroneous impression of waste and waste of land. Their image quality would however need to be improved. The major forces responsible for their creation are social and economic. They are in hierarchiual order of intensity of activity and use.

AREAS OF SPECIAL IDENTITY: These are elements with a uniqueness that carves an image for itself. It may be a building, space or zone. In Kaduna, such places include: the Federal and State Secretariats; the Stadium; Kaduna Polytechnic; Nigerian National Petroleum Company Housing Estate; Peugeot Automobile Factory; Dagazau Carpet factory; Defence Industries Corporations Unit; Durbar and Hamdala Hotels Ltd.; Railway Crossing at Tudun-Nupawa; Boat house; Lugard Hall; all the districts (Tudun-Wada, Kakuri, Kawo, Ungumar-Rimi, Malali,Sabon gari, Sabo tasha, Rigasa, Mando, Barnawa and Narayi); Airport, and Nigerian Defence Academy (NDA).

These zones exhibit some qualities that are based on functionalities and visual image of the urban area. The main forces responsible include: economic, political and social considerations in urban development. Also some regulatory measures are responsible for the locations and operational qualities.

REGIONAL ELEMENTS: These are elements that have geo-political undertones and are tied to the national or other regional interest. In this case, they include, the regional routes through the Metropolis (the Kaduna - Zaria Road, Kaduna-Lagos road, the Kachia Road; the Railway links); the Airport; the Defence University and the Airforce base.

The physical fabric of these elements are tied to their functional role and link with the outside world. Their name tags tend to depict them as such. The major forces responsible are political and socio-economic in nature.

4.7 THE URBAN DESIGN PROBLEMS IN KADUNA METROPOLIS

4.7.1 THE THEORETICAL EXPECTATIONS OF URBAN DESIGN IMPUT

From the above characteristics, one observes that there are urban design problems which prevents the legibility, vitality, fitness and control of the Kaduna urban fabric and thus the image of Kaduna Metropolis is poorly expressed. Experience has shown that people judge the success of planning by the local environment which they perceive. Hence, it is important that the quality of planning decisions create a legible environment that is also functional and efficient.

On a theoretical basis, the expected urban design imput in the process of urban development includes the following stages:

Firstly, before development starts with no physical planning imputs, the skyline is usually without intrusion other than the natural landscape. It is expected that the urban design constraints and potentials would be articulated for the planning.

Secondly, before development starts but basic planning imputs are introduced, the skyline may begin to alter with clearing of spaces and introduction of service lines. It is expected that regulations required to achieve effective urban form will be outlined here.

Thirdly, during and after development, planning would be involved in the building industry and control of development. Here, the skyline character would be moulded and finalised. It is expected that urban design considerations identified at start of the process would be effected. Facade, texture, balance etc. would be implemented.

Fourthly, the urban form that emerges form basis for assessment of quality of physical planning decisions and societies'level of development.

For Kaduna, it appears that these stages were never followed or given significant considerations. Thus numerous urban design problems can be identified. Judged against certain major urband design factors, the extent of the problems may be outlined.

For the purposes of this analysis, each urban design principle is examined against the existing situation in order to establish conformity or otherwise.

The situation in Kaduna especially in the Central Business Area, reveals that the major openings and spaces that give the structures field of vision include the circulation spaces, parking spaces in front of major public structures. Most of the structures, except on Ahmadu Bello Way do not give a sense of enclosure as the relationship between foreground and observer is above 1:2.

On Ahmadu Bello Way, Hospital Road, Independence Way, only buildings between one storey high and three storeys are within the comfort zone of intimacy.

The major urban design problem relevant here is that the areas and zones that give high degree of intimacy are few and scattered. The actual sense of enclosure is lost. The foreground and backdrops are such that that intimacy is lost either through over-provision (as in most parts) or complete absence as on Ahmadu Bello Way.

The implication here is that it would seem to be the case that the plot sizes provided and the required set-backs need to be reviewed to fall in line with urban design principles. It would seem to be the case that present plots are over-provided with too large a frontage to have effective design that gives the desired enclosure effect. To support further this contention, other urban design principles are

examined in the next set of arguments. In Kaduna, the prominent focal points are the uncompromising structures located on the major round-abouts of the city, Lugard Hall, State House and Governor's Lodge. Plates 4.9 and 4.10 illustrate examples.

The views to these round-abouts are poorly framed. The visual walls that guide the view to these points are untreated and purely accidental. These focal points are themselves alienated to the pedestrian as both physical and visual access are linked.

There are no pockets of good views and vista. The road geometry prevents such creation. Although the topography offers an opportunity for creating serial vision, it has not been used. Views along the channels of movement are constantly interrupted by intrusions from buildings, displayed goods and the wirescape.

MANIFESTATION OF MAGNITUDE

The Governor's Lodge, State House, Lugard Hall Complex stand out as significant structures. At a smaller scale, the storey buildings along Ahmadu Bello Way are local champions. Plates 4.11 illustrate the points raised.

Large structures of importance have their role in the whole city design. However, when placed within a setting that does not provide adequate foreground and backdrop, if starts creating visual intrusion and may jeopardize the rights of adjoining landuses to have access to light, wind, privacy and safety.

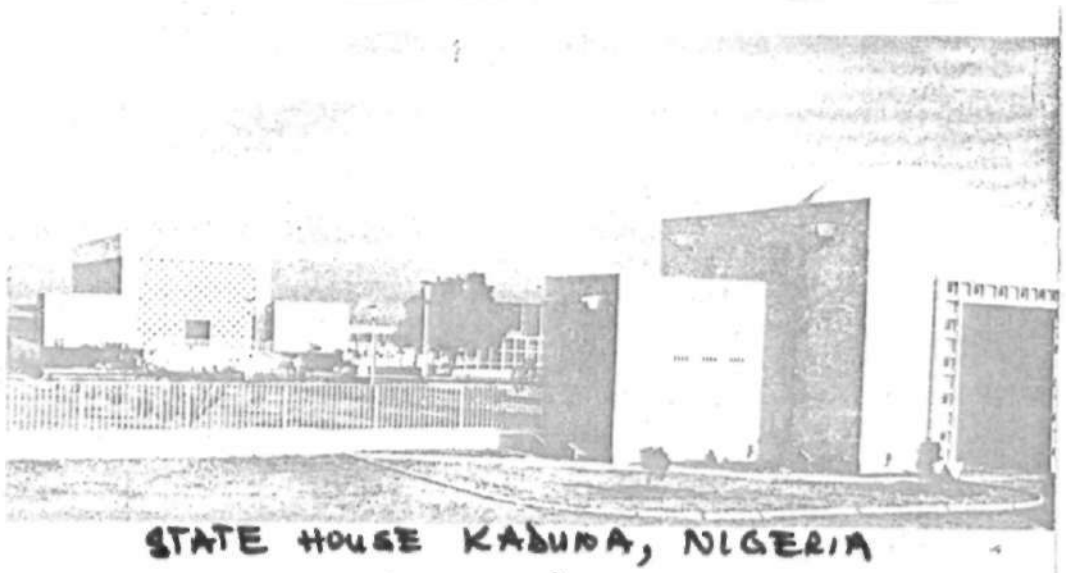
TEXTURE, TONE AND COLOUR CONSIDERATIONS

These are qualities of surface character either in terms of colour, material and grain. They are concepts that can be applied to distinguish one form from the other. They can be used to break monotony and adjust to weather conditions.



LUGARD HALL, KADUNA, NIGERIA.

FIG: 4.9 Buildings that serve as focal points.



STATE HOUSE KADUNA, NIGERIA

SOURCE : LOCK (1967: 81).

The low heights of Kaduna urban fabric gives the character of the texture composition. Similarly, the mosaic of the town shows a jungle of rusted corrugated iron sheets, with no clear pattern of mass and voids. Although there are limitations imposed by economic constraints and technological advancement, the planning controls have failed to consider urban design principles in organising and allowing urban development. This issue is discussed further in the next chapter. Plates 4.12 and 4.13 illustrates the issues raised.

STREET FURNITURE

Structures are perceived by colour, texture, light, shade and by pattern, form, shape line and detail. It can be seen from varying view-points in relation to its surroundings. In a group of buildings adjoining one another or are closely adjacent, the visual emphasis is more on the two-dimensional design of facades and on horizontal continuity.

There must be what has been termed 'good manners' between neighbouring buildings, but reasonable freedom of expression is permissible. What has to be avoided is the degeneration of street architecture into a jumble of unrelated facades. Skylines may be varied within the limits of balanced composition, but continual changes of horizontal levels are restless and visually unsatisfactory. Figure 4.23 illustrate the issues raised.

In Kaduna, there seems to be no clear order of facade relationships. The punctuations on the skyline are unrelated and thus has disturbing effect on views. The street scene as shown in plate 4.15 suggest irregular verticality clustered skyline, confusing and disturbing background.



PLATE 4.12 Illustration of imbalance.



PLATE: 4.13 Examples of Kaduna 'grain' in terms of texture.

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Plate: 4.14 Mixture of colours.

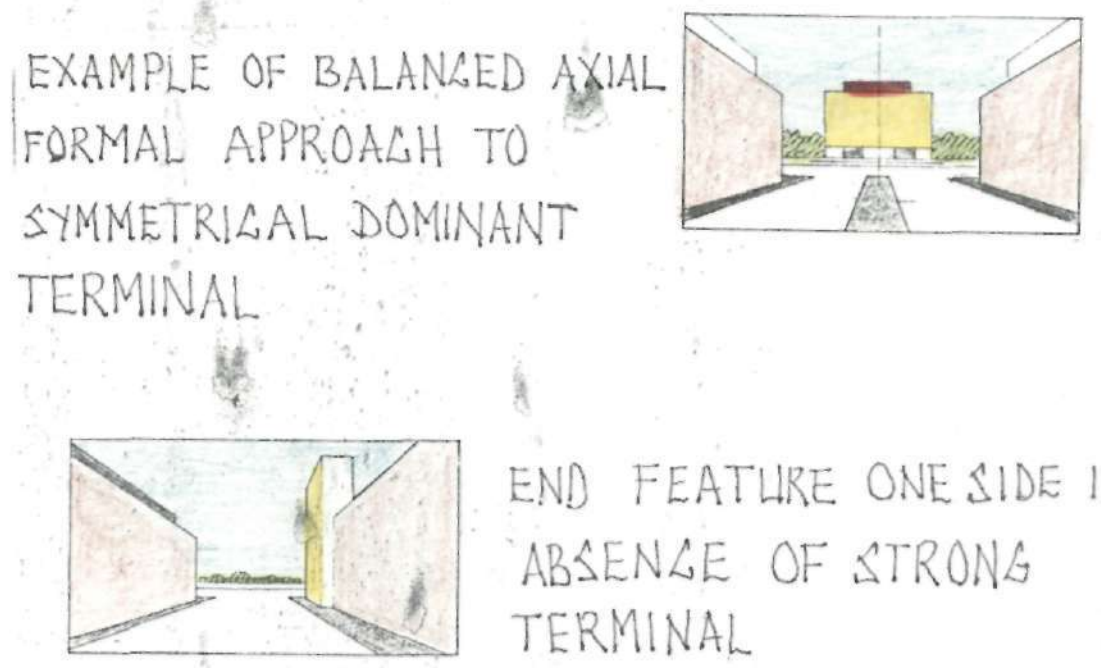


FIG:- 4.24 Illustration of balanced development.

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BALANCE IN DEVELOPMENT

Harmony amongst parts of anything is balance. Figure 4.24 help to illustrate this concept. 'Vertical balance' can be assessed from openings in terms of movement channels. 'Horizontal balance' may be obtained from the two-dimensional layout of mass and void.

In Kaduna, views of the roads show vertical inbalance in development both in terms of size, shape and mass. The system of space links is in favour of traffic circulation at expense of pedestrian movement and visual relationship with the urban environment. City monuments are located in the centre of large open spaces where as traffic islands, their peaceful contemplation would be precluded.

The mass and voids are greater and there is no network of space links and co-ordinated relationship. City development should be viewed comprehensively and not disjointed and individualistic. Attempts by the Kaduna State Government at city beautification scheme should not be seen as improving round-abouts but as an urban design issue that may necessitate changes in contemporary planning process, controls and plot allocations.

4.7 SUMMARY OF URBAN DESIGN ASPECTS

From what has been discussed so far, the following urban design aspects can be identified:

i) There is a general destruction of views and enclosure of plazas, vista and progression in the wake of a need to accommodate the automobile and be modern. The urban structure inherited from Lugard's time has not only been maintained but poorly imitated in newer parts of the metropolis, while plot sizes, set-back standards and density controls were valid during the colonial period, there is no convincing rationality for the continuous usage in contemporary Kaduna.

The needs are now different, aspirations varied and expectations high in a climate of political and economic independence. A review of space standard is certainly required to conform with new and realistic needs of Kaduna.

ii) The natural and man-made urban design resource endowment are poorly used in plan preparation. The tendency in urban spatial composition in the age of automobile is to emphasize moving elements within man-made elements and eliminate natural elements. This is not only resource waste but an expression of poor comprehension of role of urban design in the total package of urban planning.

iii) The organisation of the urban elements are such that spaces lose functionality and are incompatible with each other. Thus, legibility of the metropolis is very much reduced.

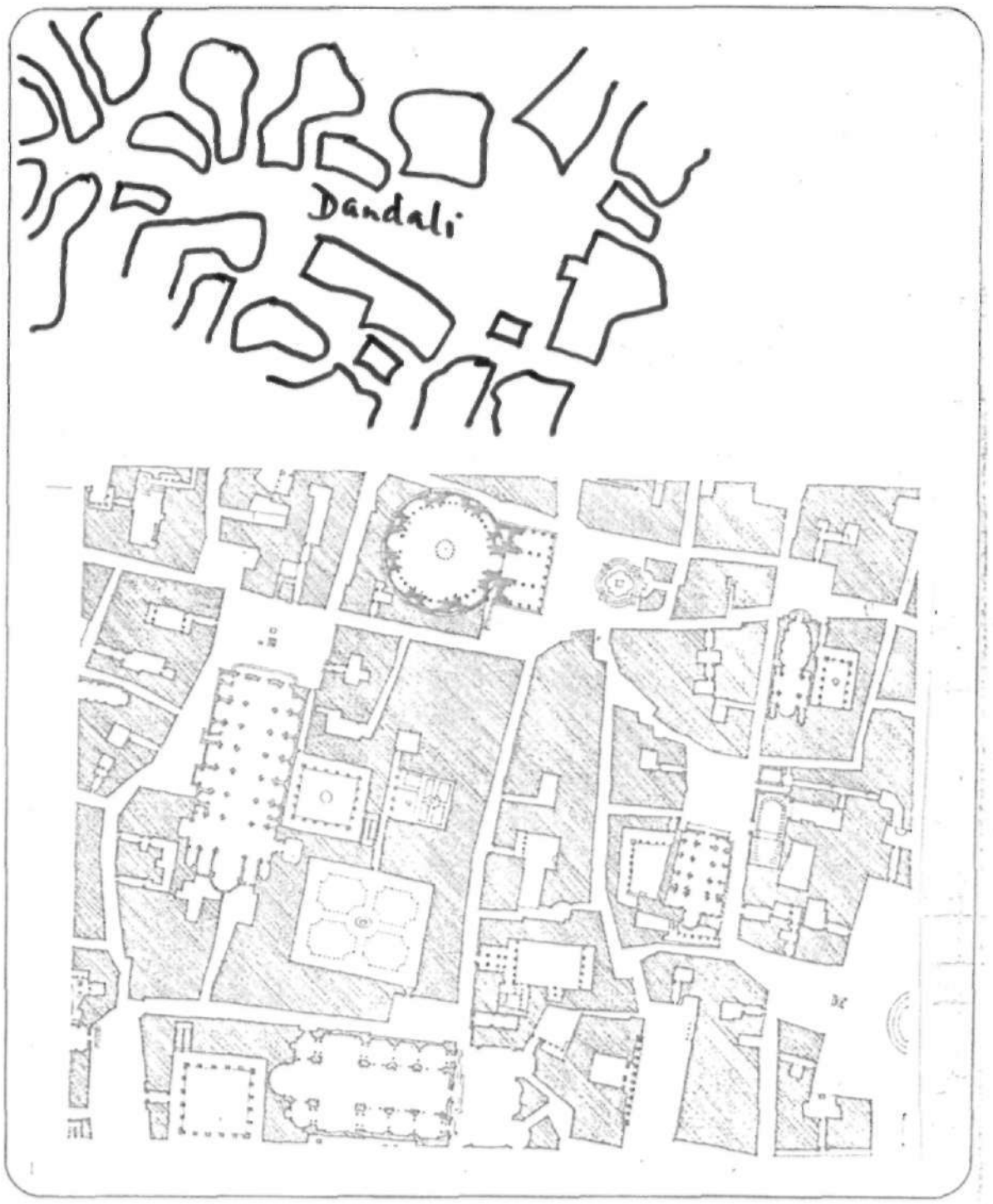
iv) Since development pattern is not in conformity with the proposed plan by Lock (1967) which contained relevant urban design aspects in contemporary planning, the juxtapositioning of landuses has created confusion and ambiguity rather than relate form to function.

v) There is an absence of character or differentiation in space use and identity of the different parts of the city.

CHAPTER

5

DEVELOPMENT CONTROL AS A TOOL IN URBAN DESIGN IN KADUNA METROPOLIS



CHAPTER FIVE

5.0 DEVELOPMENT CONTROL AS A TOOL IN URBAN DESIGN IN KADUNA METROPOLIS

5.1 Development Control Measures As Tools for Effecting Urban Design

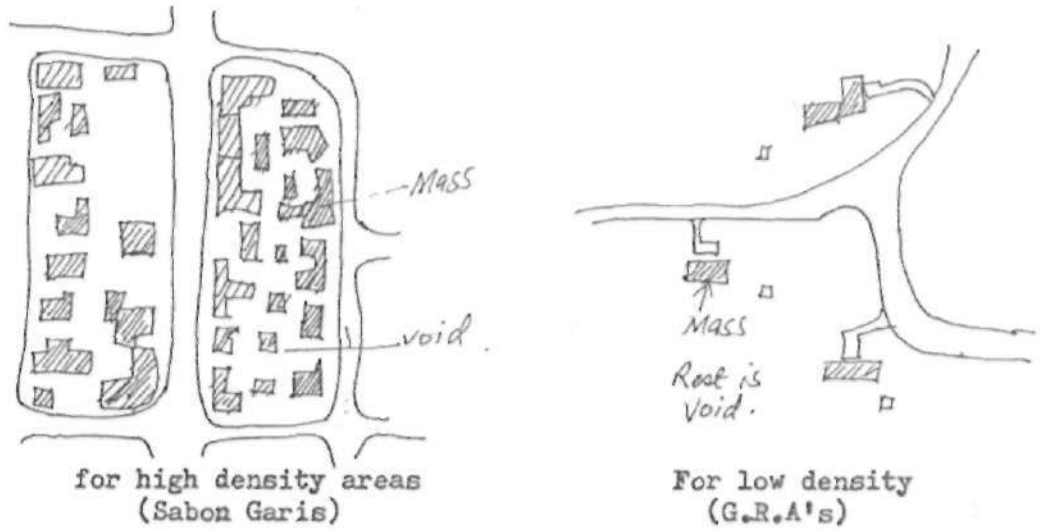
In the context of urban design, the resulting built environment ultimately rest on the plans prepared and type of controls. However, the credibility of any plan hangs on the scientific rationality imput, relevance to issues in question and whether they are implementable.

Theoretically, development control measures have some in-built urban design considerations. Thus when they are applied, it is expected that some urban design principles and features would be achieved. However, not all aspects of urban design are built into the development control measures.

The situation in Nigeria shows that right from the onset, the division of development pattern by economic differential and the respective controls set the pace for the structural composition of Kaduna. These developmental style is of European heritage. For Europeans, social, political and educational gaps have been bridged through advancement in technology and political maturity. The only distinguishing factor is economic status, thus all development patterns are determined by economic capability. For Nigeria, these gaps are still very glaring and the socio-cultural aspects very powerful control factors in determining landuse and life-style. This calls to question the rational and hence continuous application of present development control measures and planning standards. Existing controls appear to be capable of influencing the following aspects of urban design.

ACHIEVEMENT OF BALANCE IN MASS AND VOID

The factor used is the density controls and land allocation. For residential development, the ground coverage should not be more than 53% in low density and 50% in high density areas. The spaces in front and on set-backs is illustrated in figure5.1. Thus a scattered style of development is predetermined from the onset.



for high density areas (Sabon Garis)

For low density (G.R.A's)

Figure 5.1: Effect of control on mass and void in residential development.

In general, the range of plots per hectare is four (4) for low density and twelve (12) for high density. For industrial zones, the compactness is increased over larger spaces. The ground coverage should not exceed 45%. The commercial and office spaces should not be more than 40%. (K.C.D.B. 1985; 4 & 5)

These specifications already create a distinct restriction to mass/Void relationship and unless this is made flexible, the scattered nature of the city mosaic would continue.

THE SKYLINE

The skyline of the city is significantly controlled by the floor space ratio allowed and the density controls. The maximum number of floors allowed for low density areas is three floors. For high density, it is four floors. Special controls exist for development in the areas adjoining Ahmadu Bello Way between Sokoto Road and

Constitution Round-About to the south. The building heights in this area should not be less than two floors and not more than six floors (K.C.D.B, 1985: 5). The building line is 25 metres for all development. The development ratios range between 30% for five storeys or more to 60% for up to two storeys. These regulations must have been given before the double carriage-way was built. The facade control exist in the statute books but appear not to be enforced (K.C.D.B. 1985).

There are no regulations for either large commercial outlets and industrial development. This omission requires some attention especially that residential districts develop next to these industrial establishments. Similarly, there are not controls for either colour, texture or materials in residential areas and industrial zones. It is assumed that the developer would produce what will be reasonable and acceptable. This is not good enough in a situation where the developers' aim is profit maximization.

The controls are silent on issues related to orientation. This needs attention as it affects the accessibility of other landuses to light, good views and ventilation.

DEGREE OF ENCLOSURE

The set-backs and building lines shown above in figure 5.1illustrate the creation of a fixed degree of enclosure. Although the structures in residential areas are within tolerable degrees of enclosure, there is very little variation in space form and character to evoke interest in the observer. In the industrial zones, the poor treatment of the foreground and approaches still prevent aesthetics.

The theoretical undertones of the sense of enclosure have already been discussed in chapter two above. Findings show that all buildings less than two floors do not give a sense of enclosure. This is because the spaces between the structures merely stays within the 1:3 ratio

of relationship. Most are 1:4 and above with poor treatment of foreground.

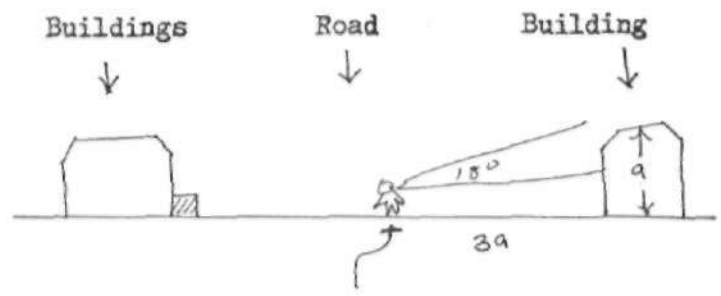


Fig.5:2 - Example of enclosure created in residential and commercial areas.

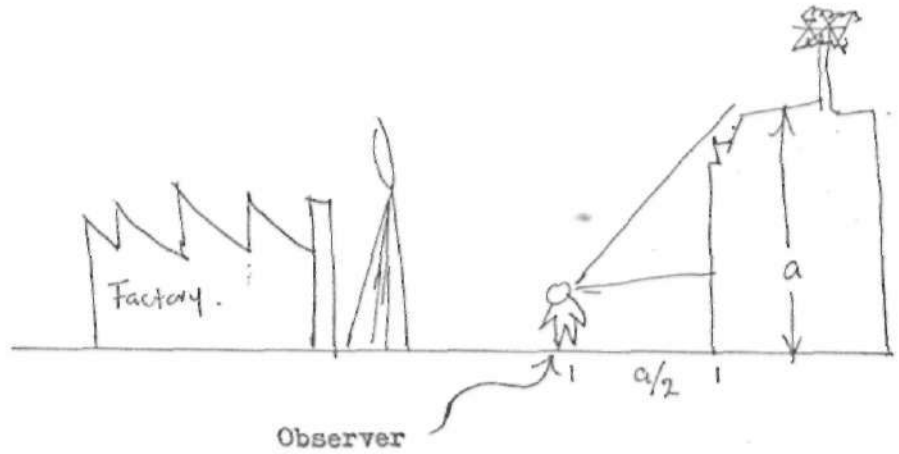


Fig.5:3 - Example of enclosure created in industrial areas.

To appreciate the issues better and determine where the problem area, the present arrangement for plan preparations, types of plans and development control outlets are examined.

5.2 PHYSICAL DEVELOPMENT PLAN PREPARATION

The plans usually prepared by and for planning authorities include: masterplans; schemes and layouts and sub-divisional plans. The plans are linked to each other in a sequence of production outlined in figure 5:4. Firstly, plan preparation may be initiated

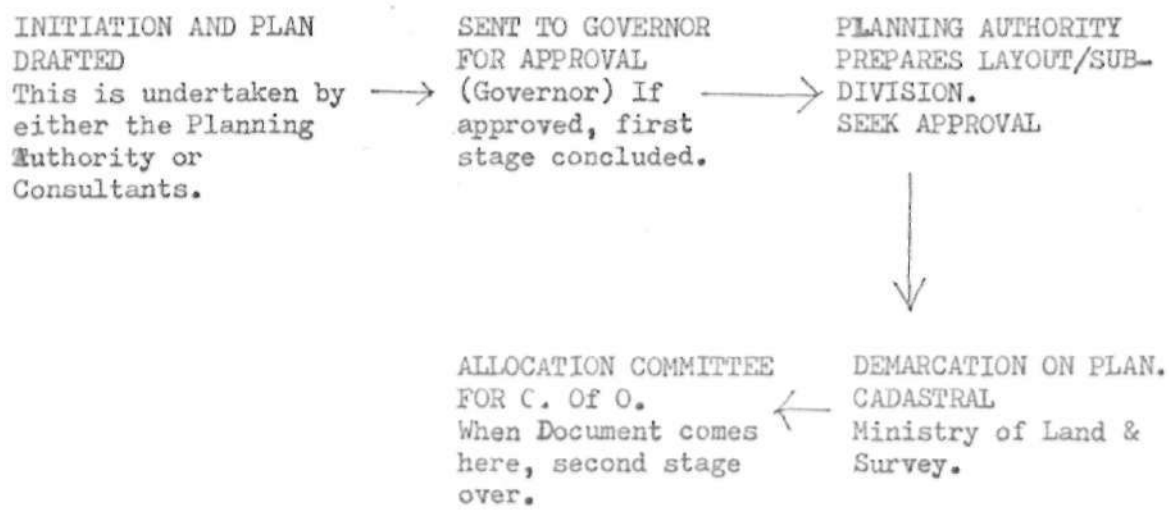


Fig. 5.4: Existing process of plan preparation.

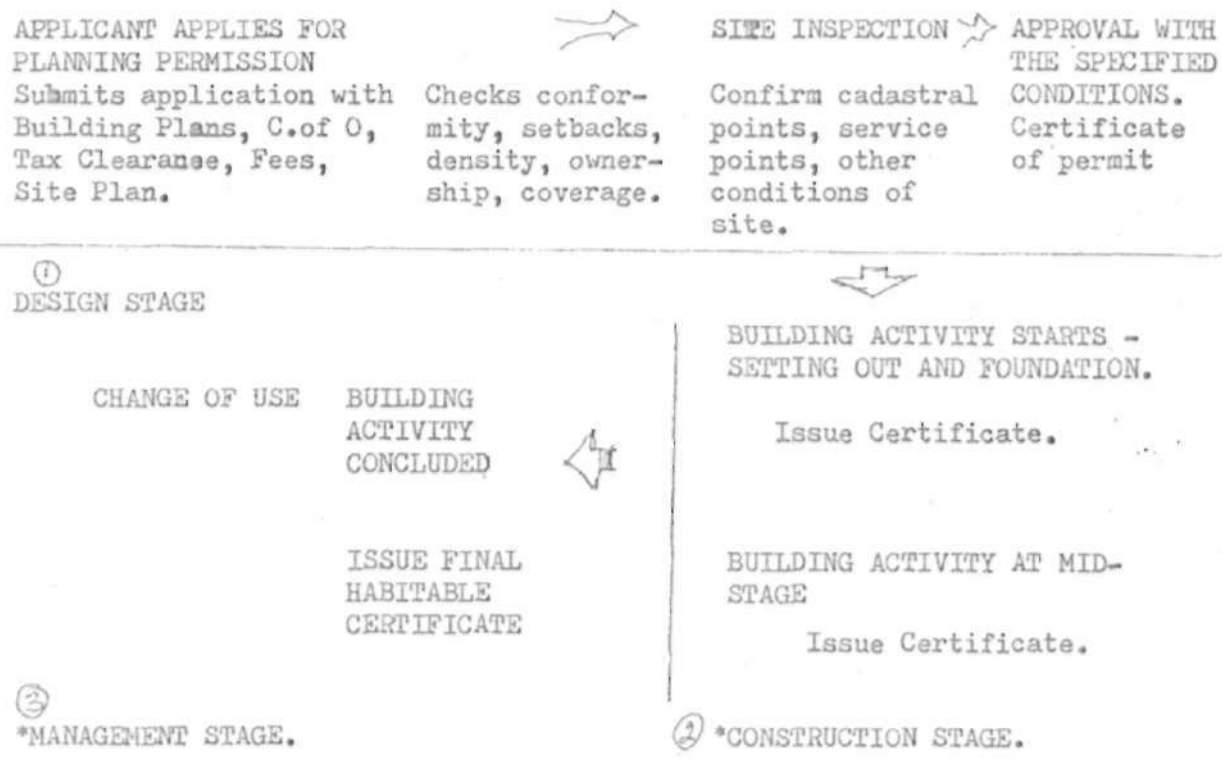


Fig. 5.5: Procedure for second plans.

by an individual, groups of community or the planning authority or their appointees (Federal Government 1960) document would then be compiled and presented for approval on basis of planning principles identified in chapter two above. The draft plan is sent to the Governor or Chief Executive of the State for his approval. If approved, the document becomes legal tender.

Second stage involves preparation of detailed layout and sub-divisions especially where first stage plan does not offer such details. These are sent to the governor for his approval. Third stage involves sending such approved layouts to the survey department to demarcate (cadastrale) the spaces using beacons.

The fourth stage requires the sending of the pegged plan to the allocation committee for issuing out to the public. This marks the beginning of development control. From the above outline, there are two basic stages involved of urban design significance. The first stage where plans are conceived and analysis undertaken is the most crucial point where all urban design aspects must be considered and incorporated in the final plan. Such considerations prepare the grounds for better design quality. The second stage is where the sectoral and land sub-division are considered. Here the imagery capacity of each location is to be emphasised. Urban designers need to handle this stage. Site unique qualities are brought into play here. This is illustrated in figure 5.5. The master plan and the layout plans when approved, themselves become control tools for achieving some aspects of urban design in Kaduna Metropolis is appropriate.

i. MASTER PLANS

The planning history examined in chapter 3 shows that Kaduna has had plans prepared for it right from inception. The last official one was Maxlock plan of 1965.

The fundamental urban design aspects in-built in such plans include the achievement of broad landuse pattern which will give urban structure balance between mass and voids. It should set stage for development of space standards, choice of development and policy guidelines on functionality. In Kaduna, although schemes have been prepared since inception, they have not been adhered to. Those that have achieved implementation still show failures in producing balanced development texture and prudence in space use. The biggest restriction to urban design is the placing of plot boudaries and set-backs and building lines. The argument here is that the space standards provided during the colonial period are not tolerable for urban development in contemporary Kaduna. The main reason is that, these space standards were conceived with the Euorp European social structure in mind. So when applied in another different community structure, a different effect is obtained. Thus, there is need to re-define such standards to conform to socio-cultural settings.

Some of the reasons and possible explanations why master plans for Kaduna have failed as effective tools for achieving urban design include the following:

Firstly, the instability of governance has prevented firm commitment of resources.

Secondly, fluctuations in economic conditions have not allowed the implementation of the schemes.

Thirdly, the imput of urban design considerations during plan preparation stage was minimal.

Fourthly, there has been a very weak planning authority.

ii. LAYOUT PLANS AND SUB-DIVISION PLANS

These plans dictate point location which attempt to marry the natural elements and man-made to create best use of site with respect to conformity, uniformity, grain and relatedness.

The production of these layouts is the pre-occupation of the planning office. As at now, it is argued that there is no more space to plan within Kaduna Capital territory. Evidence suggest that urban design considerations expected to be manifest in these layouts are non-existent. Colonial given space standards are applied judiciously without question. Suppressive as they are, planning authorities apply them in the interest of so-called public. The result is that the rich in the society are allowed (and grounds prepared) for them to own over 80% of the land.

The layouts have no room for accommodating socio-cultural realities. Spaces are carved out on basis of income. This rationality is totally at variance with the socio-cultural realities and indeed the economic circumstances. Possible reasons for this situation include in the main, that the planning authorities view plan preparation as end-products and not as means to an end.

Secondly, studies do not exist that have established or defined appropriate space standards suited to cities in the country.

Thirdly, the urban design aspects in-built in specifications are remotely applied to desired effects e.g. space standards are spplied as if social values do not matter.

Fourthly, variables that are determinants of space standards are seldom re-considered to reflect contemporary situations.

5.3 DEVELOPMENT CONTROL MECHANISM

Essentially, this is where the role of planning in the building industry is effected. For other day-to-day controls, zoning plans, set-back specifications, height specifications, building bye-laws, density controls etc are spelt out. Ideally, each new district should have its own within a framework of the whole city. Unfortunately, most of these irrelevant bye-laws and requirements and specifications are older than those who operate them. The general process of urban development in which development control plays a role contains three inter-related stages.

i. DESIGN STAGE

Under this stage, the applicant applies for planning permission by filling an application form. Such application would be accompanied with the structural designs, certificate of occupancy issued by the allocation committee; tax clearance; necessary fees and site plan. The planning office checks for conformity with set-backs, density, ownership and coverage, materials and other specifications for that area.

A site inspection is organised to confirm ownership, cadastrial points, service points and other site conditions. It is expected here that, the urban design aspects would be adequately assessed and incorporated in the plans. Evidence suggest that the site inspections hardly contain reports with urban design statements.

Approval will then be given with specified conditions. A Certificate of Permit would be issued to enable the construction to start.

ii. CONSTRUCTION STAGE

The building activity starts, setting out and foundations made. The planning office is expected to issue a certificate of permit to continue. When building is at lintal stage, another certificate of permit would be expected. Each inspection has potential of considering urban design aspects.

These inspections are hardly ever done. In the Nigerian context, such powers appear to be usurped by the architect in charge of the job. The disappointing observation is that the planning offices and the professional body have hardly raise eyebrowss to these anomalies.

iii. MANAGEMENT STAGE

Here, the building activity is concluded and the planning office is expected to issue a habitation permit certificate. This responsibility is seriously flouted and abused at the expence of human property safety, aesthetic quality and functionality. When a change of use is required, the process starts all over again.

As far as the individual controls are concerned, they need to be appraised in order to assess their effectiveness as tools for effecting urban design aspects of urban development.

BUILDING BYE-LAWS/DENSITY CONTROL FLOOR AREA RATIO AND ROAD SPECIFICATIONS

The in-built design aspects inherent in these controls aim at regulating access to ventilation, sunshine, and a healthy surrounding. They allow control over pressure on space use and relate development to human scale.

In Kaduna, the notable evidence of this application is in the segregation of development into G.R.A's, medium density and public housing areas. Only the G.R.A.'s show signs of conformity to original intentions which by today's socio-cultural considerations is not

valid as earlier pointed out. Other spaces do not conform with specifications.

The major reasons for the failure of these controls to effect urban design principles lies in the ineffective enforcement mechanism due to lack of staff, incompetence and sheer negligence.

Secondly, the rational for applying existing standards yet to be reviewed to reflect the contemporary socio-cultural and economic realities.

Thirdly, these controls do not have a framework of urban design considerations at the metropolitan level on which to operate successfully. Thus development is piecemeal.

ZONING PLANS; SET-BACKS AND BUILDING HEIGHTS

These controls aim to achieve security to property and human life, give and protect good views, attain sense of enclosure, scale and balance.

In Kaduna, this is where greatest failure is observed. Plots when allocated, the rest of the three dimensional development is left to the developer to create. Often the resulting effect of a group of buildings would not be compatible. There are no clear specifications on urban design qualities given to the developer. Thus the enforcement of urban design qualities will be difficult or illogical after the developer has concluded the construction.

Outside these controls, there are no other significant controls that have bearing on the urban design aspects of urban development. It points to the fact that government is yet to be made to appreciate urban design aspects of urban development and how it can be controlled by regulation.

CHAPTER

6

GENERAL FRAMEWORK OF POLICY OPTIONS AND A DESIGN PROPOSAL FOR A SELECTED AREA



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CHAPTER SIX

6.0 GENERAL FRAMEWORK OF POLICY OPTIONS AND A DESIGN PROPOSALS FOR A SELECTED AREA

6.1 Synthesis of Urban design issues

At the start of the study (1.1), it was explained that the attempt has been to investigate the theoretical undertones of urban design aspects relevant to urban planning in Nigeria and Kaduna in particular in order to identify the options for articulating same in plan preparation.

Essentially, this approach is to face up to the challenge pursued by the urban design dilemma outlined in the justification of the study. The purpose of this synthesis is to bring together otherwise varied dimensions of the subject matter so that salient features may be identified, understood and recommendations offered.

6.1.1 URBAN DESIGN AS A COMPONENT OF URBAN PLANNING AND DEVELOPMENT

From the Literature Review, it is clear that urban design is a component of urban planning that bridges the gap between planning and architecture. It offers a set of guiding principles which, when articulated in plan preparation and control of development, provides the foundation for a functional and aesthetically sensitive physical environment. Each socio-cultural setting can apply these principles in a variety of combinations to promote its culture, satisfy its people's desires and aspirations within the limits of their resource endownment. For Nigeria, this is fundamental largely because at independence, she inherited urban design aspects which now feature alien techniques and standards that lack the expression of the people's social and economic system. These were accepted and now applied without questions by planning authorities. This is totally unsuitable for the role these standards are expected to play in

the total package of urban development. A review of urban design in history shows that urban design principles were used to effect the philosophy and aspiration of their urban plans.

6.1.2 MAJOR URBAN DESIGN ASPECTS OF KADUNA METROPOLIS

The analysis of the perceptive qualities of the urban design elements revealed that each urban design component has a capacity to act as a symbol and to transform one's mental picture of a place. These imagery qualities was identified and codified for Kaduna Metropolis. These may be grouped into landmarks, nodes, linkages, areas of special identity and regional elements.

In terms of procedure for urban planning, urban design forms part of the total package. It is significant that right from the on-set, urban design aspects must be considered in the data collection and analysis.

6.1.3 NATURE OF URBAN DESIGN PROBLEMS MANIFEST TODAY IN KADUNA METROPOLIS

The striking issue is the scattered texture and clear imbalance of mass and void. This disparity suggest that services have to be provided at high cost and land is poorly utilized.

Space links are in favour of the car, thus sense of enclosure is not related to human scale. The compositon of the urban fabric shows monotony and dull facade, thus the street architecture is unsatisfactory. There is a complete absence of street furniture plan and control. This means that the juxtapositioning of these urban elements are hapharzard and unco-ordinated to the detriment of space functions. Government approach to urban design is ill-equiped to create appropriate human environment that is function and sensitive to aesthetics. Urban design is certainly more than the decoration of round-abouts and landscaping of incidental open spaces. It involves a fundamental shift on attitude to land and its planning.

6.1.4 DEVELOPMENT CONTROL APPRAISAL IN THE CONTEXT OF URBAN DESIGN

Development control measures have in-built in them urban design considerations. However, not all urban design aspects are covered. The application in Kaduna is largely repressive. Thus, instead of securing the interest of society as expressed in the development plans/framework, it gives planning a bad name.

Existing controls are too general and do not provide the developer with satisfactory guidance of what is acceptable on planning grounds. Thus they fail to ensure that permitted development fits well into its environment.

6.2 CONCEPTUAL MODELS FOR URBAN DESIGN ASPECTS IN URBAN DEVELOPMENT AND PLANNING FOR KADUNA METROPOLIS

Fundamental issues can be raised in the form of general recommendations and directions for further research.

i. To start with, there is a fundamental issue that needs to be addressed. This is the issue of relative importance of urban design per se in relation to the wider issues of humanity. The tendency has been to see urban design as not only a tertiary issue but one which is a coating of flowers, sculpture here and there, with street cleaning, can effectively take care of. This view is largely held by third world nations and indeed some professional planners.

This perspective to urban design is not only restrictive and myopic, it fails to understand the role of urban design in the whole chain of urban planning and development. This study has provided such explanations especially addressed to third world situations. Urban planning and development is concerned with the fate of people's investment, social values, and taste and political status. It is the application of the urban design principles based on forces peculiar to one's culture, economic and environmental possibilities

that would lead to prudence in resource use and satisfaction of political, economic and social aspirations. In other words, it will lead to an improvement on the quality of life.

In this respect, the basic issues are that governments and planning authorities must re-orientate their perceptions and comprehension of functional role of urban design in the discharge of their responsibilities.

ii. The present practice of urban planning where development strategies are packaged on master plans and applied rigidly should change. Apart from the serious procedural and applicability of these plans, they do not outline the guidelines to be followed by developers in order to achieve the aspirations of such plans. Thus planning seems to stop with the two dimensional layouts without the instrument for linking site details to the large pieces of the urban environment.

It is therefore argued here that instead of handing over city designs or policy positions as an ostensibly finished product, urban planners should seek to write the rules for the significant choices that shape the city. This should be within an institutional framework that can be modified as times and need change.

The implications here are that, the present master plan production should stop. In its place, a skeletal framework of city form be outlined based on urban design principles and policy statements on landuses and societal needs.

The second level of plans would then elaborate on area specifications and site potentials within the wider design framework to meet the needs and economic realities. The third level would then outline specifications for sites in terms of orientation, facade required, height controls etc. These are the links that will now give the architect the focus and limits for expressing his client's aspirations and needs.

iii. Since the urban environment contain elements unique in setting and imagery qualities, urban zonation for differential environmental treatment is required. For Kaduna Metropolis, three zones are suggested, referred to as Zone 1,2 and 3. Refer to figure 6.1. Zone 1 would include regional roads, the city centre, public spaces including religious grounds, markets and government establishments. The controls here would require developers to submit design impact statements. The height control require pyramid fashion development. The foregpound should be between half the height of the building and two times its height. The facade to be a subject of control and choice of street furniture to be specified. Figure 6.2 illustrates.

Zone 2 would include district roads; institutional landuse; housing landuse; and railway corridor. The proportion of the routes to buildings not to be more than a 1:2 ratio. Special attention to be paid to human scale and space linkages for pedestrians. Fig.6.3 illustrates.

Zone 3 would include cemetry, vegetable gardens and water courses and minor rock outcrops. Here, emphasis would be to retain or encourage its natural elements and appearance. Thus treatment with respect to landscaping would be needed. Change of use in these zones would not be allowed. Figure 6.4 illustrate. Depending on the nature, size and peculiarity of the urban area, more zones may be created.

iv. Considering that planning decisions are over land not owned by the planning authority, and that commitment of resources depend on other considerations, development controls should be posibive. To this end, incentives controls based on urban design considerations should be introduced. A developer could receive concessions in plot rents, more floor area, access to some services if he provides any desirable feature or amenity to the community. These concessions

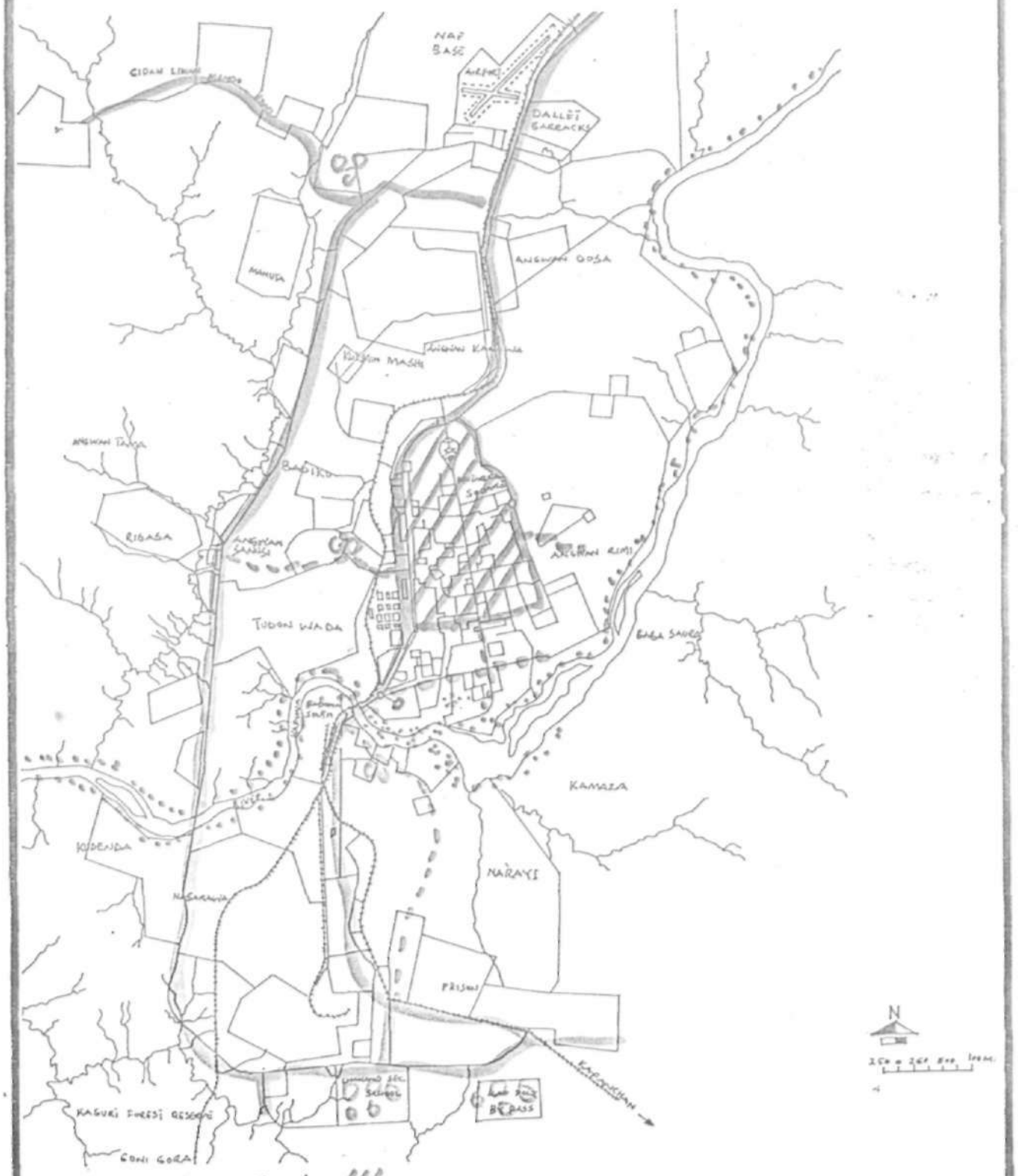


FIG: 6.1 Location of urban design zonation.

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FIG: 6.2

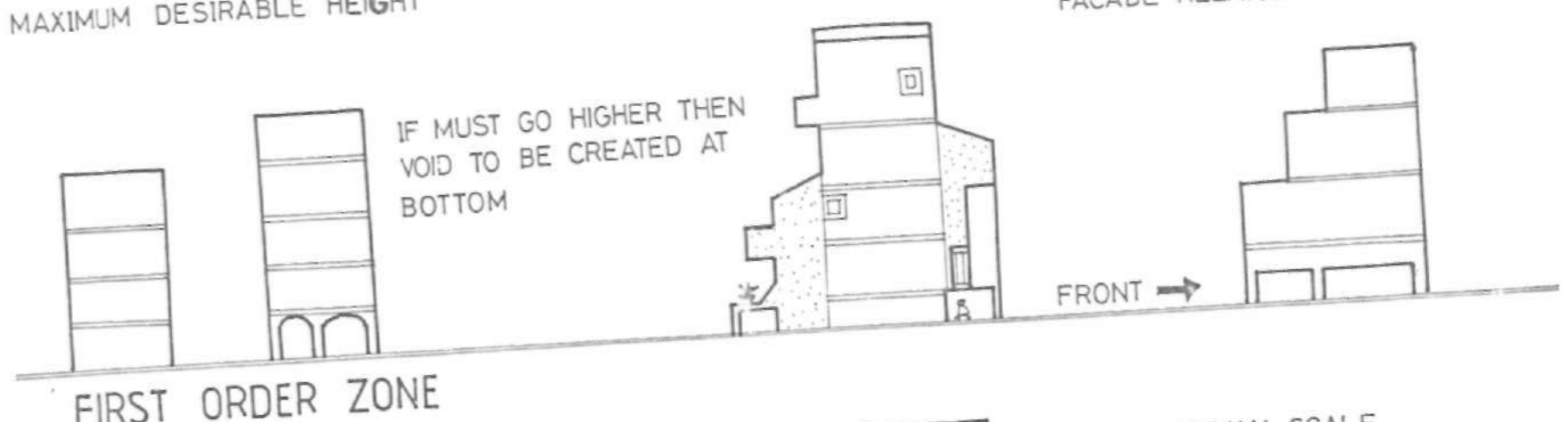


FIG 6.3

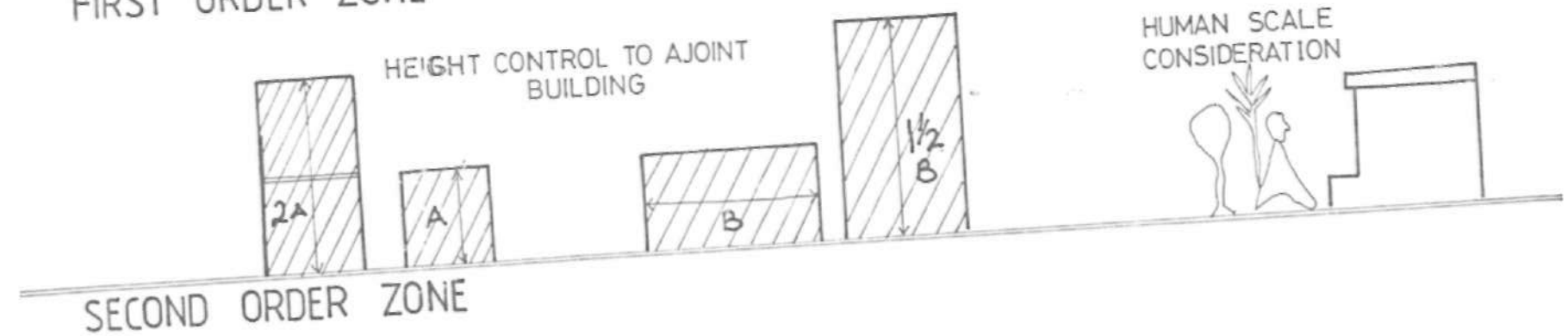
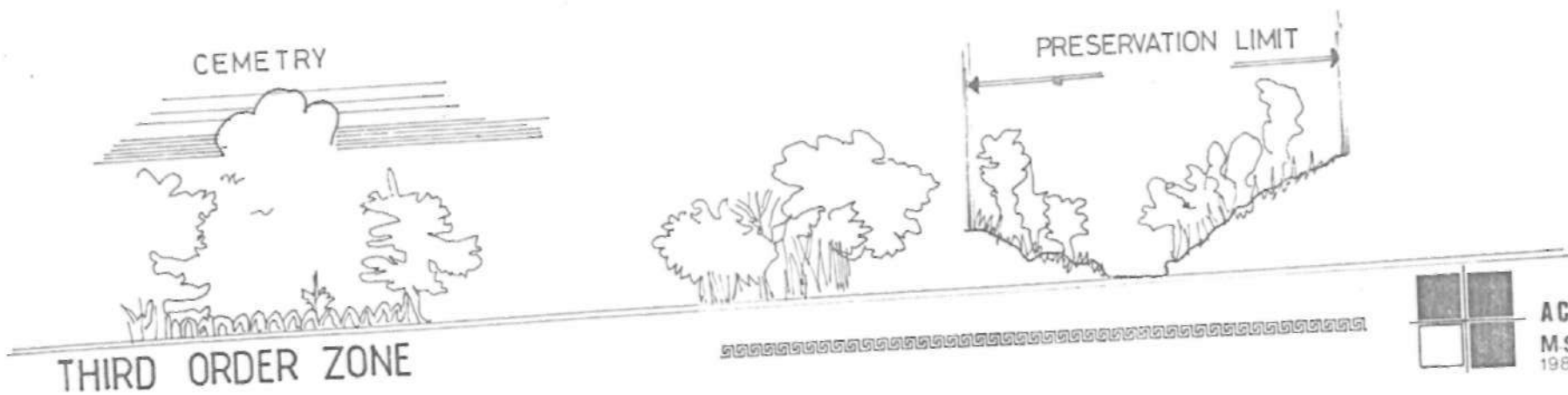


FIG: 6.4



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or incentives would form part of the conditions for the developers permitted development. More specifically, planning authorities such as Kaduna State Urban Planning and Development Board (KASUPDA) should introduce an annual urban design award for schemes in the urban environment; occasional competition sponsored by agencies and private organisations; and development subsidy.

v. As already argued, the space standards conveniently in use with whatever amendments are based on a community structure alient to the situation in Nigeria. There is urgent need to review these standards to reflect the social, economic and political realities of Nigeria. A further detailed study is certainly needed.

vi. The role of the physical planner has to be re-defined in the activities of the building industry, agencies such as the railway, airports authority, the army and other bodies that control large spaces of land, so that planners have stronger controls.

6.3 DESIGN PROPOSALS FOR A SELECTED PART OF KADUNA CITY CENTRE

6.2.1 POLICY OPTIONS AND GENERAL GOALS

The main purpose of this section is to apply the guiding principles and concepts of urban design already discussed in the preceeding chapters as a means of eliminating the negative aspects and promote the positive ones.

There are two dimensions to the application of these concepts. Firstly, there is the preventive approach. Here, it is concerned with new sites about to be committed to development. Proposals would be made incorporating the appropriate urban design aspects of scale, texture, balance, linkages, vistas, axis etc as a total package for the new development such that past mistakes are not repeated. In this respect, urban design elements may be fully utilized in the creation of the appropriate physical environment. This ofcource pre-supposes that the built environment can be

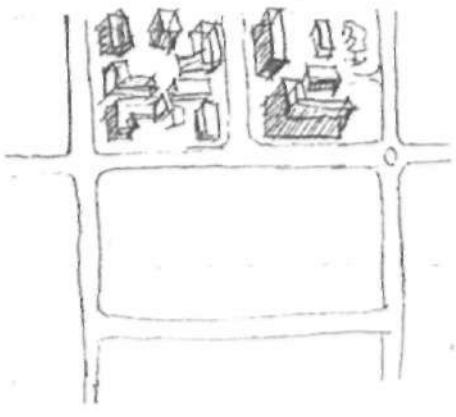
moulded to desired form. Thus the restrictions are few and maximizes imagination in design.

The second dimension deals with the curative measures in which repairs are sought for the built form. This involves re-shaping the environment in question to reflect the positive urban design aspects. Thus the urban design problems identified would be eliminated. This is more restrictive, since the investment already made becomes very expensive to re-adjust. Usually, changes in location, texture, grain and style of juxtapositon would be involved. While opportunities abound for the application of preventive measure, concern would still be required for the curative. This will become more apparent as our settlements grow older and the urban fabric begins to decay. Thus for the purposes of this study, the curative measures are emphasied in the application. The general goals for applying either of the two policy approaches are outlined below. Specific applicability would depend on site conditions and socio-cultural context involved.

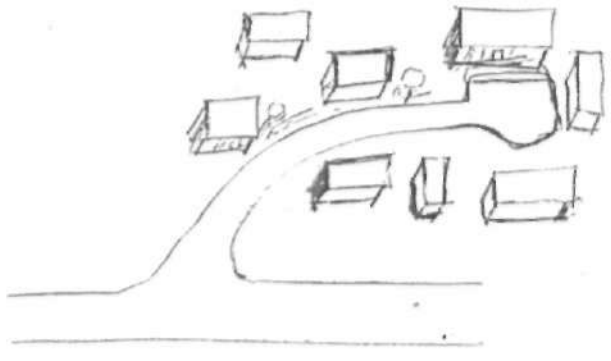
i) Not Just Another 'Grid' Extension

Contemporary pattern of plan preparation has been in favour of the moving vehicle. Thus 'modernism' appears to be the application of the grid concept, zoning separation of landuses, large-scale engineering and dispersed settlements. This erodes the communal living style and the basic ingredient for achieving unity in community.

The object should be concern for the spaces between buildings for people not for vehicles. Urban areas should be created with their own identities, rooted in a regional or historic context.



Grid concept with vehicle as priority.



Sense of community should be developed.



Skyline of this concept.



Skyline gives continuity and compactness.

Figure 6.5 - Illustration of spatial arrangement and skyline.

For curative measures, changes and new development into the area should be done in a sensitive and careful manner. An urban 'healing' approach, retaining as much as possible what is good and worthwhile, and adding to and enhancing it, with the aim of creating a new whole which is greater than the sum of its parts.

ii) MIXED USES

Simon (1989: 43, 52) indicates that compatible mixed uses enable the intensive utilization of sites or buildings at all times of the day, thus maximizing the economic returns on such investments.

Indeed, these agglomeration of uses dictate the form of the spaces in use. Thus there is a link between the phenomenon of mixed uses and groupings of different forms. Their juxtapositioning becomes significant in the context of urban design. Accessibility to light, air, and the pattern they create as a group should be appropriate and sensitive to aesthetics respecitvely.



Disorder should be avoided; Rather simple order improves legibility and sense of place. Treatment of the floor can add to the quality.

Figure 6.6: Illustration of order and creation of sense of place.

Generally, emphasis should be the sense of place not the buildings.

iii) LEGIBILITY

It should be easy for people to understand where they are, how the town centre is arranged and which way to go for the different places, amenities and facilities that they require. The expression of landmarks, movement channels, edges, districts and nodes in city design becomes useful.



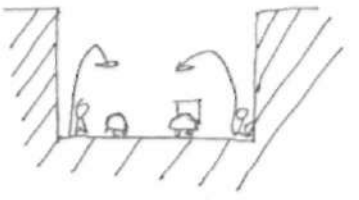
This skyline is plain and not easy to read.

This provides bearings and reference points.

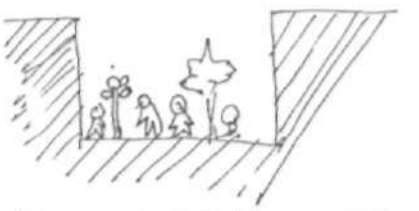
Fig. 6.7: Illustration of skyline with imagery qualities.

iv) Not the Vehicle But the Pedestrian

Studies show that functionality of spaces and comfort of usage is one which relates to the scale and pace of pedestrians, not to that of fast-moving vehicles, Sir Collin Buchanon (1963) rightly observed that, the freedom with which a person can walk about and look around is a very useful guide to the civilised quality of an urban area. The successful urban environment has to be permeable at the pedestrian level.



This is restrictive and reduces man - environment relationship.

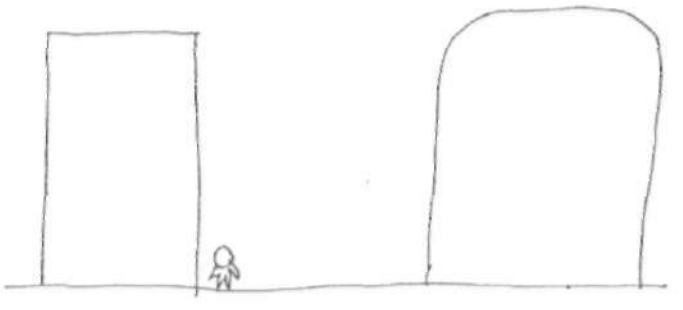


This promotes intimacy with the environment.

Figure 6.8: Illustration of intimacy qualities of spaces for human use.

v) Sense of Enclosure

Level of intimacy with the environment determines the human nature of the environment. Thus the scale of development should relate to the human scale in order to give man that intimacy with space.



Here, man seems lost.



Man relates better to his environment.

Fig.6.9: Illustration of human scale to development and enclosure.

vi) BALANCE IN DEVELOPMENT

The relationship between mass and void has to be such that some balance is maintained. Similarly, development along the streets have to show balance and axis.



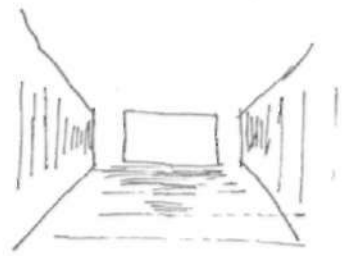
This is scattered and not proportional.



This is relatively balanced and evoke aesthetic qualities.



This is not balanced



This is more balanced.

Fig. 6.10: Illustration of balance.

6.2.2 CURATIVE MEASURE ON A SELECTED PART OF KADUNA CITY CENTRE

The site selected for this design proposal is shown in figure 6:11. The basic criteria for the selection include the following:

i) has relatively high mixture of landuses. Thus would allow the testing of concepts on a larger perspective.

ii) has higher level of population attraction and activities.

iii) part of the oldest developed area of the metropolis.

iv) has available base maps.

v) analysis in chapter four and five showed it is one of the areas with more negative aspects requiring action.

The silhouete of the site from two directions are shown in

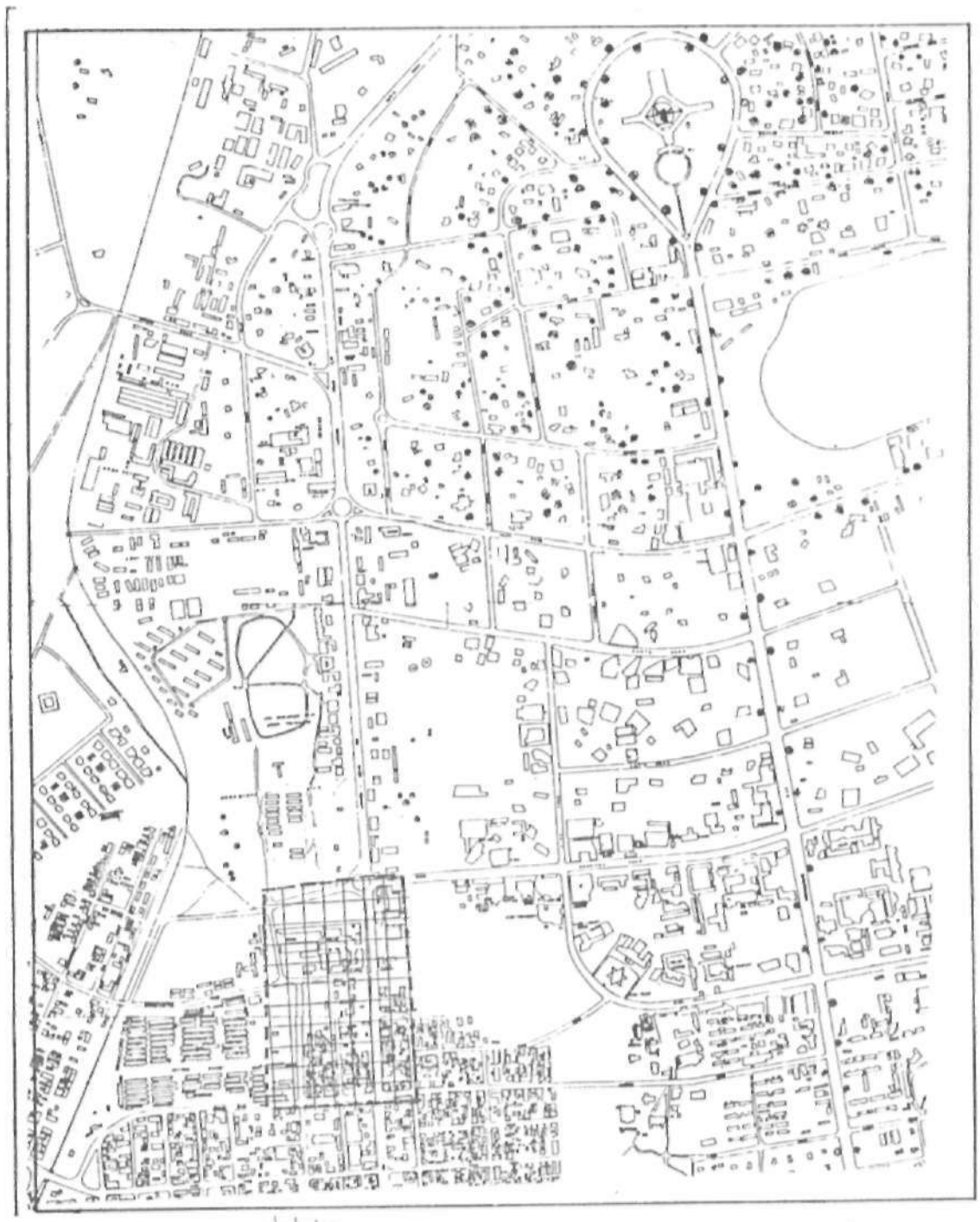


Fig. 6.11 Location of site for design proposal.

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figures 6.12 and 6.13. The street elevation along Ahmadu Bello Way looking westward is illustrated in figure 6.14.

The major urban design problems of this area include:

a) Imbalance between mass and void. The mosaic and the layout illustrates.

b) The facade is totally unrelated. This is shown on the street elevation.

c) There are no views of significance.

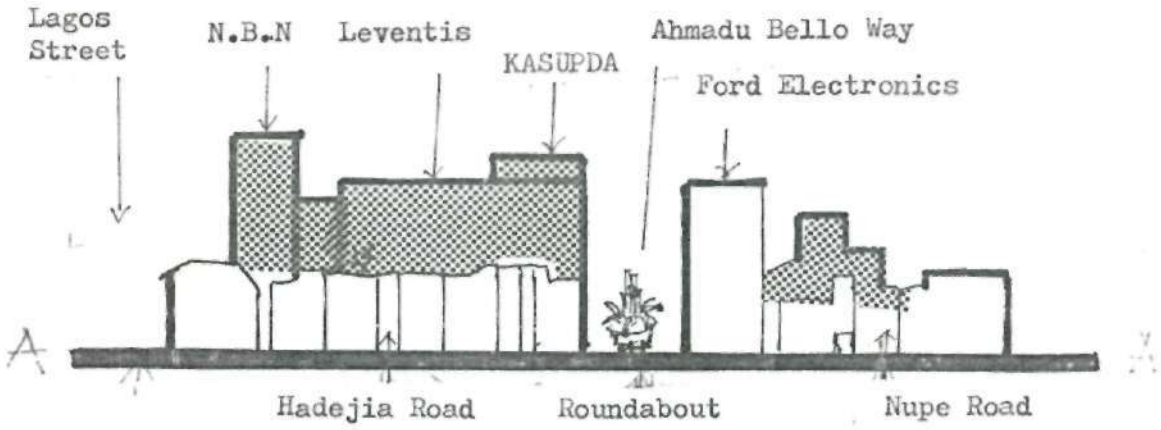
d) No distinct or clear character that gives reference to the pedestrian. No space system and pedestrian linkages.

e) There is total absence of street furniture.

The general concept of the scheme in addition to goals suggested above would be the creation of public spaces with a sense of enclosure. Similarly, improvement of space function by re-orienting, scaling, changing location of uses and introducing new forms is recommended.

A reference point and an identity is proposed. The detailed locational alterations are shown in figure 6.15, while the detailed proposals are shown in figure 6:17.

In order to achieve these changes in the urban scene, the following controls are recommended: Firstly, all new developments on Ahmadu Bello Way should not have less than five metres approach. The heights not to exceed four storeys. Facade control to be imposed on Ahmadu Bello Way and the new pedestrian precint. Secondly, all new changes to structures in the area should obtain planning permission in which new design requirements would be imposed. Compatible mixed use would be encouraged.



Seen at foreground. The rest is what is seen much clearer.

- Horizontal Scale 1:2000
- Vertical Scale 1:200

FIG. 6.12 Silhouette of the site along A - A.

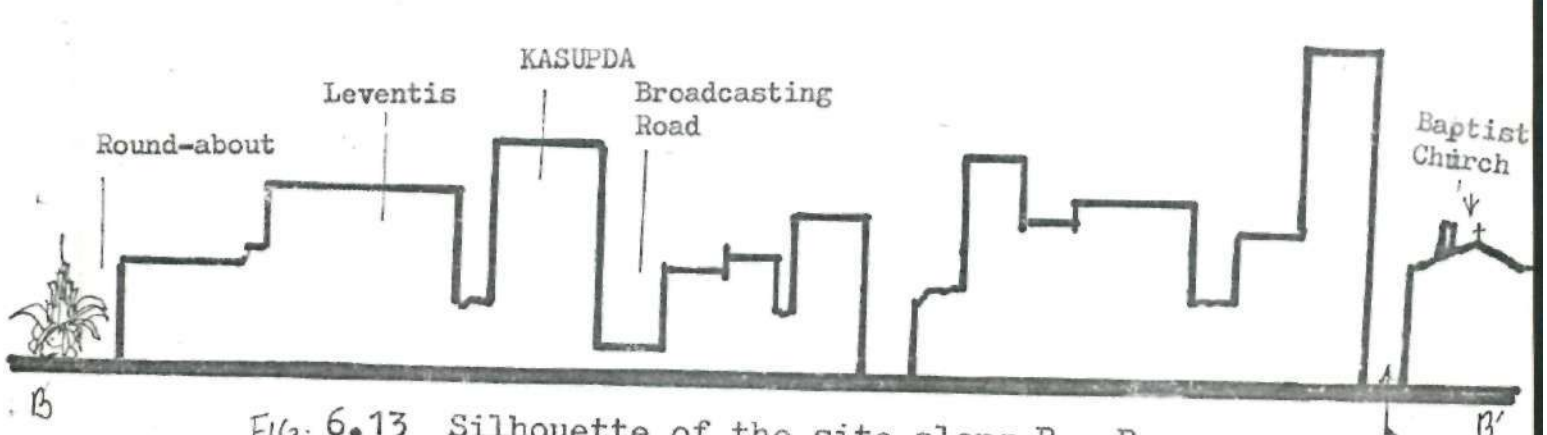


FIG. 6.13 Silhouette of the site along B - B.



FIGS 6.14 STREET ELEVATION

ACHI, L. B.
MSC (URP) THESIS
1989/90 session

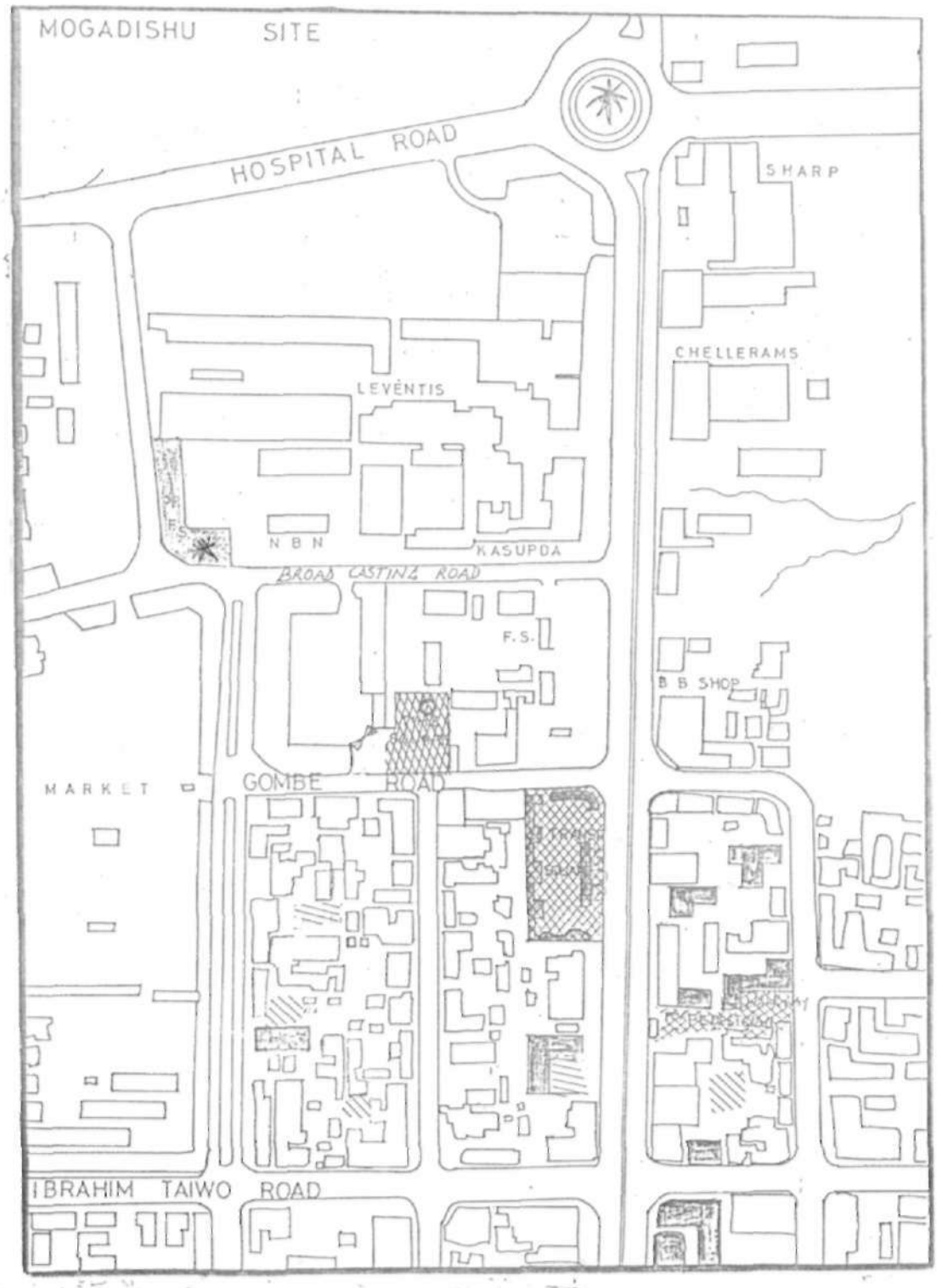


FIG 6 15 LAYOUT ARRANGEMENT OF PROPOSED DEVELOPMENT

ACHI, L.B.
M.SC(URP)
THESIS 1990

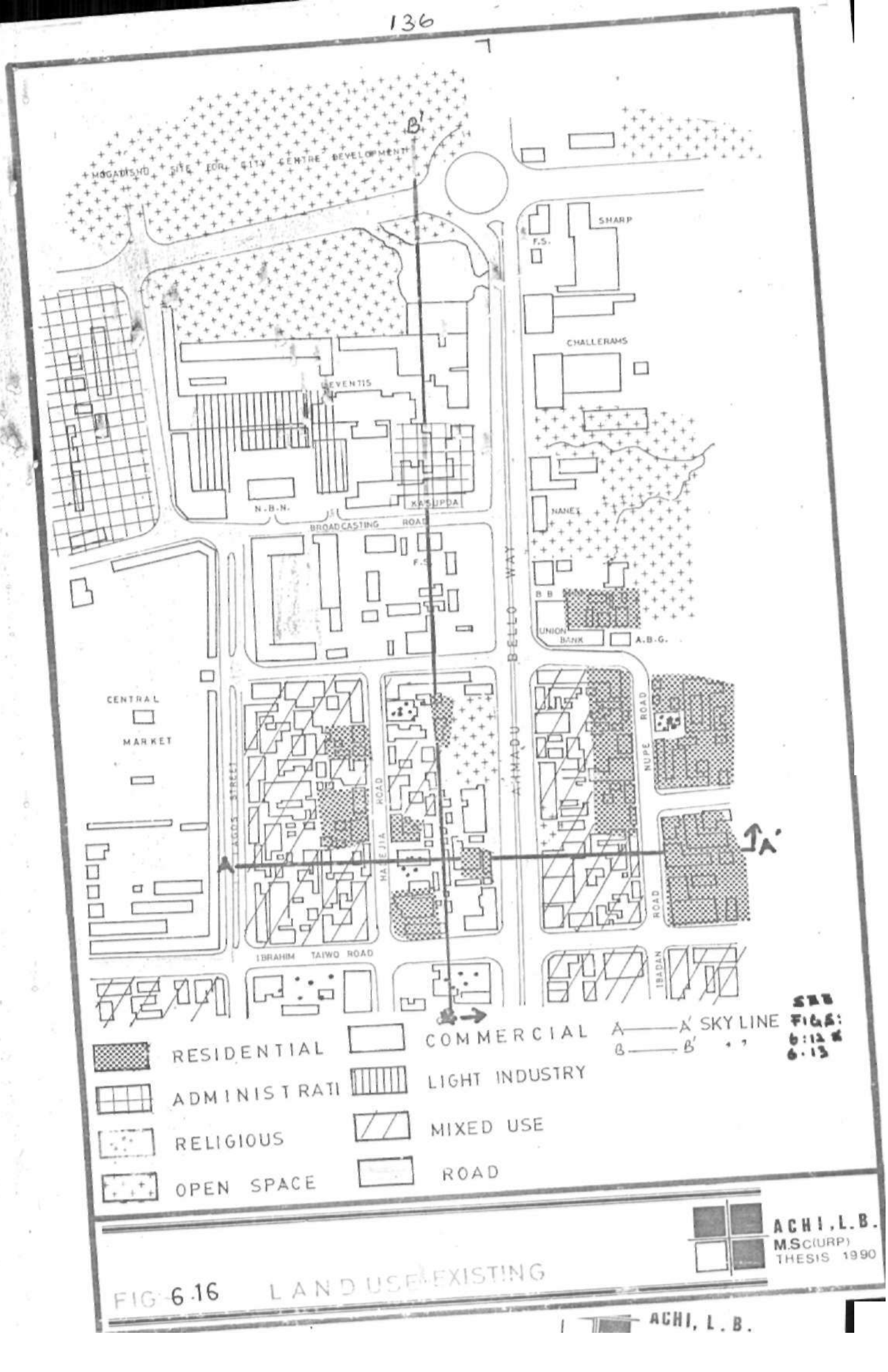


FIG 6.16 LAND USE EXISTING

ACHI, L.B.

6.2.3 BENEFITS AND ESTIMATED COST OF THE SCHEME

In general, the urban scene would be changed to improve the image qualities of the area, improve functionality of spaces in and around the place and encourage usage of the area by attracting new developers and pedestrians. More specifically, the scheme would produce the following benefits:

i) Improve the property values by up to 20%. This means that revenue can be generated by taxing the property in the area according to property value. Using present ratings (which could be reviewed upwards), it is estimated that about three and a half million Naira would be realised annually.

ii) New developments would be generated and fees in terms of processing and renting would give an estimated amount of one million Naira initially and seventy thousand Naira subsequently.

iii) Indirect taxation would result from road users and the parking spaces provided. This is estimated to yield one hundred thousand naira annually.

iv) Other indirect sources such as appeals, levies and competition. It should be realised that schemes of this nature do not give immediate financial benefits, so a long term potential is expected. Moreover, social overheads form part of these schemes as responsibility of government to public.

The approximate cost of the scheme is Eleven Million Naira. This means that government would break-even within three years of completion. The details are outlined in table 6.1

I T E M	Estimated Cost(₦)	Source of finance	Amounts Expected	Implementing Body
1. Acquisition of spaces.	5,062,000	Increas Gr.rent	3,500,000	KASUPDA
		New Dev. Levy	2,000,000	Private Developers
		Appeal fund	3,000,000	
		Private developers appeal	2,000,000	
		Govt.imput	1,000,000	
2. Site Prepartion and fittings	2,600,000			
Sub-Totals:	7,662,000		11,500,000	
3. New infill	3,100,000	Govt.25%	800,000	KASUPDA (Designs & 25% Cost)
		Developers	2,300,000	Developers
Sub-Total:	3,100,000		3,100,000	
4. Void Creation	100,000	Developers & KASUPDA	Labour 100,000	KASUPDA
Grand Total:	10,862,000		14,700,000	

Based on this analysis, the seheme would provide a surplus of ₦3,838,000.

*This is subject to quite a number of variables, thus only the ground rent and levy might be considered, is most definate.

Table 6.1: Approximate cost estimate and revenue generation sources.

6.2.4 SUGGESTED IMPLEMENTATION SCHEDULE

The scheme would be completed within two years and a one year spill-over for contingencies. The implementation schedule is outlined in figure 6.18:

	I T E M	1ST YEAR	2ND YEAR	3RD YEAR (Spill-over yr)	REMARKS
1.	Acquisition of spaces.	———		Give six months allowance for difficult cases	As soon as one space is acquired and paid for, work can start
2.	Site preparation and fittings.	———	———	Give whole year for changes	
3.	New infill		———	- do -	Depends on developers' will
4.	Creation of voids	———	———		Does not need development.

FIGURE 6:18 - Implementation schedule.

6.4 C O N C L U S I O N

There is both public and political acceptance that cities need to be attended to. This has become apparent as both politicians and the public realise that there is substantial investment in town of social, finance, and cultural values tied to the city. So society cannot afford to write off cities, nor can total neglect be afforded either simply because cities are non-functional and devoid of aesthetic qualities. Afterall, the cities were created by decisions made earlier under strong held views and financial

capabilities and commitment. So the issues now observed are mistakes of the cumulative decisions.

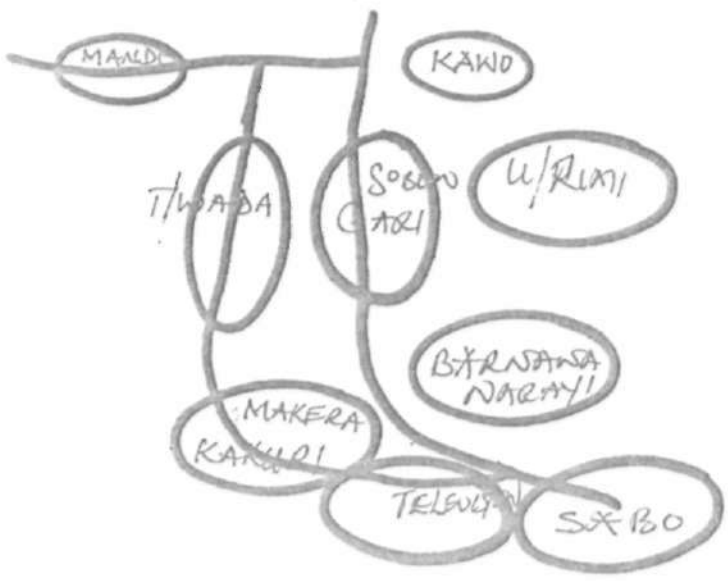
It is not that planning activities were not undertaken in these decisions and financial commitments, but some vital steps and links in the chain of decisions were either neglected, avoided or non-existent. This need not continue. At this stage of human advancement, it has been argued in this study that urban design aspects of urban planning and development offers the missing links. They need to be identified, outlined and incorporated in the total package of urban planning and development.

Furthermore, since they are part of the development process, urban designers can make useful contributions to the city if they participate effectively in the interest of man-kind in the day-to-day decisions.

APPENDIX

For the purpose of this study - the search for legibility of Kaduna Metropolis, two main methods were used. Firstly, interview of a small sample at random and selective with regard to the image of the environment. Secondly, a systematic examination of the environmental image as seen and experienced in the field.

The field work was done on several visits to the site. The interviews were on one day in the town centre for the random one (ten (10) people); and in the different ten identifiable residential districts were taken two (2) each.



The interview included a request for a mental map of Kaduna.

The structural interview covered the following question:

1. What would you symbolize with Kaduna?
2. Describe Kaduna in a physical sense.
3. Sketch quickly (if you can) or describe the features of Kaduna.
4. Are there any elements (structures) in Kaduna you will be sad with if removed?
5. What would you say are the good and bad parts of Kaduna? And why?
6. Which other city you know of in Nigeria you prefer to living in and why?
7. What, in your opinion, can be done to improve on the image

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