# PLANNING THE PHYSICAL DEVELOPMENT OF LOKOJA CENTRAL AREA

**M.SC. :(U.R,P) THESIS**

**BY**

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**OCTOBER, 1995**

## DECLARATION

I hereby affirm that this Thesis has been composed by myself and that it is the outcome of my research work on Lokoja central area planning. It has not been accepted in any previous application for a higher degree. All sources of information have been duly acknowledged by means of references.

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Signature Date

## CERTIFICATION

This thesis entitled "Planning the Physical development of Lokoja central area" by SIMON RAPHAEL FOLORUNSHO meets the regulations governing the award of the degree of Master of Science, Urban and Regional Planning of Ahmadu Bello University, and is approved for its contribution to knowledge and literacy presentation.

S.U. Okotie — 20/10/95
Chairman, Supervisory Committee — Date

member, supervisory committee — Date

Head of Department — 25/10/95
Date

Dean, Post Graduate School — 13/4/99
Date

## DEDICATION

This thesis is dedicated to my Mum, Mrs. Olayemi Simon and the memory of my Dad, Late Mr. S.O. Fanuwa - may his yearning to librate people from backwardness be ever remembered.

## ACKNOWLEDGEMENT

The author wishes to express his profound gratitude to his brother, Mr. Ademola Simon without whose financial support this course would have been impossible.

I continue to be especially indebted to Mr. S.U. Okotie, whose supervision of the work went beyond the ordinary thesis but has been a model of kindness and helpfulness.

My thanks also go to Mr. G.P. Khana and Mr. Ojibo, S. for their constructive critism in the design and other aspects of the work.

I must also add sincere thanks to Mal. Musa Shittu (uncle), Miss Iyabo Adeleye, Mr. Joshua S. Ayodele for their various moral supports. Also to Mr. Paul I. Bamidele for his neat and diligent typing of the work.

I gratefully acknowledge permission from the following to reproduce extracts or reproduce drawings:- The landsurvey division, Physical planning department Lokoja, (land use map of Lokoja); The Eco plan survey (recognisance surveys on Lokoja); and Shair and Partner (Lokoja master plan 1974 - 2005).

I must not forget to appreciate the good working relationship I enjoyed with some of my colleagues especially Mr. James, O.D; Mal. Bena, A.R; Mrs. Ahmed L; and Mrs. Baba, R. who brought to my door step most of the valuable materials used for the work.

And finally, above every one else, I'm grateful to the Lord Jesus for all the ceaseless inspiration and provision throughout the work. Indeed the design of a divine providence is truely mysterious. To him be all honour and praise!

**ABSTRACT**

The central area of any town or city is distinguished by its uniqueness in terms of location, function and more often than not by its physical form.

It is however pertinent to know that the development of this part of the city has often defied planning solutions in the developing countries despsite some considerable measure of success that have been made in other aspects of physical planning. The manifestation of this problem is the healthy congestion in the central area of all our cities.

The study goes to argue that there are ways to planning the central area in such a way that it can be relieved of its problems and this is demonstrated okoja, a town with a population of about 83,000 inhabitants. The aim is to develop an alternative approach to the conventional central area which usually encourages the agglomeration too many uses in the central area.

The study logically follows the set down objectives to ascertain the possibility of making a better choice of site where the central area can be located now that the existing traditional centre is inadequate to meet the modern facilities or functions expected of it.

Experiences of central areas of developed countries for example, America have shown that an adoption of a design for a central area in one country, cannot be duplicated in another country due to diversity in culture, government policy and economy. Nevertheless, much can be learned from the design of one central area by planner in other environmemts.

The existing situation study of Lokoja reveals some mounting difficults and topographical disabilities which can only be overcome by a strategic planning effort. On this basis the reseach advances the reasons for

special decentralizaion of some major functions as again
centralization.

The proposed design plan for the central area is conceived as a pedestrain precinct, the principle which would not only eliminate traffic congestion but would also restore orderliness and peace. And with the decentralization of functions like traditional market, residentials, potrol filling station and big religious worship structures much sernity is gained and functionality is seriously enhanced.

It is proposed that the implementation of such a plan be meticulously phased for the purpose of effective execution.

The researcher also recommended that the financial implementation of the plan be sourced possibly from either or a combination of Federal government, Banks, private organization and the state government.

The achievement of this however, enables a further objective search for a conserved central areas of our cities.

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# CHAPTER ONE

## 1.0 INTRODUCTION

The existence of most cities throughout history and indeed prehistory is associated with the existence of their centres which are characterised by specific location, function, character and physical form.

It is the area in which most of the main economic, social, cultural and administrative activities of the town are concentrated, so much that this central area in modern towns becomes closely identified with the town itself.

Due to high urbanization trends in the world within last quarter of the century town planning has shown considerable achievements in the subject of town and country planning and developing methods for both residential as well as industrial areas.

However, the central area development and reconstructions proved to offer the hardest proposition to be broken. Indeed, in many cities the demand for central space particularly in prime locations continue to grow. This internal pressure may in fact be connected with the outward movement of certain types of activity from these areas. Again the ever increasing discomfort, delay and congestion in our contemporary central areas have made many described them as romantic nonsense.

However these realisations set in a motion on how Lokoja central area can be planned in such a way that the town does not witness unnecessary stress and congestion as we have it in most cities of the world today.

The central area need is hard pressed on the town of Lokoja, the capital city for the newly created Kogi state. Since the creating of the state the town has assumed an upsurge in population, commercial activities and

diverse retail business. Many establishments have deemed it necessary and profitable to locate branches of such establishments in Lokoja. Apart from this there are other factors that have favoured the central area development of the town and these include:

The past and present status of the town- as a provincial, local government and state headquarters, its accessible and centrality attributes to other parts of the state and other states of the federation. The tourism potentials especially the River Niger Scenery is likely to attract more people to the town.

With all these in anticipation, Lokoja central area planning becomes a valuable proposition.

## 1.10 STATEMENT OF RESEARCH PROBLEM

Numerous planning problems have beclouded most of developing countries cities for decades now. Concerted efforts have been often made to combat those problems through conventional planning approaches as delivered to us by the developed nations of Britain and United States, although not much success have been achieved in some quarters, this is so because physical development tends to be faster than the rate at which fiscal resources and man power available can aford. However, appreciable success have been made in the aspects of residential and industrial planning.

The biggest worry is that of the central area development where there has been drastic failures. The manifestation of these are the numerous unimplemented central area schemes, hence the continuous congestion of our central areas. Before now the same reasons seem to have been accorded the non-implementation of all physical development palns - the type of the

plan not withstanding. It has however, come to knowledge that many central area schemes have failed in Nigeria majorly because of the wrong assumption and application of idea we hold about them- that a central area must necessarily inculde those uses as it is being done in the industrialized nations, and that they must be planned using the same standards as it is used in those nations. This idea is a mental paralysis. Again in the developed nations central areas are not only planned in a conventional way but for cities with a qualitative population (the catchmentarea inclusive), there are also parameters used for such planning: highest order of service, sustainability of the centre - solely determined by the town economic base etc.

It is no exageration to say that these qualitative and quantitative factors are lacking or inadequate in most of our cities, hardly has any of Nigerian towns or cities met all the requirements for an ideal central area planning which is the highest order of any city commercial development. We may have seen some growths in most Nigerian central areas but there is doubt whether we can see development in those centres on a scale sufficient to qualify them as such.

Since this is true, we must need to find out the source of this problem which would in turns help us to finding a strong tenent and a realistic planning approach for our central areas, more now thatwe have not succeded in central area development as practised by the industrialized countries. It is left therefore for us to consider another alternative approach for central area development which will give a fair reflection of the state of our society in which case an affordable central area plan should be proposed for our small and medium rank cities which over the years have

struggled to have befitting central area in the most centralized location. The researcher in view of this line of thought has gone to propose a central area for Lokoja, a town of about 85,000 inhabitants. It is hoped that such effort will serves as a model for other medium -size towns.

## 1.20 AIM AND OBJECTIVES

Aim: This study aims at evaluating the current central area planning concepts with a view to designing an attractive, un-congested but manageable central area for Lokoja town.

Objectives:

(a) to study the concepts of central area of the developed nations and their applicability in the developing coutries.

(b) to evaluate the old master plan (Lokoja 1974-2005) central area proposed with view to estimating the present needs qualitatively and quantitatively

(c) to determine the anticipated physical expansion of Lokoja and evaluate the various alternative sites for its central area development.

(d) to identify different concepts for central area design and recommend one (as it may deem fit) for Lokoja central area.

(e) to propose policy guidelines to effect the plan implementation.

## 1.30 JUSTIFICATION OF THE STUDY

Lokoja is such a unique town whose location and natural resource potential have not indicated any rapid changes inthe growth of the town, yet there are sufficient reasons for encouraging the development of the town through a good planning strategy of which central area development is a part.

Lokoja status as a capital city of Kogi state must be planned in such a way as to fit with that status for example the town must needs to offer some specialized functions (services) both for its dwellers and the region around it. It must be noted that those specialized services are usually homed in the central area.

The central area planning for the town is also justified from the ground of inadequacy. In other words the town existing traditional central area which is just about 11.52 hectares in size is already overcrowded and therefore can no longer cope with the present needs of the town particularly in accomodating those modern exigencies and infinite varieties of social structure that are coming to stay in the town. Again the old master plan (Lokoja 1974-2005) site for the town central area development must need be evaluated as to certify its suitability.

Under these conditions of rapid and exponential changes which the town has found itself, it becomes difficult to relly on what is available as central area.

The central area planning for Lokoja becomes very necessary in order to save disorderliness. The distorted landuse pattern of Lokoja hails from a response to the natural urge to procure shelters and business premises, especially by the new entrants into Lokoja. This attitude has culminated into haphazard uses for examples, the encroachment of commercial into residential areas; that is, to develop tools for intelligent central area planning methods which are of equal sophistication to our traditional or technological tools of construction.

Therefore, from the point of view of anticipated growth and reasons discussed above the town central area development is justified.

## 1.40 SCOPE AND LIMITATION

The research work has covered Lokoja town - its physical and climatic situation this is with a view of knowing the town developmental constraints and potentials.

Majorly the study focuses on central area planning of Lokoja and any aspect of planning as it has affected the central area development of the town. The model oriented work also contain an assessment of the success or failure of the planning policies of the Government. Also a description of where the absence ofa policy hasgiven rise to difficulty. It contains also a summary of commitments that are already firm, for example some planning permissions that have not yet been implemented and where these may affect the future structure of the area.

The proposed central area plan for the town however does not include the detailed design of individual structure in the centre. Basically the development plan of the new central area have been created within the following guidelines:

(a) a central area complementary to existing commercial developments.

(b) a central area in which accessibility, and movement to and within the town is convenient, safe and pleasant, improve pedestrain and transport networks.

(c) a central area where differing income social and ethnic groups are integrated.

(d) a central area with an elastic form to accommodate future growth and expansion.

1.50 RESEARCH METHODOLOGY

Data for the work came from these sources:

(a) Primary source: Under this category there are:

i) Recorded data:- This includes investigations, photographs, plotting, updating of maps and inventories on topographical character of the town.

ii) Interviews:- Interviews were arranged with the Directors of Physical Planning department and that of Kogi State Urban Development Board. (KSUDB).

iii) Traffic Survey:- This was conducted within the town at three major roads on three selected days and on 12 hours basis.

(b). Secondary source: The data under this include preliminary data such as town plans, maps, published and unpublished data from past theses, extract data from libraries, Lokoja master plan (1974 - 2005) and Eco plan recognisance survey on Lokoja.

1.51 Evaluation Methodology

In this thesis ordinal ranking of alternatives was generally used and this was based explicity on subjective judgements.

First, the alternative plans are ranked for each of the criteria in turn. The plan which obtains most first (the best) when a number of criteria are applied is said to be preferred over all others. Each of the criterium is assumed to has equal weights, and relative values are attached to each alternative as Good, Fair and Poor.

An alternative has a good score if it complies with Normative principle of planning, but if it is otherwise, it shows that the benefit to the population from that alternative is not to the highest good, hence it is

fair or poor at the lowest level of acceptance.

Therefore, the basis of the evaluation is to provide the best information possible about the the welfare consequences of those alternative proposals.

1.52 The usefulness of the official interview

The questionnaire administered is a guide to an interview organised with the two directors of both Physical Planning Department and the State urban development board.

The information gathered was to improve the researchers knowledge about the town and some basic planning problems of Lokoja.

Basically, it makes the author to know the aspects of planning of the town that are already in place and those that are subject to changes.

All these were used to anticipate the growth direction of the town generally and the policy intension of the state government toward Lokoja physical growth.

1.60 CONCEPTUAL FRAMEWORK OF THE THESIS

The thesis conceptual framework as shown in figure 1.0 is divided into three parts.

The first parts deals with definition of problems which is the research problem's statement. It includes, also a review of literature which serves as the theoretical base of the thesis.

The second part is concerned with surveys carried out in the study area, inferences made from those surveys are also included.

In part three, different design concepts were studied and appraised, while planning proposals are followed by implementation policies.

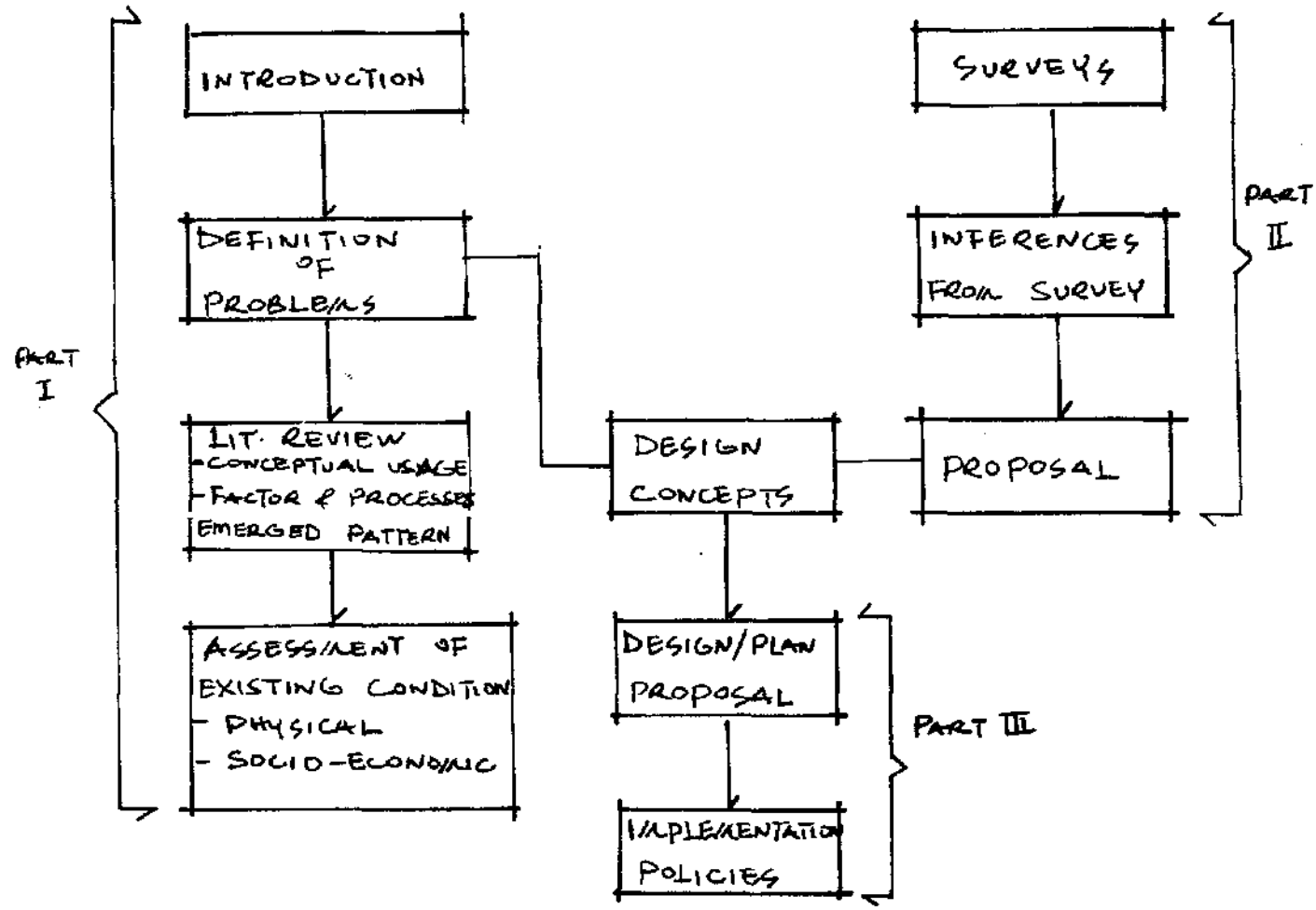



FIG. 1.0 CONCEPTUAL FRAMEWORK OF THE THESIS

# CHAPTER TWO

## 2.00 CENTRAL AREA CONCEPTS

### 2.10 Definition of central Area.

The centre of the city is known variously as thecity centre, 'town centre', 'central District zone'. Central Business District (CBD), 'CBD core'. The Americans often talk of going down town.

In many cases the central area is referred to as that complex of activities - shopping, office,cultural, administrative, entertainment, wholesailing, industrial and any engulfed residential enclave which characterized the landuse pattern of the innermost area of towns, and is usually quite clearly differentiated from more homogenous tracts of housing and industry on its borders.

In his definition, Lewis, K (1976) defines central areas of British town as "the part of the town in which the central services of the highest order which the particular types of town can support are found".

While most definitions of central areas have been based on centrality or locational attributes, Murphy and Vance (1954) who are researchers in the field of urbanization have defined the CBD as "an area where essential functions appeared to be the retailing of goods and services for a profit".

It is pertinent however to know that these definitions do not apply wholly to all category of central areas especially that of the developing worlds. In otherwords, an exact definition of the central area which can be applied to more than one city has not yet been evolved but key words as: *certain services of the highest order, service which are used by the* population of the town as a whole tend to characterized definition of

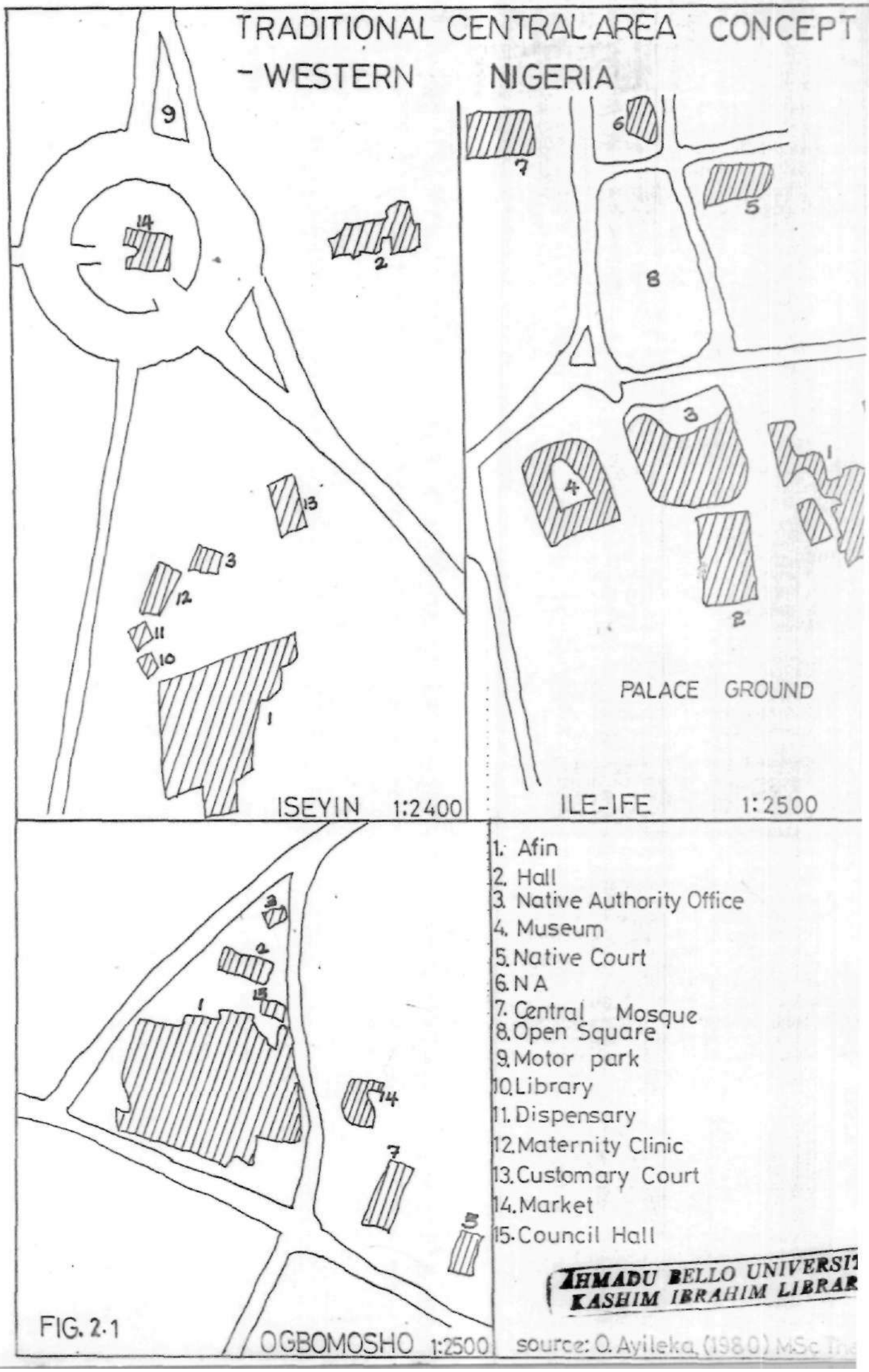



FIG. 2·1

source: O. Ayileka, (1980) MSc Th

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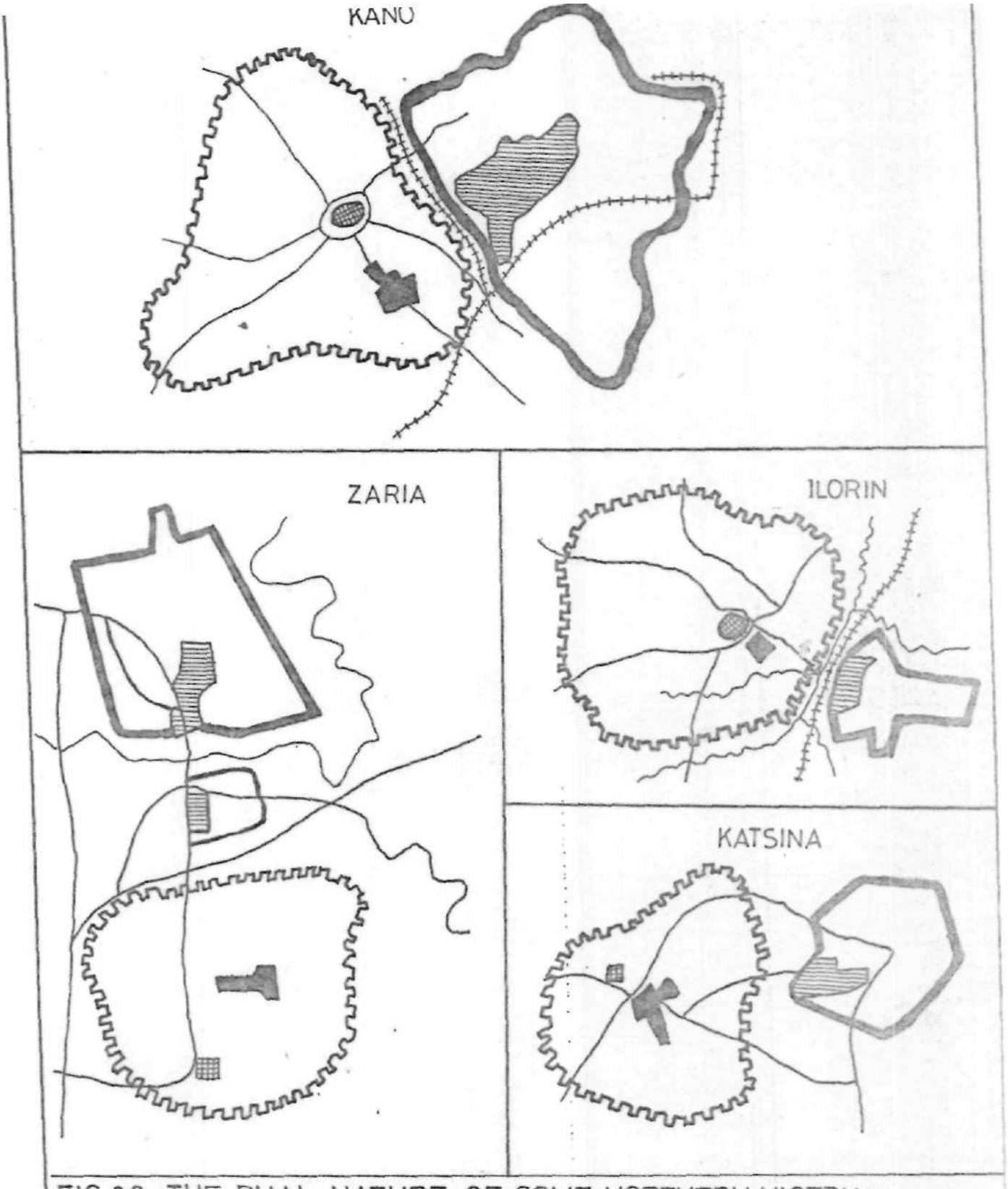



FIG. 2.2 THE DUAL NATURE OF SOME NORTHERN NIGERIAN CITIES

TRADITIONAL CITY WALL
PALACE
TRADITIONAL MARKET
COLONIAL TOWNSHIP
MODERN COMMERCIAL CENTERS

0 1 Km
1:50,000

SOURCE : YINUSA (1981) M.Sc Thesis ABU

central areas of the develope countries.

In most developing countries including Nigeria attempts have been made to precisely define and delineating the central areas, at least to conform with the low status of our central areas. To this effect, Frederick (1959)'s definition for central area of old town as consisting of dominant buildings (a cathedral, a palace or a castle) and a dominant civic space. Usually the market square often formed a nuclus. The concepts become clearer only as they apply to the two extremes of the continuum, that is, to the developed and underdeveloped countries.

## 2.20 CENTRAL AREA CLASSIFICATION

### 2.21 Traditional Central Area

Under this classification, Musa Ebuga (1979) has defined the Nigerian traditional central area as "the heart of thecity's political, administrative, economical and socio-cultural activities and the converging point of the city's pathways". He described the centre as part of the town that halls all her major activities be it economical, social, cultural or political. The central area is where the market, the main religion buildings an open space or square, the chief are located palace. In effect central areas comprises of basically five (5) components namely: the political, commercial, religious, social and recreational of which the category of importance of each varies with each town in relation to historical background.

Examples from Nigeria are that of Yoruba township shown in fig 2.1

### 2.22 Modern Central Area

In this classification the centre comprises of those functions which are modern in nature, more so the development of such centres has been guided

by comprehensive planning. Such modern uses as recreation, shopping, offices and parks are the common attributes of the centre.

Naturally the centre is characterized by compact development; high land values, high employment density, concentration of retail trade, heavy traffic volume and a high parking index. These are the attributes of the industrialized cities.

2.23 Dual Central Area

Modernization has brought a change in the spatial organization of many of Nigerian cities. The colonialists with their coming developed a separate living environment which differs from that of traditional or indegenous city. This modern city subsequently developed her central area which is quite different from the traditional central area. The new centre has all its functions based on the European type of concept (see fig.2.2). With the development of both traditional and modern central areas going on within the same town we now have a twin central areas in most of our old Nigerian towns except the new towns which were established by the colonialists, for example, Kaduna town.

From this classification it has become evidently clear that while the industrialized nations use their central areas purely for Business - of which the most essential central function appears to be retailing of goods and services for a profit and also for the performing of various financial and office functions. The traditional cities, mostly in the developing

countries use such centre for non-profitable activities such as religion, social and political functions.

2.30 PROBLEMS OF NIGERIAN TRADITIONAL CENTRAL AREAS.

Nigerian central areas are beclouded with numerous problems which manifested itself mostly in the traditional central areas - As of now no comprehensive attempt was undertaken in Nigeria to rebuild any of the existing central areas of her cities. No single detail plan for such an action has been implemented.

All planning proposals related to the expansion and development of central areas are often limited to the general proposals included in the master plans almost exclusively preferred by foreign consultants. Our central aeas have been over used as they were not consciously planned as central areas. To that effect these problems are not uncommon attributes of our today's Nigerian central areas:

1. Lack of proper defined communication and transportation systems which leads to;
   (a) inaccessibility
   (b) mixed traffic and,
   (c) road congestion
2. Lack of organisation of landuses.
3. Lack of control in development and legislation,
4. Lack of purposefully designed buildings and sanitation.

2.40 REQUIREMENTS FOR CENTRAL AREAS DEVELOPMENT

While the determination of standards for central areas is done in the light of both the number and characteristics of its dependent population,

however, the most importance requirements for town centre as identified by Lewis Keeble (1976) are:

i) geographical centrality

ii) accessibility for vehicles and pedestrians.

iii) ample parking space and a high measure of compactness.

Looking at Nigerian cities we can place our requirements under functionality which can be subddivided into: Identify, accessibility, compactness and attractiveness.

a) Identity: In any Nigerian Central areas there are always some prominent elements conspiciously placed as to attracts eyes. Such as the Chief,s palace, religious buildings etc. In the Northern cities there could be seen pronounced wall decorations and arts of high value.

b) Accessibility: This is the most difficult problem to be broken in the various attempts to renovating central areas worldwide. For any centre to be functional, there must be access roads for all category of vehicular traffic.

Adequate parking spaces must be designed to avoid the usual bottlenecks experienced in central areas.

c) Compactness: Most of the Nigerian central areas lack compactness. This requirement is of special importance because many if most visitors to the town centre will probably wish to at a number of different places within the centre during a single visit. In Nigeria where horizontal development as against vertical development is the rule, it is often discouraging and boring moving from one part of the centre to another in search of one thing. So densely built buildings close together with related functions make for easier economical use of land and functional interrelationship.

d) Attractiveness: All that is best is normally cited in the strategically location of a city and more often than not in the central area. This holds for most Nigerian central area for example, the old Zaria central mosque - an architectural master piece is found within the Zaria traditional central area

2.50 ATTRIBUTES OF CENTRAL AREAS IN THE DEVELOPED COUNTRIES

The central areas in the cities of developed nations have assumed a very high level of status. Their importance relative to other centres are mostly determined in a number of ways:

(a) numbers employed

(b) sales turnover in the case of shops.

(c) number and size of businesses

(d) total square footage of various business types

(e) traffic density - pedestrian or vehicular land values and development intensity.

It goes to say that when comparison between centres are to be made they are normally subjected to those five (5) determinant factors as listed above. However, it must be noted that central area planning in the developed worlds often comprise moreor less planning for shopping, offices and miscellaneous uses such as civic uses, entertainment and cultural use, Hostels, place of worship, Hospital and residential uses - usually at the immediate border of the centre. Therefore, central area planning is itself planning for diverse uses.

Furthermore the status ofa particular central area in those countries isa function of its characteristics, and these include:

(a) Compactiveness of development:- The emphasis of development is more

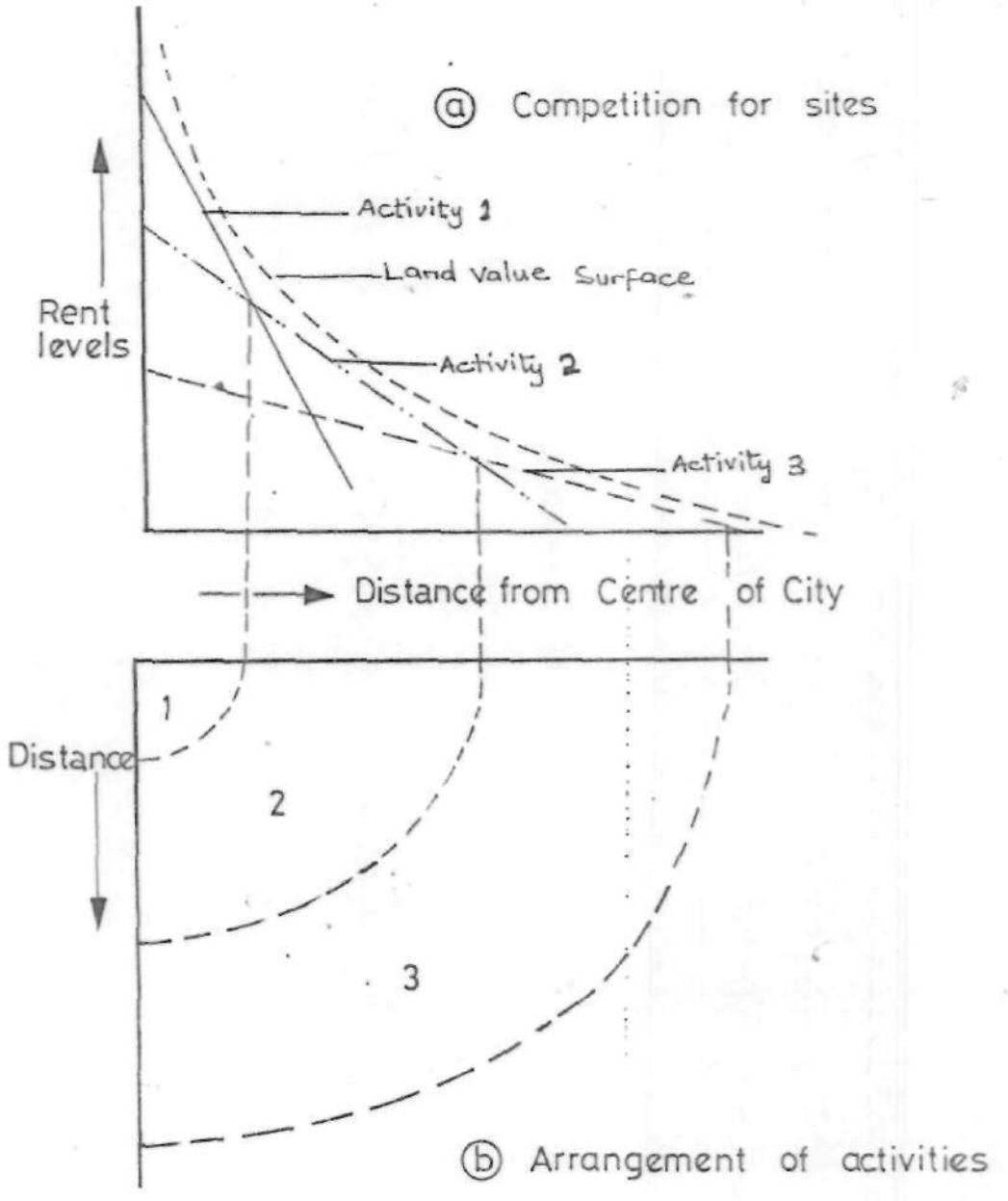



FIG. 2.3a

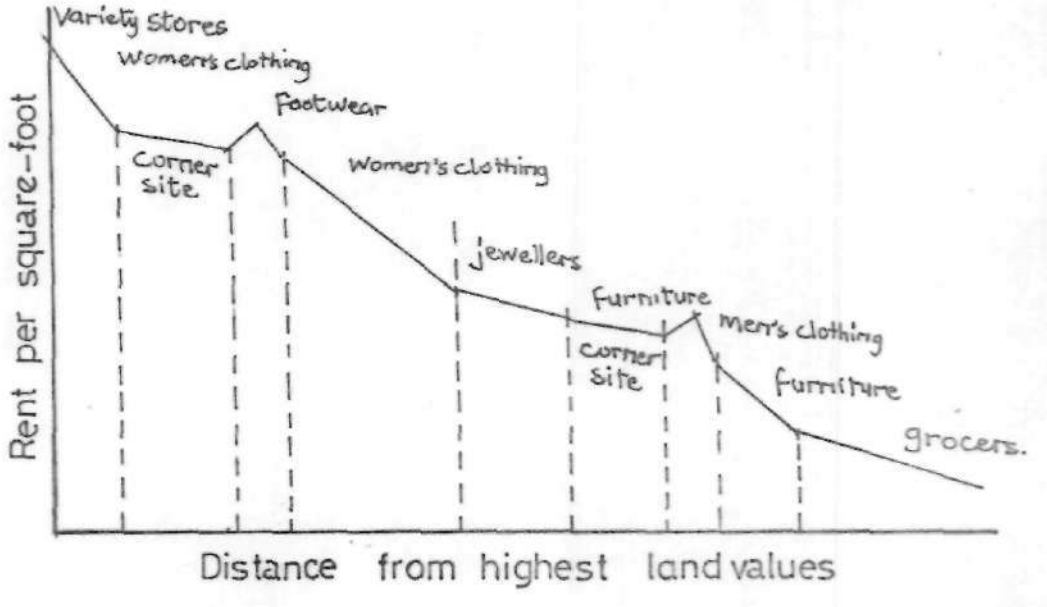



FIG 2.3 b

sources: (Alonso 1960) and Open University

of high rise building (sky scrapers). This vertical growth results from the scarcity of spaces with high accessibility, and the desire to maximise the use of sites. However, each country has policy restriction to the number of building height one may be allowed.

(b) High land values: The land in the central area has a higher value than any other land in the same town. And the land is usually subject to rent theory in which case the highest bidder has the land. The urban rent theory, as applied to the central area, states that rent decreases in uniform manner outwards from a central point, this resulting in a an ordered sequence of retail and other commercial activities according to their rent paying ability.

Within the urban area, the most important factor determining site utility is assumed to be intra-urban accessibility, the economic advantages conferred by accessibility varying however, with the type of activity. Intra-urban accessibility is assumed to be maximized at the city central area declining outwards with increasing distance from the centre. Because accessibility determines utility, and utility determines rent, rent similarly declines outwards from the centre (the rent gradient). Hypothentical rent gradients for urban land-uses is shown in figure 2.3.

(c) High employment density: The central area is the centre of many economic activities - as such there is high propensity for employment.

(d) Concentration of retail trade: Central area seems always to attract a greater degree of interest from the business men and innovator of all kinds.

(e) Heavy traffic volume: The Central Business District (C.B.D) obviously is an area of high traffic volume which often arose from the pedestrians, the private cars and the delivery van or lorries. Each of these contributes to a non-free flow of traffic (hold-up), often witnessed within this area. However, one distinguishing feature of nearly all centres is their hourly periodic congestion when traffic volume is at its highest peak - normally called 'the peak period'. The peak can be between a particular hour and another.

In most Nigerian cities for examples, Lagos and Kaduna. The peak period is often between 7am and 9a.m, also between 4pm and 6pm. Although this depends highly on the circumstances and situation such towns find themselves.

(f) A high parking index:- Since many of the visitors to central area would normally come in with their cars the centre available come in with their cars the centre available parking spaces are often jampacked with cars and because of this tendency there is always the need for adequate provision of parking space, although in many cities the provision is becoming insufficient. Parking method can be underground, on the ground or on storey buildings constructed for that purpose.

2.60 Condition of Central areas in American Cities

With the rapid growth in area and population major cities are witnessing a dual phenomena namely: decay of the core and sprawl of the fringes (Juchnowicz, 1978).

These phenomena which are much pronounced in the primate city of developed countries, for example, London is beginning to occur in some of Nigerian major towns and cities and this with its manifold problems and threats to urban life.

There is now a strong trend towards territorial expansion as a result of centrifugal forces which made people move out of the most drastic instances of the growth of so called metropolitan areas may be observed along the Atlantic coast (from Boston to Washington) where many urban areas have merged into one another to form urbanized areas of unprecedented size. Motorization of traffic has given rise to new hitherto unknown functional and spatial forms of service centres (shopping centre in particular and to new principles of their location (Benjamin, 1965).

In nutshell three major factors have been attributed to this spiral growth of America out of town centre and these are: high income, high car ownership and low population density.

2.70 The emerging concepts of central area planning.

This difficult situation of central area in American cities has given rise to some very radical idea both in theoretical scheme and in plans and designs servicing as basis for actual construction.

Attempts have been made to revive those central areas by creating new radial and ring road systems which would make them accessible to streams

of motor traffic.

The method of doing this is by encircling the central area with an inner ring road with large car parks adjoining it. This principle of planning is called the pedestrian precinct - see figure 2.4.

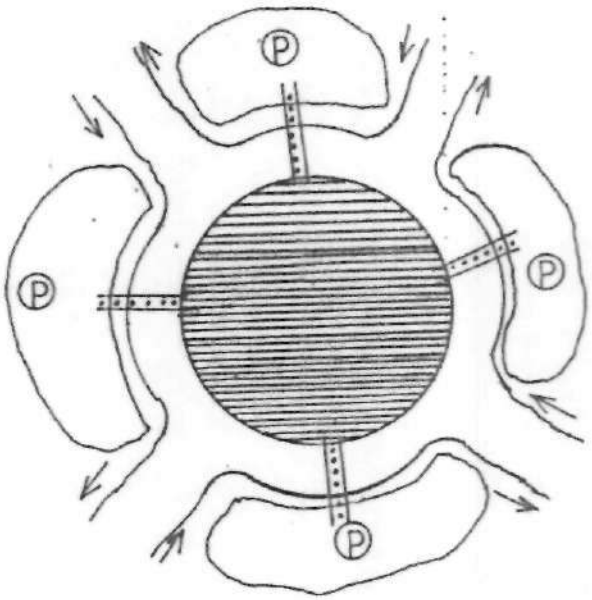
The principle here is that before a motorist can become a shopper he must first convert himself to a pedestrian. This affords an attractive environment for shoppers, who need no longer endure the noise, fumes, dirt and danger of vehicle - congested shopping streets. Gerald, B (1980) has advanced further that it is convenient and mutually advantageous for department stores, multiples, cooperatives and independents to be concentrated within one building complex which provides independent service access for each premises and sufficient car parking for shoppers.

2.80 TECHNIQUES OF CENTRAL AREA DELINEATION IN DEVELOPED COUNTRIES - AN APPRAISAL

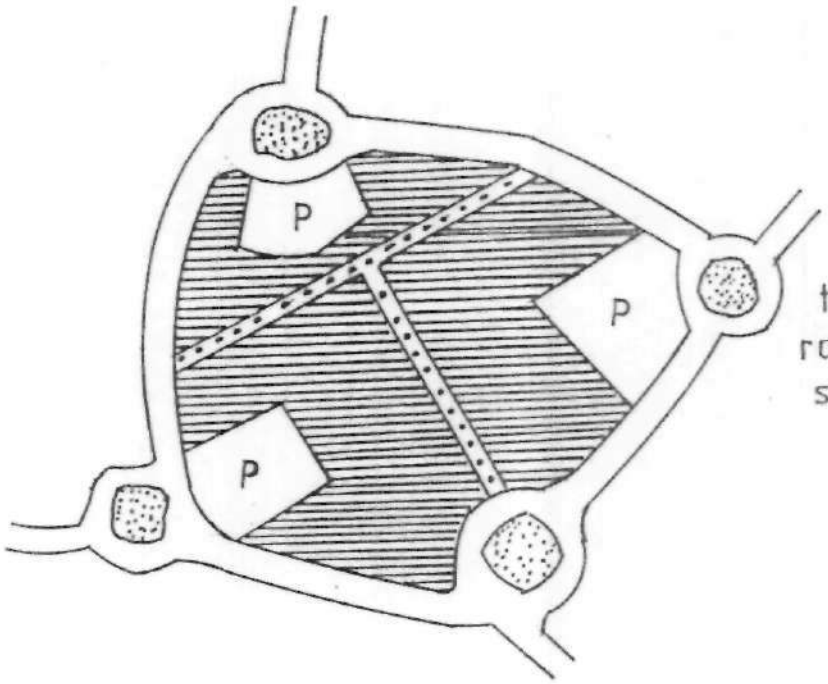
The several techniques that have been used in the developed countries include:

1. Central business index (CBI): This method is said to have been widely known and has been used in a number of planning studies for example D.H Davies in his study of the central business Capetown. S/Africa found that it worked out satisfactorily. It involves the measurement of central Business index (CBHI) which is block total of central use floor space divided by block ground floor area of all central business uses in the block makes up of the total floor area at all levels.

$$\text{Therefore, CBII} = \frac{\text{block total of central use floor}}{\text{block total of floor space}}$$




Centre pedestrianised with overhead pedestrian bridge




A renewal approach through the creation of new radial and ring road system

LEGEND

- Uses
- Pedestrian walkway
- P Car parks

Source : Keeble, L. [1952]

FIG 2·4 PEDESTRIAN PRECINCT PRINCIPLE

To qualify for inclusion in the CBD, a block had to have a CBHI of at least 1 and a CBII of at least 50%.

The block must be part of contiguous group surrounding the peak land value intersection. A block that does not reach the required index but is surrounded by blocks that do is considered part of the CBD.

## Limitation of the Technique

Delimination is by block units and block shape; but block size differ from city to city and even within cities.

Also the indices are based on a subjective classification of certain establishments as central business and others as non-central business e.g the city Hall and the central post office cannot wholly be applied in Nigeria because the method was based on cities of a limited size range. This suggests a serious limitation of the technique.

The determination of central areas can be done through the application of the following criteria namely:

(a) number of people employed

(b) sale turnover in the case of shops.

(c) number and size of business

(d) total square footage of various business types

(e) traffic density - pedestrian or vehicular

(f) land values and 'development intensity' that is total square footage of building per developed acre.

## Limitation of the method

The method requires data that are too difficult if not impossible to

assemble. Survey of the attibutes has not often been kept or carried out in most developing countries like Nigeria as a result of poor information data.

3. Building heights and traffic flow (pedestrian inclusive)

Other possible approaches of delineation deal in turn with building heights, traffic and pedestrian flows.

(a) Building height: for one thing it would be difficult to outline the boundary of the district on this basis since building height rarely grades away at all evenly.

(b) Traffic flow and pedestrian counts: The modern tendency is to route traffic around the peak intersection and to prohibit parking in central core of the city.

It is pertinent to know that cities vary in these traffic routing policies, and this makes it impossible to use traffic flow to delimit districts that would be at all comparable for different cities.

2.81 The significance of the techniques

It is undoubtedly true that these techniques are mostly applicable in the modern cities of industrialized nations but with just little significance in developing countries especially in the delineation of an unplanned towns/cities. Although the fact remains that most of our towns/cities have a traditional setting which does not give or attach much value to economic return from location.

The usefulness of these techniques in areas where they can be applied in the developing countries are of two folds:

1. Could be used by the population bureau is the demarcation of enumeration area for the purpose of census.
2. Secondly, it could be used also as basis for taxation, for both property tax levy and that of income. The delineated area being an area of high land value or high economic return in term of profit.

Conclusion

By and large it is necessary to suggest the method which can be used to delineating the central areas of developing countries towns. This can be done by some visual judgement of some areas with high gravitational force in term of activities. In otherwords area where retailing of goods, provision of services and administrative functions predominate overall others should serve as a working basis for establishing our central area (CBD).

## 2.90 GENERAL CONSIDERATION IN CONCEPTS APPLICATION.

The foregone on central area planning concepts have led us to the conclusion on the transfer possibility of a concept use in one environment into another, but a different environment, for example the full adoption of the western concept in a country like Nigeria.

Considering the worldwide tendencies in culture, Government policy, religion and social inclination, a workable conception and model is often difficult to adopt in all situations, this is more in two extreme poles countries - between Nigeria and the developed countries of Europe and America.

One fact remains, that every existing town centre posseses its own unique

features. The spatial characteristics of the central area and the system of distribution of activities cannot be repeated or transfered elsewhere. It is therefore not possible to suggest any type of model which will be applicable in all cases, but observation of the phenomena taking placed in areas of the central parts of towns in economically developed countries, confronted with the situation and the state of formation of the central parts of other less developed nations permits the formulation of guidelines for developing countries central areas planning.

Again, it is possible to still learn some lessons which could be adopted after some modifications in the development of the central areas in the less developed countries.

The five fold lessons are:

1. Delineation techniques and analysis of central areas.
2. Conservation and rehabilization of historic and architectural complexes in central areas design to "create uniqueness in character", Juchnowicz (1978) and attractiveness.
3. Pedestrianisation of parts or wholes of central areas.
4. Mass transportation improvement as a solution to the traffic problems of central areas, and
5. Some principles in the detailed layout and buildings arrangement in central area design.

All these lessons shall be fully appropriated in the proposed Lokoja central area development.

# CHAPTER THREE

# BACKGROUND STUDIES OF LOKOJA.

## 3.00 EXISTING PHYSICAL CONDITIONS.

### 3.10 Physiography of Location

Lokoja Town is situated on the West bank of the River Niger at the confluence of the Rivers Niger and Benue. It is bounded within latitude 7 47'N and 7 50'N and longitude 6 45'E. (see fig 3.1).

Lokoja is about 580km north of the Atlantic Ocean of Nigeria on an elevation of 45 - 125m. Toward the north-west the town is delineated by a high plateau, the Patti Ridge which reaches an attitude of 435m. The town is bounded by the River Niger on the east end and penetrated by a number of streams which join either the Niger or the mimi River.

### 3.11 Relief and climatic characteristics

(i) Relief: The most notable natural and physical artifacts of Lokoja are these three physical elements that encircled the town. They are the river Niger and Benue to the east, the Agbaja hills to the north and patti ridge to the northwest.

The two highlands are separated by a pass and are part of the Niger Benue Basement Complex rocks.

The town physical environment depicts a dry valleys and rock outcrop which are the products of differential weathering. Many of the streams incise the hill slope as they flow toward river Niger (fig.3.2). These rivers carry with them some unconsolidated weathered materials and this subsequently resulted into deep erosion which has a devastated effect on the built environment of the areas

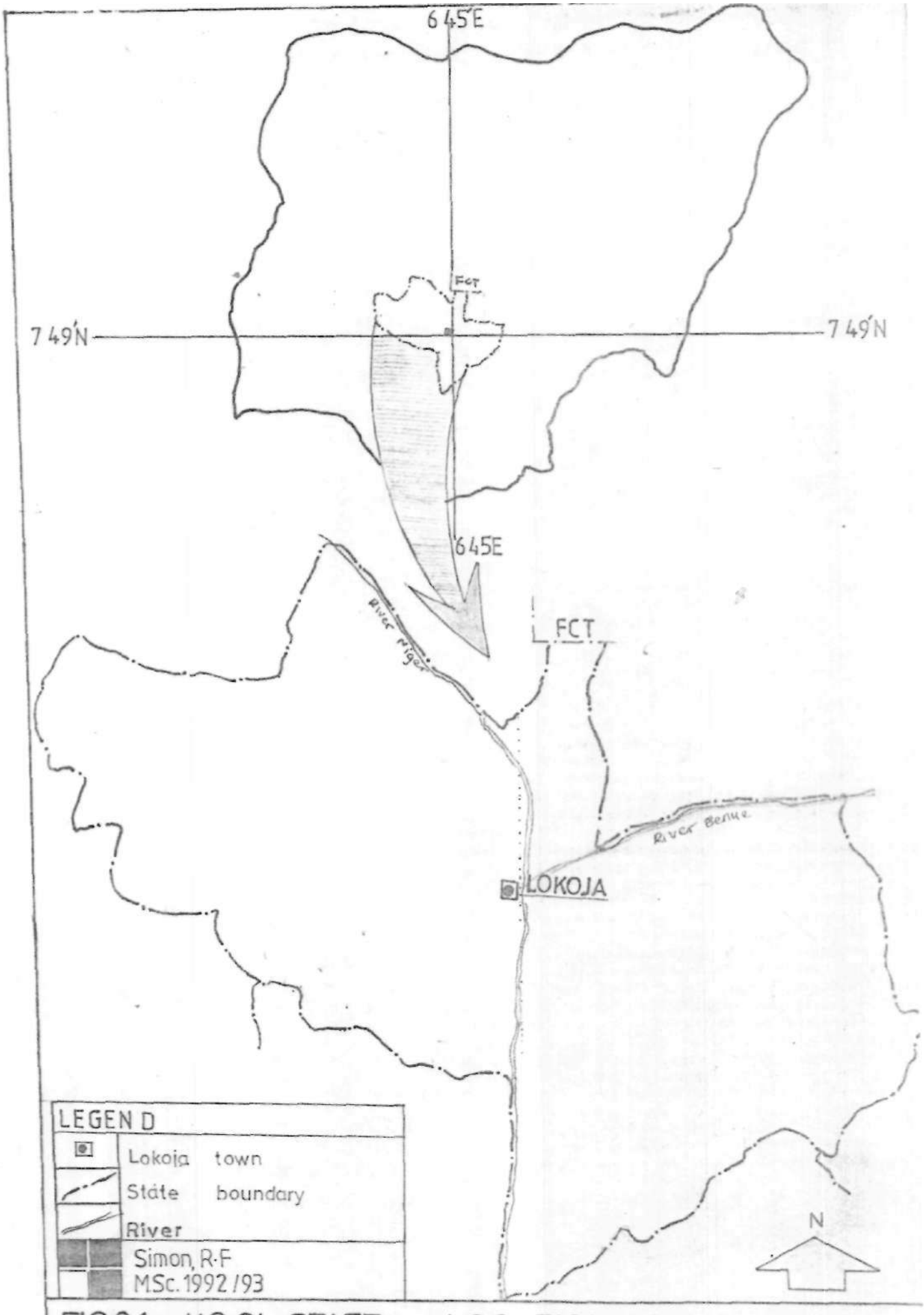



FIG.3.1 KOGI STATE : LOCATION OF LOKOJA

close to the ridge.

(ii) Climate: Climatic wise, Lokoja has two main seasons: The wet season from May to October and the dry season from November to April the wet season brings with it south westerly winds originating from the equatorial rain belt and blowing from the high pressure zones which occur over the Atlantic during this period. (DAR Al Handasah 1974). The dry season is accomplished by the harmattan, a dust-ladden wind blowing from the north-east.

Lokoja lies in the tropical climatic region. Rain normally begins to fall in late March but maximum precipitation generally occurs towards the end of the season. The dry season, with temperatures reaching up to 38°C bring drought conditions. The mean annual rainfall in Lokoja averages over 1000mm.

The River Niger also feeds the atmosphere with vapour such that the relative humidity of the atmosphere can be as high as 80% in the wet season, but never falls below 65% during the short harmattan. Although this latter condition may not permit precipitation, surface evaporation is prevented culminiting in the characteristic hotness of the town. At these hot periods coutyard and pavements are converted to sleeping places.

3.12 Hydrological situation: The relief and climatic characteristics just discussed leads us to finding out the hydrological condition of the town. In actual fact, any physical planning of Lokoja requires a knowledge of its hydrological characteristic in order to prevent flood hazards. The volume and speed of river Niger depends on the season of the year.

Records taken by the Federal inland waterways Department shows that the lowest water level is recorded between the months of April and May. The lowest water level within the last twenty years is 1600m recorded on 27th April 1973 and 9th August 1974.

The highest readings are recorded between September and October. The highest flood inundates all areas below 150ft contour line can be considered the flood time are areas liable to flood and for the purpose of simplicity can be termed potential flood or high risk area (Kwanashe, 1981).

The period of inundation varies from year to year depending greatly on the length of the rainy season. The Rivers start receeding in November to reach the lowest ebb in April.

To keep away flood, two complementing methods can be adopted, either control flood works which aims at keeping water away from man or control of flood plain development. Through planning and regulatory efforts which aims at keeping man away from water. Whatever method is adopted for Lokoja will depend on land requirements and level of technology to be used. The flood always render the flood plain unsuitable for development.

0 Historical Evolution

The name Lokoja is derived from an Hausa word meaning 'Red Iroko tree'. The town strategic location - between a range of hills called Mount Patti and the confluence of Rivers Niger and Benue, therefore serves as a place of refuge for those fleeing for safety. Also because of its strategic

situation, Lokoja was early recognised as an importance trading site and purchased from the Attah of Igala in 1841 (DAR AL Handash, 1974). The interest of the European explorers and missionaries in the area began in the early 19th centry. This European penetration into Lokoja represents a most significant landmark in the history of the town.

Beginning by way of exploratory expeditions, the penetration was aimed primarily at exploiting the rich confluences, resources as well as finding viable outlets for the growing European industries. The metamorphosis of Lokoja actually begain with the exploratory journeys of Mungo Park, who in 1775, undertook to explore the River Niger. His work was speeded up by a Briton, William Baikie, who is still generally associated with the founding of modern Lokoja. He was on expedition in the area in 1854 in the company of Samuel Ajayi Crowther. A treaty was negotiated with the Attah of Igala for the cession of an area within the present day market for a model farm. (ECO plan survey, 1992). William Baikie further encouraged the British people to settle in the town as a base for their commercial activities. He also brought liberated Africans as emigrant settlers and encouraged indigenous populations, most of whom were then on mount Patti to come down and form a settlement with the visitors.

As a result of this, Lokoja was catapulted from a transit trading point to a viable commercial center for European firms in the early 1860's and beyond. The town thus acquired the status of a consulate in 1865 and subsequently, became the headquarters of the Northern protectorate in 1900.

Although Lokoja's fame began to decline in 1904, when its headquarters status was moved to Zungeru, which was further north, probably due to its

centrality, the town witnessed the upsurge of diverse ethnic groups who settled to exploit the benefits acquiring from European activities. Lokoja is therefore a heterogenous collection of diverse ethnic groups. These are Hausa, Oworo, Nupe, Bassa-Nge, Igala Ebira Koto and Yoruba. Today, none of these groups live in isolation, but side by side with pockets of other constituent ethnic groups especially with the population influx resulting from states creation. This explains the absence of traditional/cultural festivals and in part why none is powerful enough to dominate the other.

At various times, Lokoja was the provincial, divisional and local government headquarters, although the metamorphosis did not necessarily mean development as the town had been too weakened politically untill August 27, 1991, when the state of Kogi was created and Lokoja named as the capital.

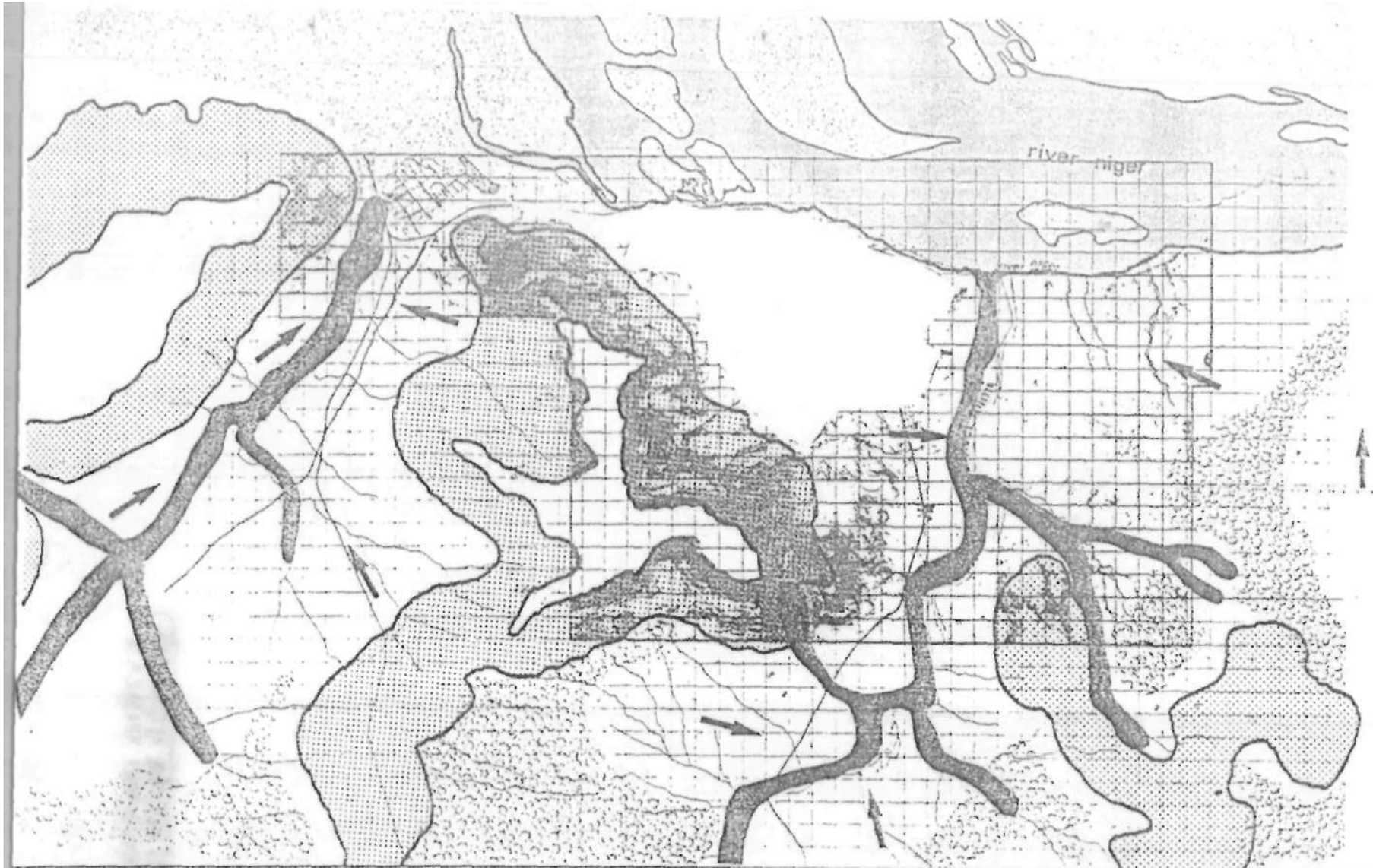
## 3.30 PHYSICAL STRUCTURE OF LOKOJA.

### 3.31 Physical growth of Lokoja

From available sources like official maps, aerial photographs, historical accounts and field surveys, the pandara stream is the point from which Lokoja town spread out.

The oldest homes dating back to over 40 years old are still to be found around there and extending northwards to the old market area where a farm was established by one William Baikie when he encouraged both whites and indigenous population to settle. From this cradle, development extended further north to Kabawa, Kporoka and the Cantonment Area.

Another wave of expansion was eastwards and westwards but it was halted by




location

kogi division

built-up area

areas of possible expansion

areas liable to flooding

valleys

areas steep & unsuitable for development

gentle slopes & natural drainage lines

forested land

FIG.3·2

site analysis

lokoja

scale: 1/50 000

1.0 2.0

km

15

50

hectares

north

dar al _ handasah consultants, shair and partners. lebanon, nigeria, united kingdom

the natural barriers of the River Niger and mount Patti respectively. The town was then forced to grow in a north-south direction. While indigenous development was concentrated in the north, the white foreigners who favoured lofty grounds away from the "noise" and other vagaries of the native environment, took advantage of the terrain in the southern part of the town.

Of importance and relevance to the growth of the town are two separate independent villages of Adonkolo in the south and Lokongoma in the west where respectively the Bassa-Nge and the Yoruba tribes particularly dominate. The picture presented today is a continuum arising from a gradual infilling of intervening spaces especially with the construction of housing units in Lokongoma and the allocation of plots along Niger Barracks Road.

3.32 Potentials for Growth:

The physical potentials analysis of the area is shown in (figure 3.2) but the possible extension of Lokoja may be as follows:

(a) To the west of the existing town along the River Mimi and the old road to Okene.

(b) To the south of the existing town crossing the River Mimi.

(c) To the north of the existing town in the area adjoining the Patti Ridge, along the new bypass road and the road to Felele, Okomoba and other settlements.

(d) Possibly on the Patti Ridge Plateau itself.

3.33 Physical constraints to Lokoja Expansion

Just as physical elements have initial advantages to development they also have their disadvantages. In short Lokoja town can be said to take advantage of the sloppy land between the ridges of mount Patti and the River Niger. Physical setting, particularly the relief has constituted a considerable contraint to the spatial growth of Lokoja. The resultant effect is development along the least line of resistance (see fig.3.2). To the north of the town, around the new market, the Niger to the east and mount Patti to the west almost meet to form a bottle neck for development. If the town is to expand northwards, it has to "jump" this bottleneck to openup Filele and Abuja Road areas. Presently, these areas are not fully integrated into the Lokoja metropolis due to intervening distances but the potential for growth is there especially with the siting of places like ADP headquarters and the mechanic village in Filele.

Crossing the River Mimi has been a constraint. The southwards development of the town will open up this part to effectively integrate the eastern side of the state. The terrain is not too difficult here. The eastern edge of the town is the River Niger itself. The prospect of the town crossing the river to form a megalopolis with the eastern end is remote. The river is thus the major constraint to the urban growth.

The area with least resistance to urban growth is the west particularly along the old Okene/Kabba road all through to the Bypass. Both the top of mount Patti and the lowland beyond it also have prospects of offering stable bases for development.

In considering the land pattern for the purposes of planning, developed area has been deemed to include pieces of land that are already committed

to some uses on paper, and on which actual work on site has or has not commenced but the researcher can with some given level of confidence safely assume that government will not recind its decision in such direction of development.

There has been a general but gradual densification of the population particularly in the older parts of Lokoja to the north. Not until the town became a state capital did the other sections join in an effort to supply accommodation to the suden population influx. This effort has extended the pace of activity of Lokoja to invigorate some nuclei of developments along Lokongoma axis up to Barracks and even as far away as Filele to make Lokoja a developed area.

(i) Commercial.

Lokoja is essentially a commercial nerve centre-of its region although the space area taken up by clearly defined commercial uses is misleading. Only a small portion of the land area is devoted to commerce, but a substantial part of retail business is carried out in residential houses along the major roads in the town, the old colonial offices of VAC and others along marine Road inclusive.

Basically, the three (3) major commercial centre in the town are:

(a) Old market:

This is a traditional market situated near the centraal mosque. Trading in essentially foodstuffs carried on even into the night. This market sprawls along both sides of wallace Road uphill towards the Maigari's palace.

(b) River-side market

This is another traditional market where trading is mainly in

foodstuff, particularly those of aquatic origin and these are ferried in from across River Niger. The location of this market is informed by the need to dispose of the products in time due to the high perishability.

(c) New Market

This is a purely 4-day cycle market whose range can be as far away as 140km. High grade goods are brought in a day before the market. It is not unusual for other commercial activities in the town to be paralysed in favour of this regional market.

ii) Public and Semi-public use

These are made up of educational, administrative, health and religious uses.

3.40 SOCIO-ECONOMIC CONDITIONS

3.41 Population of Lokoja

Table 3.1

| Year | 1952 | 1963 | 1974 | 1995 |
|---|---|---|---|---|
| Population | 12,606 | 25,001 | 35,000 | 82,000(Estimate) |

Source: 1952, '63,74 - Lokoja master plan (1974-2005)

1995 - based on projection and field survey estimates by the researcher.

Based on the original master plan, the estimated population of Lokoja has been assumed to have grown at an annual rate of 5.35% to 35,000 in 1974. This enhanced growth is based on the administrative importance of the town

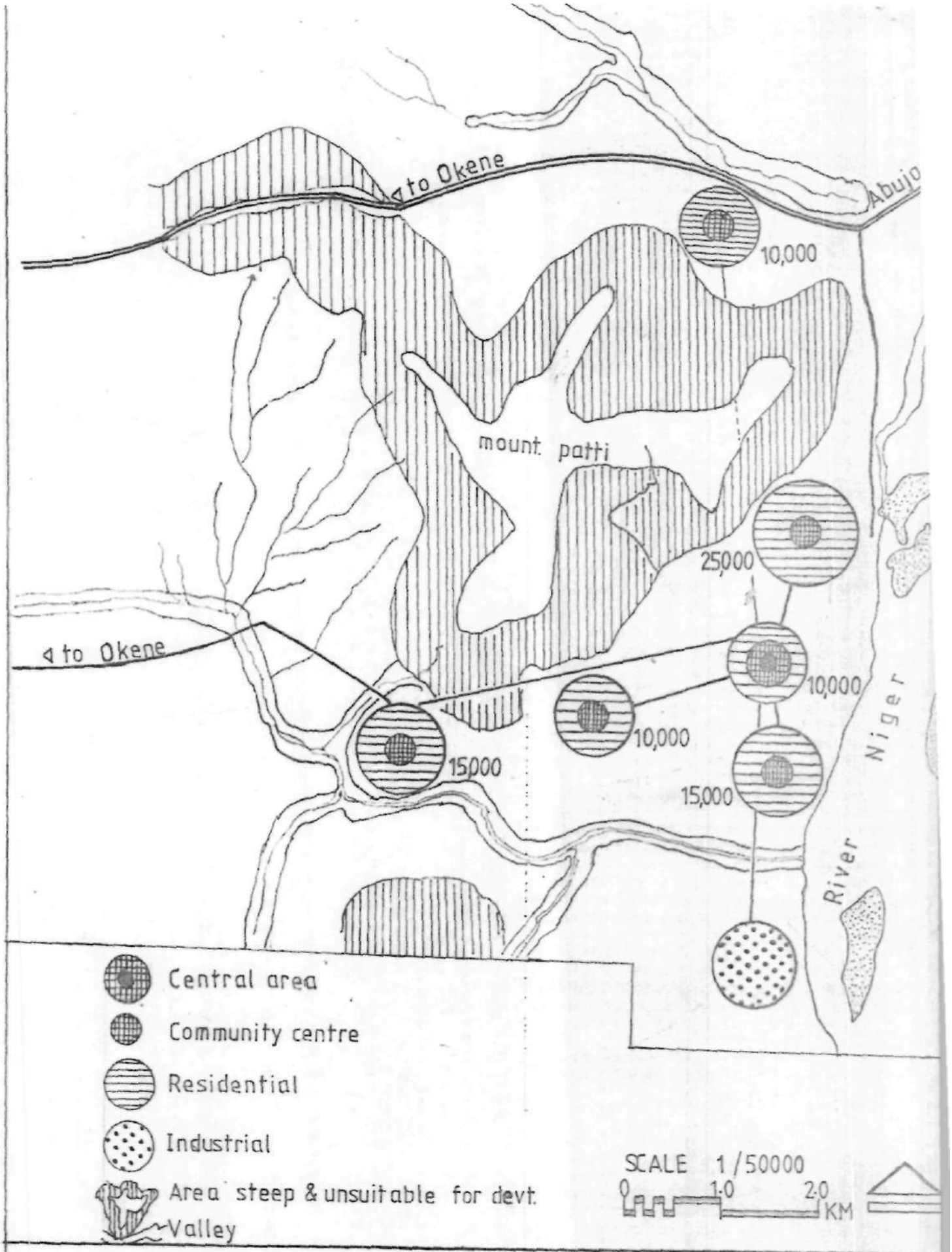



FIG.3·2·2 LOKOJA - COMMUNITY STRUCTURES

within the area as the headquarters of Kogi Division and also to the attraction of its regional market as well as the generally improved business opportunities.

The period 1974-95 is a fairly long one within which many administrative reforms took place in Nigeria. The first exercise saw the emergence of Kogi local Government Area based on the old division which included Korton-Karfi District, while the latter resulted in the separation of the two different Local Government Areas. This was short lived and the two re-emerged again in 1985.

By this action, prominence was given to Korton Karfi at various instances. Lokoja finally became a state capital in 1991.

3.42 Tribal Composition

Lokoja town depicts typically, a heterogenous community. The major ethnic (tribal) groups are Nupe, Yoruba, Igala, Ibira, Ibo and Bassa Komo. The Nupes have cultural and ethnic affinity with the Hausas. Again the cultural heterogeneity of Lokoja makes it slightly difficult to give a clear picture of the general lifestyle of the inhabitants. The town does not have any traditional/cultural festival. As a result, much that can be regarded thus is in a reality religion. The christian and muslim population are almost equally represented in the town. It is also not uncommon to find people understanding the Hausa, Nupe and Yoruba languages and at the same time communicating in pidgin (that is, the adulterated) English. This arrangement has promoted religious and cultural tolerance. Figure 3.2.1 shows the community structure of Lokoja.

3.43 Economic base

Unlike many towns in the state, the location of Lokoja does not encourage

farming due to the rugged terrain. The town has evolved as an administrative/commercial centre with the enhancement of its trade and service sectors. The major sectors are:

Primary sector

(a) Agriculture:- The flood plain of River Niger is used for intensive market gardening in dry season. Crops planted include onions, tomatoes, and sugar cane. Little rice, sorghum, sugarcan, yams, cassava and maize are grown in different landscapes of the town.

(b) Animal Husbandry:- This includes fishing on the River Niger. Fish camping on the shore of Niger away from Lokoja is common.

The catch is usually sold fresh by an equally large indigenous male and female population. Lokoja has no any established ranch, but goats, sheep and birds are being kept by individuals in free range.

The bulk of the animal protein consumed in beef from cows brought in from the Northern part of the country.

Secondary sector:

This includes commercial activities and financial lending institutions and manufacturing.

Lokoja lacks large scale processing firms. The existing firms are the Quantizite Grinding industry along Okene road and Jakwara marble industry, situated along the banks of River Niger on Beach Roads to take advantage of the proximity for the high demand for water.

Other light industries and handicrafts include: Cotton ginning, building block moulding, structural metal works, fish smoking and casting of clay roofing slates.

Tertiary Sector

Commerce: The regional market at the northern edge of the town has an important impact on the performance of the urban economy arise from the other markets and ribbons of whole sale and retail endeavours along the roads, and the anticipated impact of the prototype shops built in the different parts of the town by the state government.

There are other social and specialised services such as business centres where telephone, telex, fax, photostat, typing and other services are offered. There are now modern restaurants and guest houses in Lokoja to meet the need of various classes of people and professionals.

## 3.50 THE EXISTING LAND USE PATTERN

Lokoja town covered an area of approximately 230 hectares in 1960. By 1974, the developed area reached about 380 hectare (DAR 1974). Today the area has almost doubled what it was in 1960. The reason for this is nothing less than the effort of the state government in the building of houses and expansion of the existing infrastructural facilities of the town. figure 3.3 shows both the existing and the proposed land use of Lokoja.

The land use pattern in Lokoja, like is found in similar towns in the developing world, is characterised by an unhealthy balance and mixture of uses that do not allow for a functional work-rest relationship nor an optimum performance of the urban system in considering the land pattern for the purposes.

### 3.51 The major drawbacks of the existing land-use pattern

(a) Main roads carrying through traffic cut through the commercial centre.




LAND USE NOTATION

- Residential
- Commercial
- Industrial
- Public and Semi public
- Vacant/Agric.
- Road

SIMON, R. F
M.SC. THESIS 1994
URP DEPT. A.B.U

source : town planning division, Lokoja

FIG.3.3 THE EXISTING LANDUSE OF LOKOJA

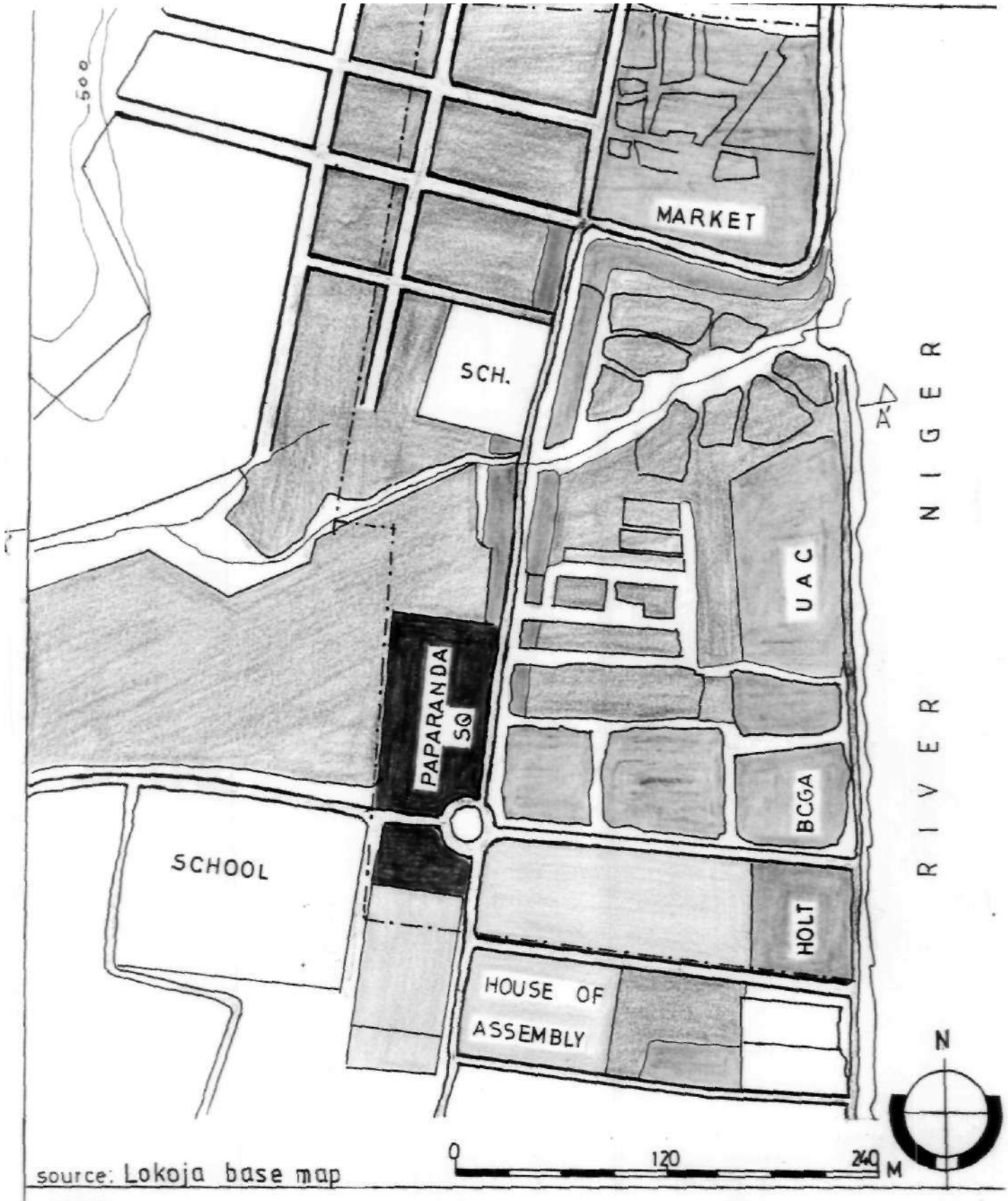



FIG. 3.4 EXISTING LOKOJA CENTRAL AREA LANDUSE


CROSS SECTION A'— A' OF FIG. 3.4
SCALE:- 1: 2500
school
motor park
new m.k.t.
north

(b) Traffic hazards due to the conflict between motor vehicles and pedestrians within the residential areas. The road widths are still very much narrow and there is no provision for pedestrian path.

(c) Social facilities are deficient and poorly distributed.

(d) Non-conforming and non-harmonious uses are mixed.

(e) No defined locations exist for industrial use. It is hoped that the proposed master plan would take care of these anormalies.

3.60 EXISTING CENTRAL AREA OF LOKOJA

The central area covers an area of 115200$m^2$ or 11.52Ha. It extends from Maigari palace to the coast of River Niger, and linearly upto paparanda field as its southern boundary. From this point, the centre stretches down to share boundary with the water front's by-pass road-at the eastern side of United Africa Company (UAC) see fig 3.4.

3.61 Functions in the central area.

The area performs both traditional and modern functions.

(a) Traditional functions: Like any part of northern Nigeria, the seat of Maigari (the traditional ruler of Lokoja) is located within the central area; closed to the Maigari palace is the central mosque, where the muslims do their worship. Again like most Northern Nigerians tradition, the market is just about few metres away from the central mosque. Therefore there is a strong relationship among these three elements of palace, mosque and market in Lokoja.

(b) Modern functions: These include the retail business that are taking hold of the central areas, particularly along murtala road. Wholesale distribution of goods is being performed by the multinational companies

such as United Africa Company (UAC) and John Holt company. Frankly speaking modern functions are yet to take a proper root in the centre, the reason for this no doubt, is lack of space.

(c) Residentry function: The area is dominated by residential accommodation most of the houses particularly along the major road have been converted to commercial uses.

Table 3.2 shows the Area and percentage area covered by the major functions of the centre.

Table 3.2

| Uses/Functions | Area in (Ha.) | Percentage of total |
|---|---|---|
| Residential | 6.12 | 53.12 |
| Commercial | 4.95 | 42.96 |
| Others | 0.45 | 3.90 |
| TOTAL | 11.45 | 100% |

3.62 The Existing central area : Problems and needs

Like some Nigerian urban centres lokoja traditional central area is beginning to exhibit some levels of congestion. The future gravity of this problem probably has been foressen by shair and partner consultant (Lokoja 1974) and subsequently leading to the alternative town centre as proposed by the 1974 master plan. The inadequancies of this part of Lokoja town hail from the following:

1. Distorted Landuse: The major summary of this area which is expected to be functioning as the town centre is a total distortion in the landuse pattern of the area. As a response to the natural urge to procure shelter

by the new entrants into Lokoja, every available space has been converted to either residential or business premises in disregard for any known planning norm. Non-conforming and non-harmonious uses are thus mixed. This not only reduce efficiency of the urban system but has created conflict and disorderliness.

2. Poor aesthetic: The outlook posed by the existing Traditional structure/Architecture do not blend with the new modern commercial structures emanating from such redevelopment. Recently this inadequacy is being partly averted through the embellishment of paparanda field and its immediate conversion into a round about. see plate Ia.

3. No cultural and Recreational facilities

There are limited cultural and recreational facilities in Lokoja town centre which could cater for the well-being of the people. This problem arises from the morphological growth of the town in which the modern exigencies like schools, sport field etc are concentrated in the colonial (white) settlement of the town.

4. Lack of space for expansion: Concentration of commercial uses is only possible along the major road - murtala road and few other streets. Also the natural domination of residential houses does not provide rooms for expansion of other facilities.

For one thing, the geographical location of the site relative to its suitability has just the ability to meet the present need of the town and suppose a meal piece redevelopment is to be carried out, there is no doubt that it will be a flat failure in view of the cost and destruction to the nearby residential buildings that such exercise would engulfed.

5. No Parking spaces: The spine road carries the highest volume of traffic



PLATE IA: paparanda square – the only side attraction of Lokoja existing central area.



PLATE IB: Murtala road, a through way with its usual congestion

in Lokoja. The non-provision of off-street parking compels vehicles including heavy commercial ones to park by the road thus causing obstruction to traffic and increasing the incidence of accidents.

6. Limited circulatory network: Again this area of Lokoja is beclouded with poor accessibility having just two access roads (through traffic) via which the area can be linked: The road from the new market and that from the south west part of the town (see plate Ib). This shortage of accessibility can not foster any economic growth or bring about an efficiency in commercial activities of the area. It is also a common knowledge that through traffic contributes to intra urban traffic problems like congestion.

In view of all these problems there is the need for a shift of emphasis from what is existing and going to a more promising area which can accommodate sufficient facilities and also function more efficiently with the urban system.

## 3.70 EVALUATION OF LOKOJA MASTER PLAN (1974 - 2005)

Lokoja master plan (1974-2005) was prepared by DAR al-Handash Consultant (Shair and Partners) in 1974 in partial fulfilment of a contract with the Ministry of lands, Surveys and Environment of Kwara state of Nigeria for the physical development of 44 urban and rural settlements in the state. The plan provides a comprehensive planning reports for the town of Lokoja. The plan which has 25 years of life span is yet to be implemented even 20 years after its preparation and commission, it has therefore become unsuitable and too obsolete to be used for the town general growth and development. This is as a result of the sudden change in the town status.

The new status of the town as a state capital invalidated all previous growth forecasts for the city in view of:

1. The upsurge of population arisng from the influx of workers and businessmen from Kwara and Benue states as well as other parts of the federation.
2. The increased tempo of commercial and industrial activities which is also expected to continue rising tremendously for sometime to come.

The proposal made by Shair and partner has not been a junk altogether, for it has been the major guide to the recent physical development in the town specifically since the state creation in 1991.

The master plan projection for the town future landuse is explicit. The forecast that the town physical development will spread southward and westward to enclose the massive mount patti is the thought of the moment, especially by the physical planning department of the state ministry of land and survey.

It must be noted that the plan was too bogus for what Lokoja as the then local government headquarters can easily executed. Therefore it is undoubtedly believed that the implementation of the maste plan failed as a result of financial constraint.

The plan made a proposal for a road to cut across mount Patti (about 435m above sea level). This proposal would not have been realized except with adequate technical and financial resources available to the government. However, the first phase of the construction uphill has been partially achieved inspite of the meandering nature of the road.

The proposed commercial development (see fig 3.5) was based on the following principles and policies:

(i) Clustering: in this case that the commercial development should not be allowed to disperse all over the town but should be clustered or concentrated in key foci of special reserved land. For the town in general clustering provides for control of landuse and traffic thus minimising the adverse effects of commercial sprawl.

(ii) Hierarchy:- This is to take care of categories of goods and services majorly 'convenience' and 'Durable' goods and services which are demanded less frequently (such as clothing or professional services).

To conform with the proposed structure of residential development, four types of commercial areas have been recognised:

(a) Neighbourhood Centre: This is often located at or near the centre of the residential neighbourhood unit and is reached by the main footpaths as well as by town minor roads. Its major function is the sale of convenience goods and daily services, the largest shop being the supermarket.

(b) Community Centre: This provides durable goods and services in addition to convenience goods, the largest shop being the department store. This is to be located at the centre of a group of neighbourhoods of 4-6 units, along the town main roads.

While all of these are but necessities for a topographically constrained and diversified residential neighbourhood areas like Lokoja, it is anticipated that a twin (dual) Township would emerge eventually. The town centre proposed was to occupy an area of 240,000 square metres or (24 ha.) and this is loclated at a v ery far distance, about 4 kilometres away from the existing dominant residential areas.

Against all expectation this would not have worked. And for such to

function effectively it must be located at a closer proximity to the patronising population and in the development centre of gravity thus solving the problem of imbalance.

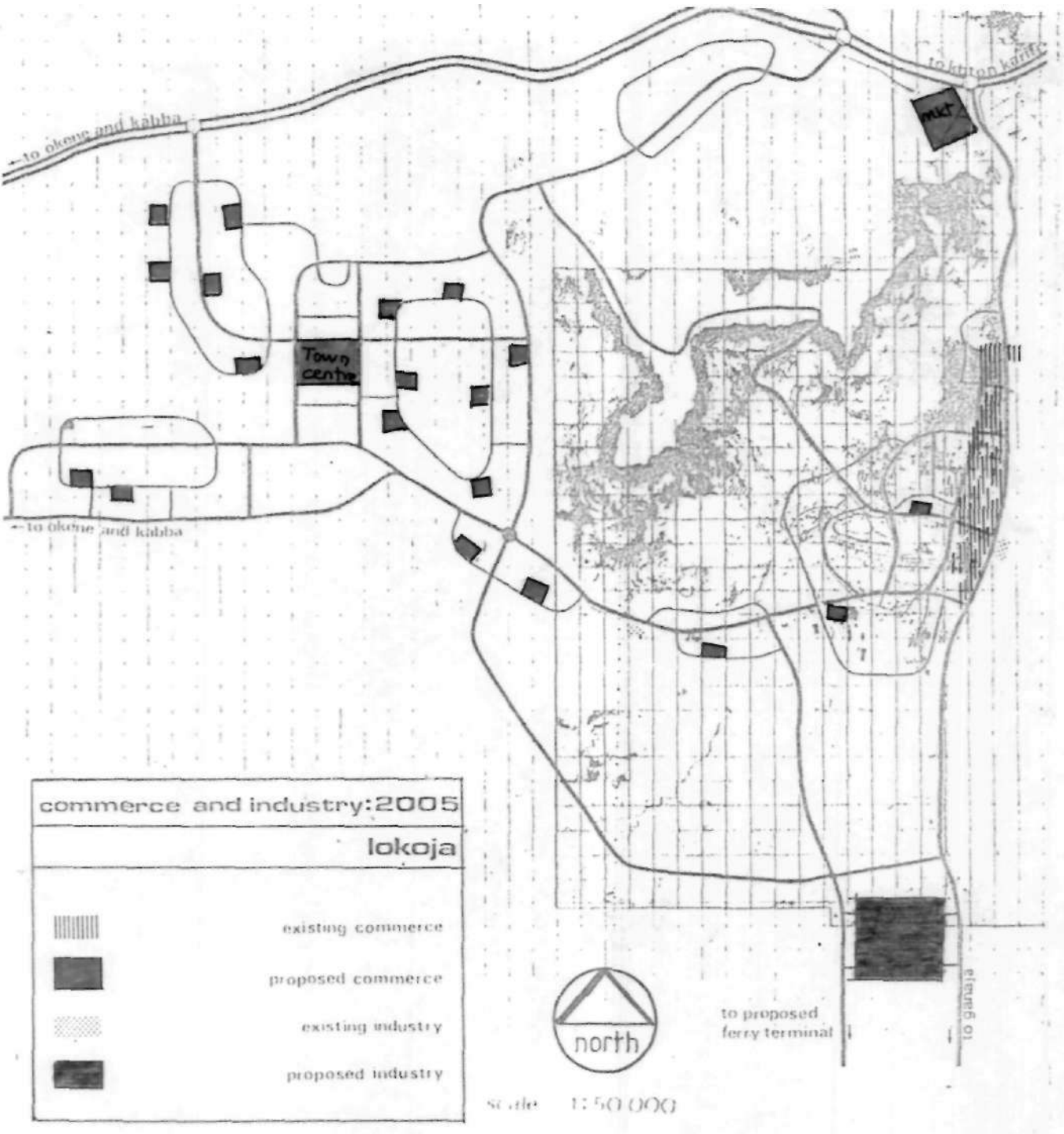
Moreover, the development of the centre falls in the third and fourth phases of the plan implementation which was expected to commence in 1995 and terminates by the year 2005. This thus implies that if the plan was to be implemented given the necessary technical and sufficient financial resources, Lokoja would not have gotten a well planned town centre even though the town has changed status.

The consultant chosen site for the Town's central area is not attainable on the ground of poor financial stance of the State government. Huge fiscal resource and mechineries are needed to put in place the utilities and road networks expected of the town.

Again the site is too far from the existing developed areas - about 7 kilometres away. This negates the principle of the central area development, that is, centrality. On a general note, the master plan is outdated.

With these inadequacies couple with the urgency of need, a town centre closed to the built up areas and capable of accommodating many activities and free flow traffic is highly needed.

Preliminary surveys have revealed that areas around the town main post office is developing spontaneously and therefore becoming the centre of gravity. More findings of the area shall be analysed in chapter four - next chapter.




Source: Shair and Partners, 1974

FIG. 3·5 THE PROPOSED COMMERCIAL DEV'T IN 1974

# CHAPTER FOUR

## 4.00 CONCEPT OF LOKOJA TOWN STRUCTURE

### Introduction

Like any other organised entity, a city or town can be analysed from two angles, one revealing its structure (anatomy) and the other its operation (physiology). A town's structure is the spatial pattern of its differentiated parts and functions, and its physiology is the interchange that occurs between these specialized units. (Kingsley and Freeman, 1954). In this development the physical spatial structure of Lokoja has been the main concern, in other words, there is need for a workable framework for the future growth of the town and most importantly the location or siting of the town centre within the framework of such structure.

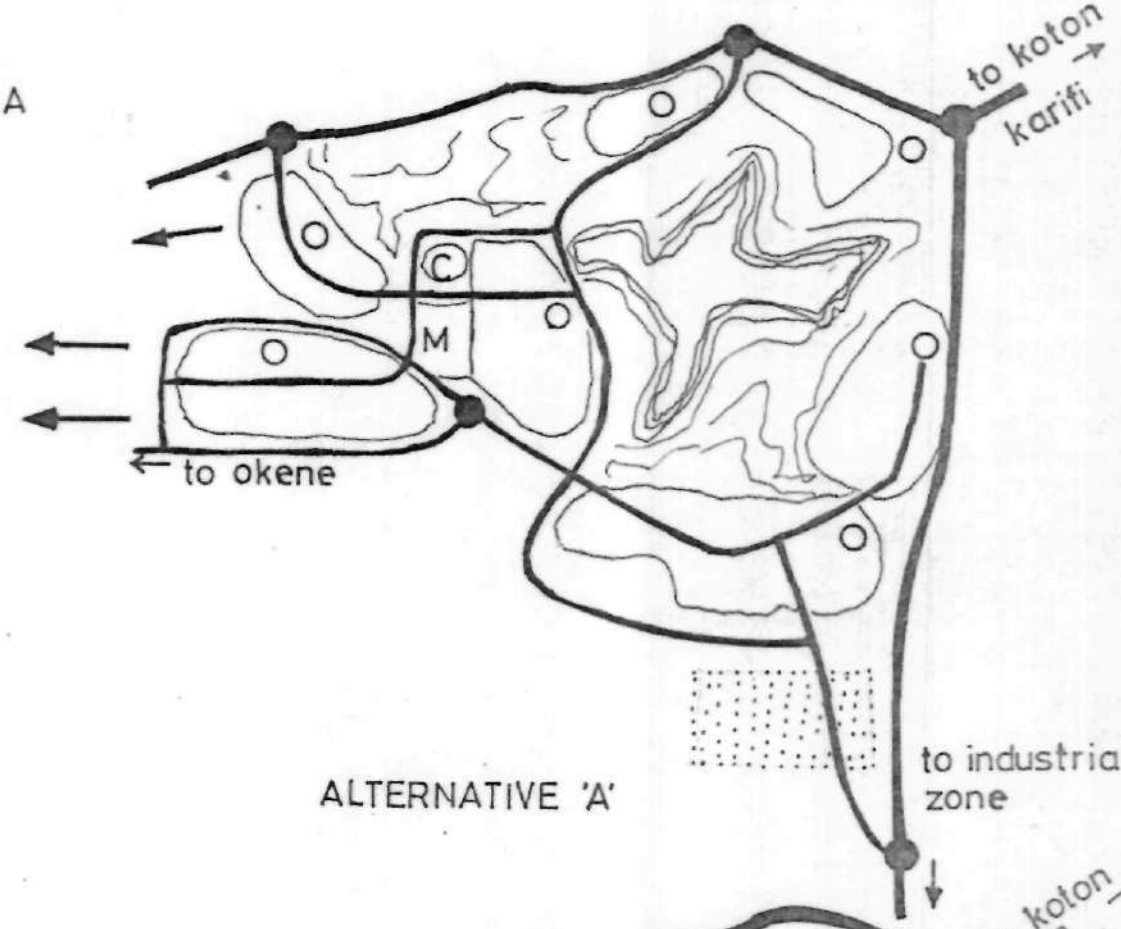
Surveys of the town's physiography have revealed that not all of the entire landscape can be built upon in view of some accidential surfaces of the town terrain. In otherwords the shape and overall disposition of the town vary in many ways because of the ruggedness of the topography. In view of this, two alternatives have been suggested for the physical form of Lokoja.

### *Alternative A*

i. Linear development to the south of the existing town along the River Niger and extending south-west wards. As shown in figure 4.1a, Lokoja town is shaped like a triangle with the River Niger as its base. The bypass to the north follows the south side of the Patti Ridge to form the north western boundary of the town and join the proposed coastal road which extends to the south, crossing the river mimi and heading towards the

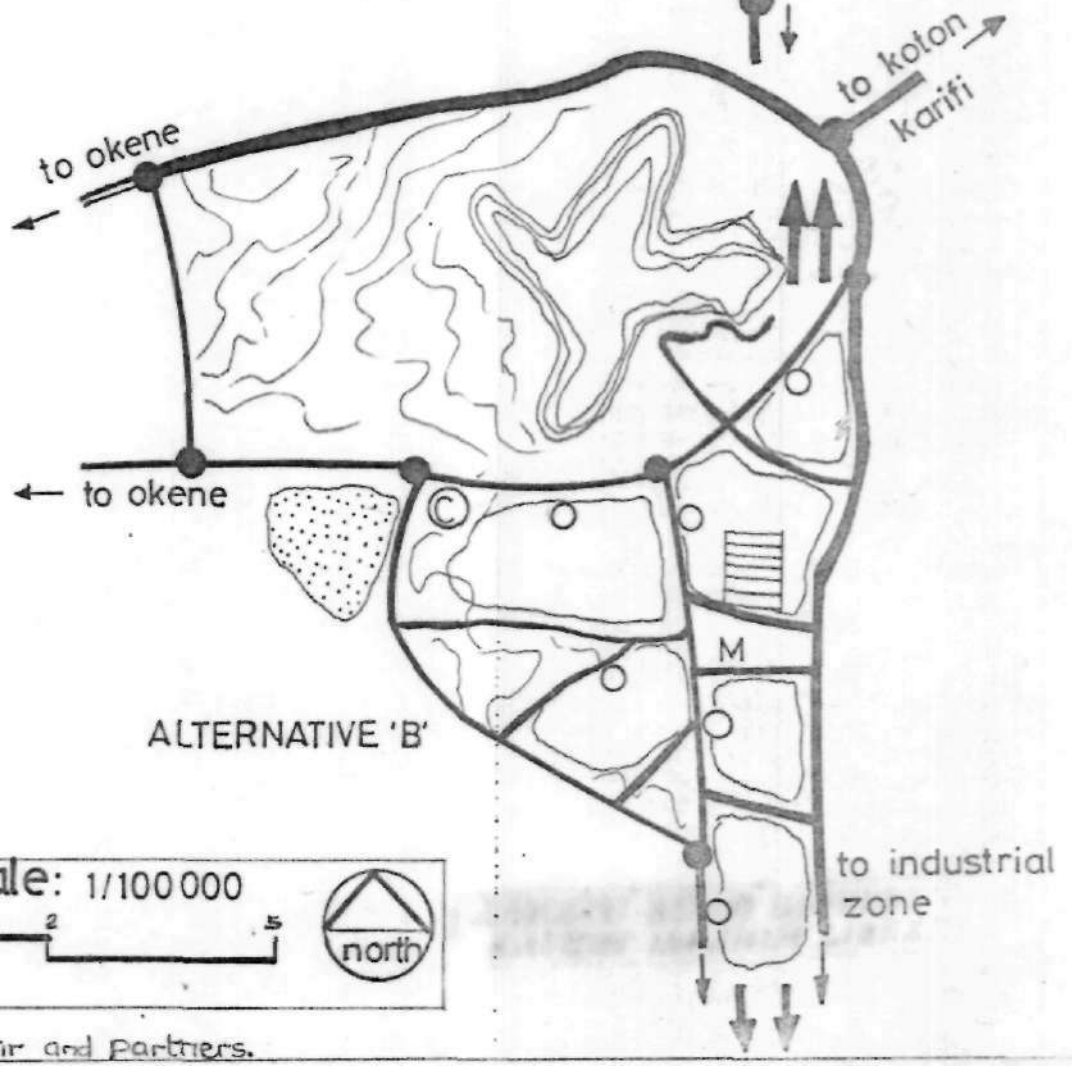
# ALTERNATIVE TOWN STRUCTURES

FIG. 4-1A




ALTERNATIVE 'A'

FIG. 4-1B




ALTERNATIVE 'B'




source: Shair and partners.

proposed ferry terminal apron at Ganaja and the industrial zone at the southern end of the town.

The area surrounding the River mini was initially proposed by 1974 master plan as a green area alongside with the alternative town centre.

Alternative B

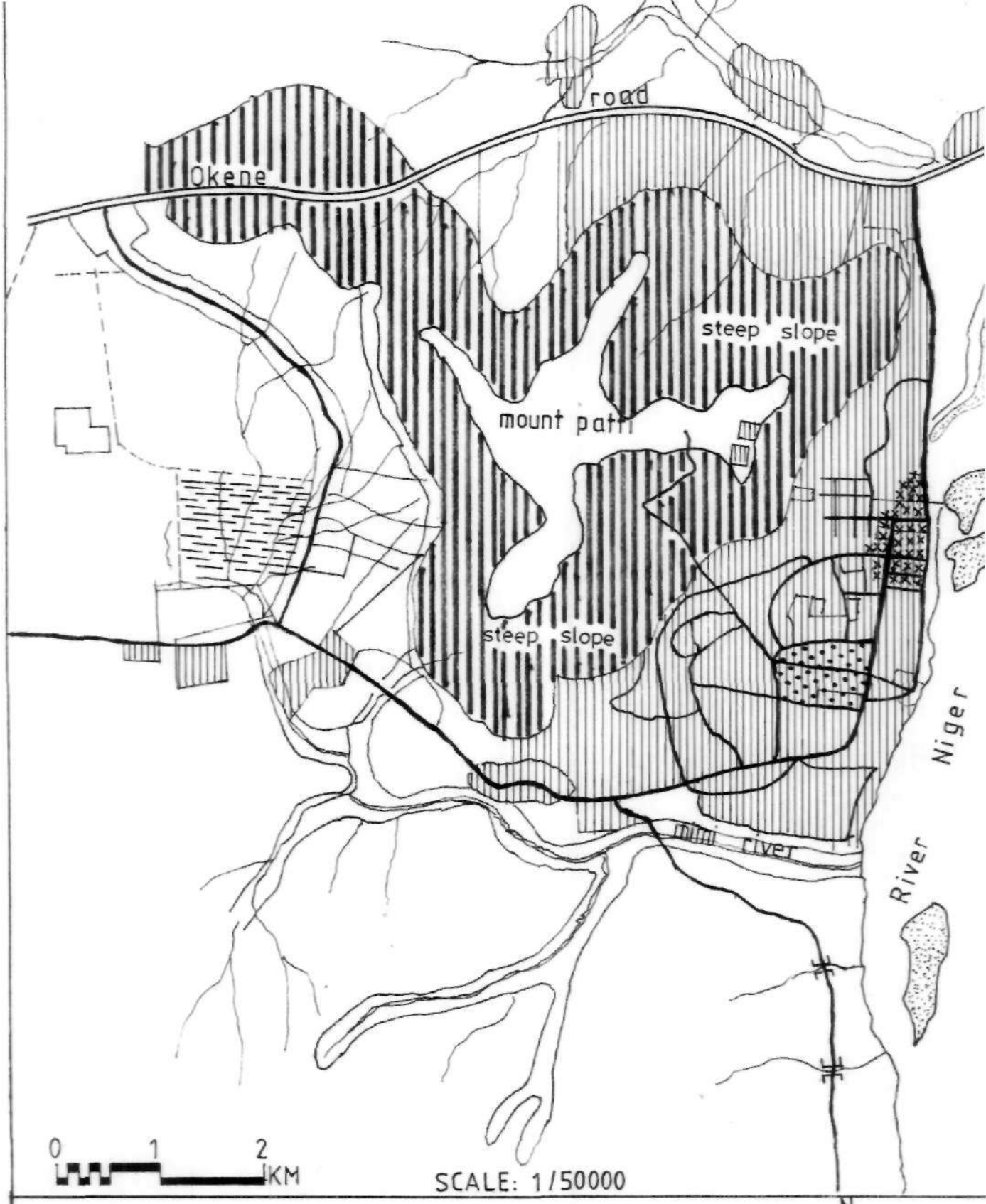
ii. Linear development mainly to the west of the Patti Ridge: This altenative takes the old Kabba - Lokoja road as the major impetus of growth. Not only is the town adequately protected from the harmattan winds blowing from the north east, but it is favourably exposed to the cooling south westerly winds. The residential development will not cross the River Mimi, that area being reserved for the Government's use. The road is fed at intervals from the old Kabba-Lokoja road and from a new bypass road. It is pertinent to know that development has been committed on the two alternatives as proposed by the 1974 master plan. However not much physical development has taken place along the southern direction, but toward the south-west of Lokoja laudable state government residential low cost estates have been planted.

It is on this basis of physical expansion that sites selection for the anticipated central area will be based.

## 4.10 EVALUATION OF CENTRAL AREA ALTERNATIVE SITES

At this stage, the three (3) possible sites which have been identified for evaluation purposes include:

1. The existing traditional central area. (Alternative 'A')
2. The site around the governor's office (" 'B')
3. The master plan (1974 - 2005) proposed site (" 'C')




source : town planning division, Lokoja

FIG. 4.2 ALTERNATIVE CENTRAL AREA SITES FOR LOKOJ

All the various alternative sites are shown in figure 4.2.

For the purpose of analysing these sites, two sets of criteria were employed:

(a) Criteria used for the traits which are peculiar to the sites themselves.

(b) Criteria used to ascertain the degree of association between each site and the various dimensions of the urban development of Lokoja.

The rating procedure for the alternatives on the basis of the criteria is presented in Table 4.11 and 4.12.

A. Factors peculiar to the sites.

Table 4.11

| | CRITERIA | ALT. 'A' | ALT. 'B' | ALT. 'C' |
|---|---|---|---|---|
| 1. | Form flexibility of site.<br>Rating | The old central area is handicapped by lack of space<br>(Poor) | Can be improved to accommodate all the functions expected of the central area.<br>(Good) | Being a virgin site, it can contain all functions adequately.<br>(Good) |
| 2. | Economy (cost of development)<br>Rating | Although already developed, but not with adequate facilities. Destruction of residence blocks will be high.<br>(Fair) | Existing functions that can be integrated in the centre are already available. The cost will be very low.<br>(Good) | A vacant site of this nature requires new facilities and utilities cost is expected to be very high.<br>(Poor) |
| 3. | Government policy (decision to stay in the site)<br>Rating | Not the plan but merely to improve the site.<br>(Poor) | Government's intension to remain is not convincing.<br>(Poor) | Government's movement to the site is highly rated.<br>(Good) |
| 4.a | Performance (short-Run).<br>Rating | Short-run performance is fair because of low competition<br>(Fair) | Expected to yield results - having the ability to integrate both the old and the new development of Lokoja.<br>(Good) | Performance is low. Economy return is handicapped in the short-run.<br>(Poor) |
| 4b. | Performance (Long-run)<br>Rating | Performance depended solely on the choice of Alt. B or 'C' and population growth.<br>(Poor) | May be very high ifthe town continues to develope in different direction (sectorially)<br>(Fair) | Provided that pop. and adequate public facilities are provided the site is promising.<br>(Good) |

A (cont')

| | CRITERIA | ALT. 'A' | ALT. 'B' | ALT. 'C' |
|---|---|---|---|---|
| 5. | Survival ability<br><br>Rating | May suffer poor accessibility and congestion leading to outward movement of population and activities.<br>(Poor) | Depends on distribution of population and facilities to save congestion.<br>(Fair) | Depends on certain variables as distance-a function of road network and Government financial stance.<br>(Fair) |
| 6. | Population density.<br><br>Rating | the population density of site is over 500p/Ha in (1981) before the state creation.<br>(Good) | in the same time period, the population density is between 50 and 100 persons/Ha for residence around the site. (Good) | It is a vacent land, no residency on the site until recently below 5 persons/ha.<br>(Poor) |
| 7. | Intensity of development on site.<br><br>Rating | development intensity is the highest in the whole town, about 100sq metre/dwelling unit.<br>(Fair) | the intensity is moderate over 1000m$^2$ per dwelling unit.<br>(Good) | very low being a new virgin land.<br>(Poor) |
| 8. | Physiographic nature of the site.<br><br>Rating | subjects to gully erosion, very slopy.<br>(Fair) | The site is relatively flat, height above sea level ranges 200 to 250 feet.<br>(Good) | The surface suitability is very poor, pockets of rock outcrops, valleys and streams, about 450m above sea level.<br>(Poor) |

B. Factors vis-a-vis the whole urban system.

Table 4.12

| | CRITERIA | ALT. 'A' | ALT. 'B' | ALT. 'C' |
|---|---|---|---|---|
| 1. | Location and spatial efficiency. | located distance away, commutting cost may be high. | location vis-a-vis other parts, very much fair. | location not central vis-a-vis the present or existing development. |
| | Rating | (Poor) | (Fair) | (Fair) |
| 2. | Regional accessibility. | Only through traffic, with limited access. | Existing roads could be maintained with a suggested addition. | Improvement of regional roads and construction of bypass will improve the accessibility. |
| | Rating | (Poor) | (Fair) | (Fair) |
| 3. | Social interaction. | will be maintained only at the level of the community alone. | site tends to acquire social and economic unity -a tendency that is greatly accelerated if the river is used for transportation. | as in Alt 'A' |
| | Rating | (Fair) | (Fair) | (Fair) |
| 4. | Identity and character. | The site does not portray a good identity/character of a state capital because of poor view of the area. | Proximity to the River bank is a good identity with the town. | All the major Government functions are to be concentrated on the site, hence good identity. |
| | Rating | (Poor) | (Good) | (Good |

SCORING OF ALTERNATIVES

TABLE 4.2

| | ALT. 'A' | ALT. 'B' | ALT. 'C' |
|---|---|---|---|
| 1. Factors peculiar to the sites. | 2.5 | 7 | 3.5 |
| 2. Factors vis-a-vis the whole urban systems. | 0.5 | 2.5 | 2.5 |
| TOTAL SCORE | 3 | 9.5 | 6 |

Grading: Good = 1, Fair = 1.5, Poor = 0

From this score table (Table 4.2) it is distintively obvious that site 'B' - area around the present Governor office is far better than other proposed sites.

At this level of analysis, though all the factors used were made to carry the same load (weight) neverthe less it is pertinent to still stretch further two major contending factors about Lokoja future physical development. These are:

(a) Fiscal resource capability

(b) The issue of centrality in locating certain functions

Fiscal resource capability

The development of Lokoja is solely dependent on the financial capability of the state government - both to induce industrial development and to improve the disfigured landscape of the town itself. It is envisaged that the physical development of the town will be mostly hindered by the poor topography - range of ridges, valleys and waterbodies which have put the whole urban landscape into a dissected

fragmentations. In view of the bottle neck this may cause, particularly in the implementation of any physical development plan of the town, a planning strategies is required. Much money would of course be needed to put the landscape in the right order before any development begins.

Under the present poor financial stance of the state government, not much meaningful development can be expected.

The hasty decision of the government to move to the south-west of Lokoja for some of her development without adequate analysis of the area in term of suitability for development is as a result of poor financial capability of the state government. The award of Lokoja masterplan preparation which could not be continued due to some fiscal mishaps has resulted into the state government preparation of a landuse map without due consideration to the contour heights of the area-A land use map without contour lines.

Strong financial support will be needed to do infilling and earth-grading of each segmented part of Lokoja. External borrowing may not be the most viable option, but some strategic planning methods. In addition the state should plan according to her financial ability. All these may have justified the choice of alternative 'B' as the most financially viable site of the anticipated central Area development for the town, as it is relatively cheaper to develop an already built site than to develope a virgin land.

(b) Central of activities location

The irregularities of Lokoja urban landscape as a result of lofty ridges, pockets of valley and river bodies can help resolving the dilema of service centre location. An examination of the needs and potentialities of each segmented part or area is an essential basis for the selection of future development of Lokoja.

In this direction the town is demarcated, on the basis of its physical separation, into functional types. It is the characteristic of this type of financial demarcation that Lokoja central area physical development is not related to centrality.

It is also believed that such sectional differentiation will bring a healthy balance to the town and allows for a functional work-rest relationship or an optimum performance of the urban system. see figure 4.3.

Table 4.3 shows the type of functions and their possible locations.




LEGEND

- Developed area
- Central area
- Industrial
- Traditional market
- Administration
- Tertiary Institution

source : town planning division, Lokoja

SIMON, R. F
M.SC. THESIS 1994
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FIG.4.3 PROPOSED LOCATIONS OF SOME FUNCTIONS

Table 4.3: Location of some functions

| Type of function | Possible location |
|---|---|
| 1. Administrative function | Lokojoma (South-west axis) |
| 2. Major commercial (markets) | Northern Axis, Mid-S/west. |
| 3. Industrial | Southern, South-west |
| 4. Tertiary Institutions | South-west axis |
| 5. Central Area | Adonokolo (south-central) |

This sectorial distrbution of activities nulify the issue of centrality - especially the notion of concentrating all functions in one place. It also brings a reconcilation of all the developed areas - both old and the new; thereby disallowing a reverse deterioration of any part of the town.

This foregone discussion of a particular problem area illustrates two important principle of planning - that:

1. major functions (activities) should not be proposed in one segmented part without considering the effects they will have on the system of relationships among the whole town.
2. Secondly, proposal for new major functions should take full account of projected economic and physical development - both provide additional population and income to support new location. It is also necessary that the centres should combine basic and residentiary functions.

## 4.20 TRANSPORTATION FACILITIES INVENTORIES.

Transportation systems or facilities play a major role in the economic growth of an area by encouraging industry, agricultural production and the tapping of other natural resources. It is a catalyst in the development process of any community. And good transportation system is the result of sound planning.

Public road transportation available in Lokoja metropolis consists of mini-buses, cars (being used as taxi) and motor cycles services. These services are provided by both government and private (that is, owned vehicles that operate on intracity, intercity and interstate routes).

Transportation facilities within the metropolis can be divided into three categories:

i) Road or Highway transport system

ii) Water Transport system

Our major concern in this work is the Road or Highway Transport system under which the traffic volume is carried out.

This system permits a free intermix of vehicles in the traffic stream and no doubt it accounts for about 95% of Lokoja transportation system (Ecoplan 1992). Specifically the mode of highway transportation consists of:

Cars - Passengers and personal effects only.

Buses - Passengers and goods of light volume.

Bikes - Passengers for short distances only.

Trunks - Mainly cargo for intercity transit.

Pedestrians - Purely passengers within the city

4.21 TRAFFIC SURVEY

i) Traffic volume.

Traffic surveys were conducted to determine the vehicular volume as well as origin and destination of the traffic.

Basically a 12hrs (6.30am-6.30pm) traffic volume survey was conducted within the town in three (3) stations or recording points as shown in figure 4.4d.

At these stations, counts were conducted basically in three selected days:

1. a typical working day (Monday)
2. a regional market day (falls on Tuesday) and
3. during a weekend (Saturday).

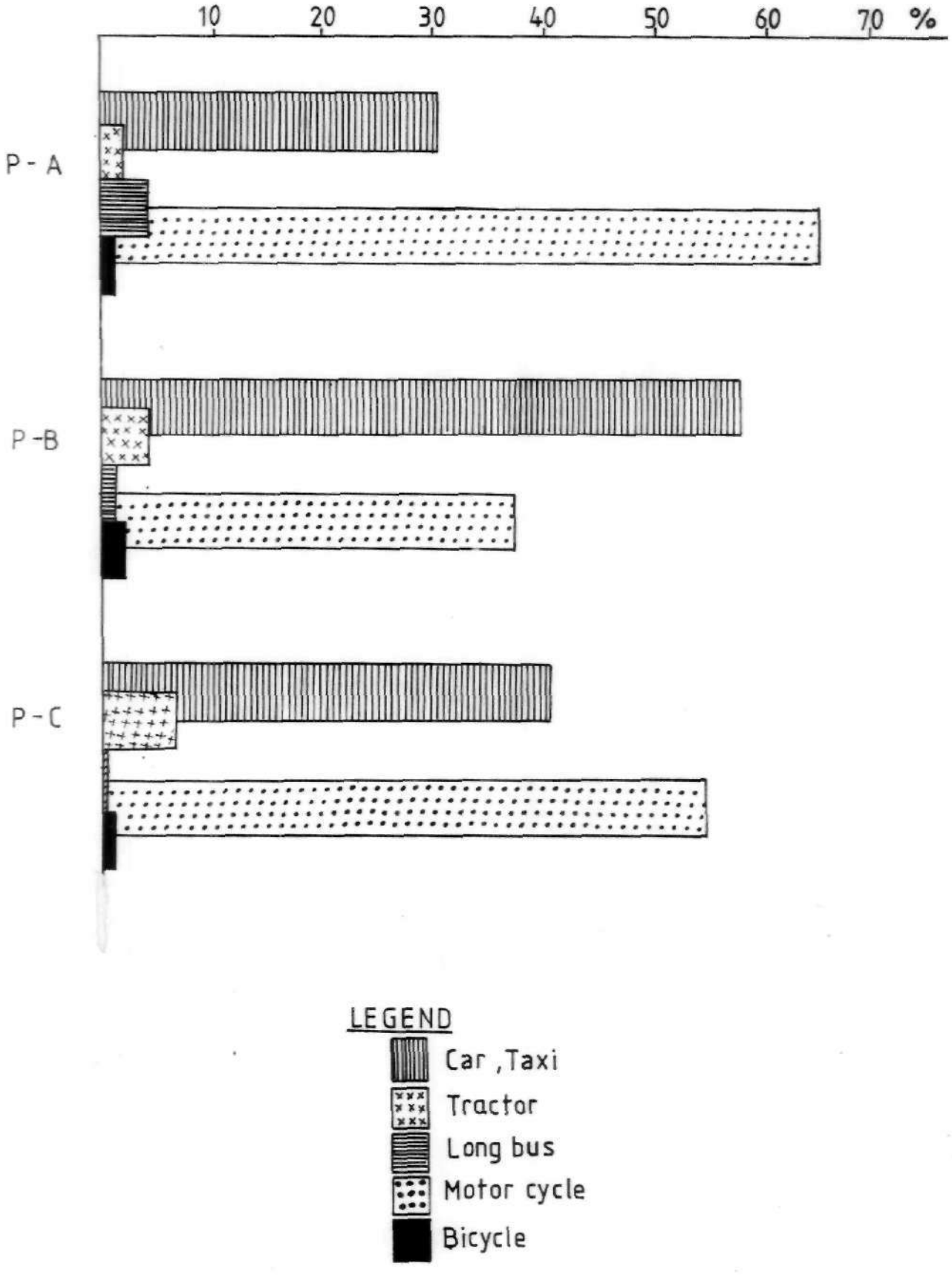
Based on the town vehicular movement in and outside the proposed central area, the three station were chosen. These stations include:

i) a point around the preparanda square along the road leading to crowther memorial college.

ii) opposite the state house of assembly, along murtala road.

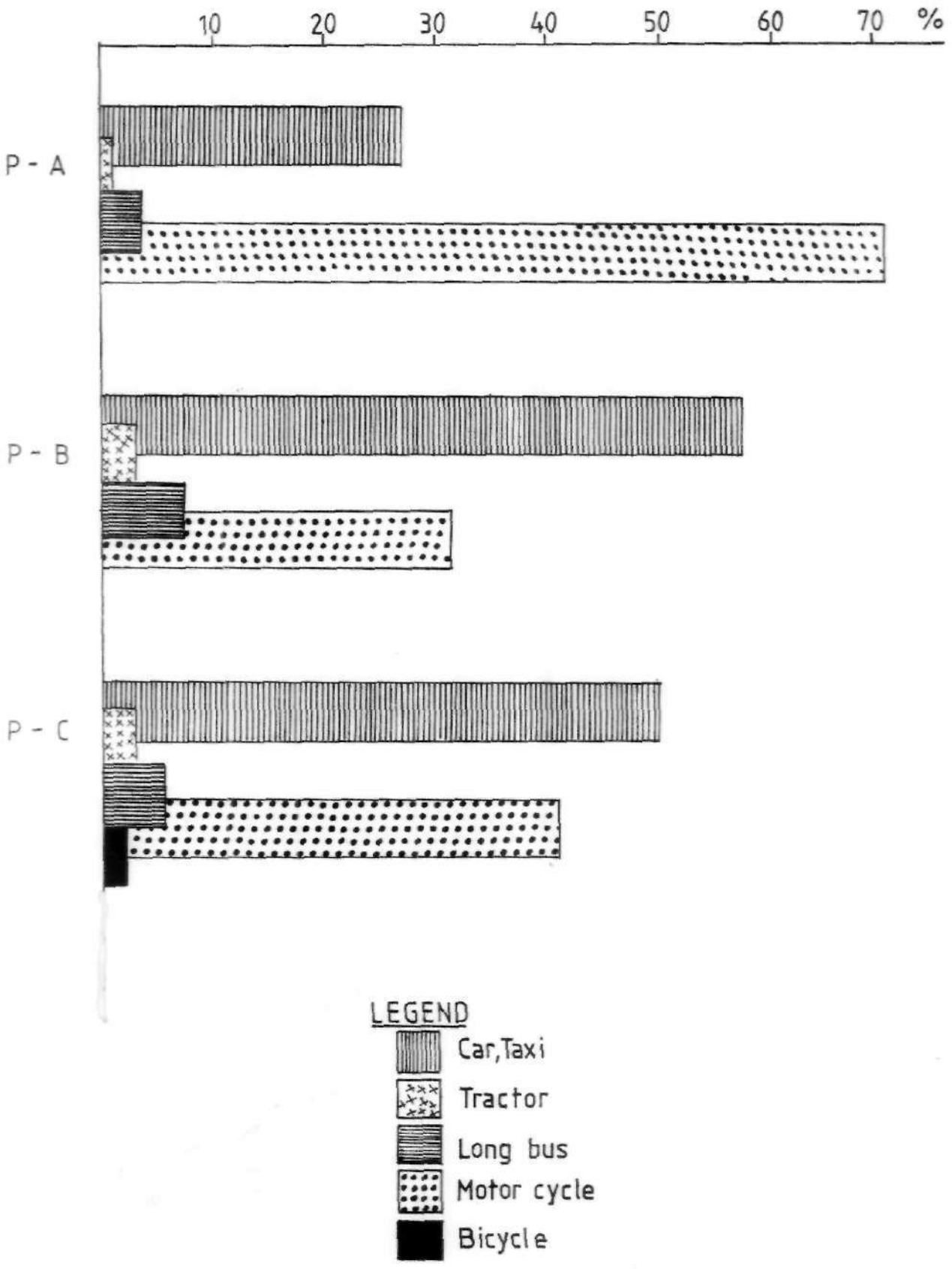
iii) a point along the road linking Lokogoma village and the new layout.

The survey (volume count) on all the three stations included



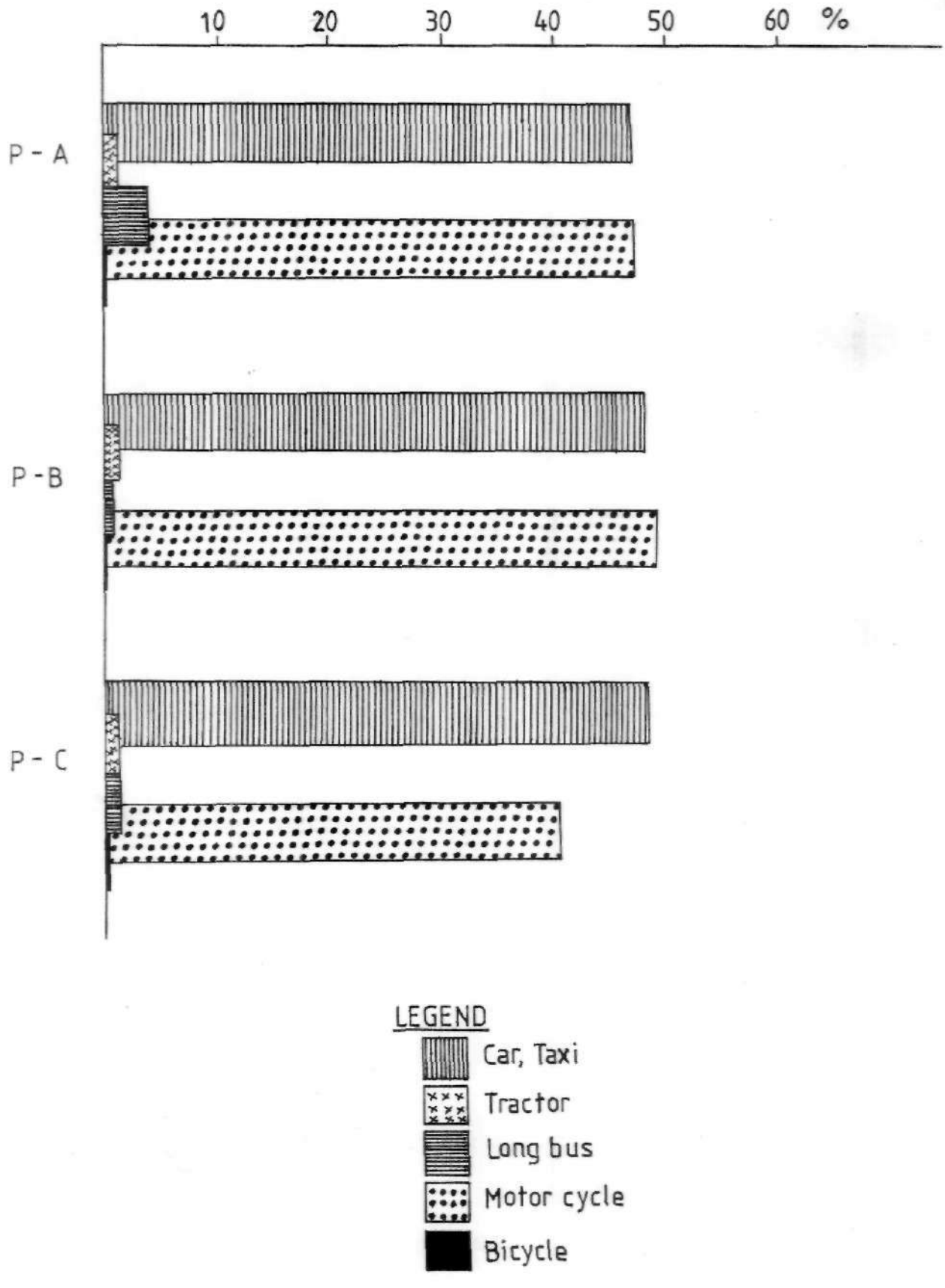

Source : Traffic volume survey. (field survey, march 1994 in Lokoja.)

FIG.4.4a PERCENTAGE OF VOLUME/MODE ON MONDAY




Source: Lokoja traffic survey (field survey) march 1994.

FIG.4.4b PERCENTAGE OF VOLUME/MODE ON TUESDAY




Source: Lokoja traffic survey (field survey) 12, March 1994

FIG. 4.4C PERCENTAGE OF VOLUME/MODE ON SATURDAY

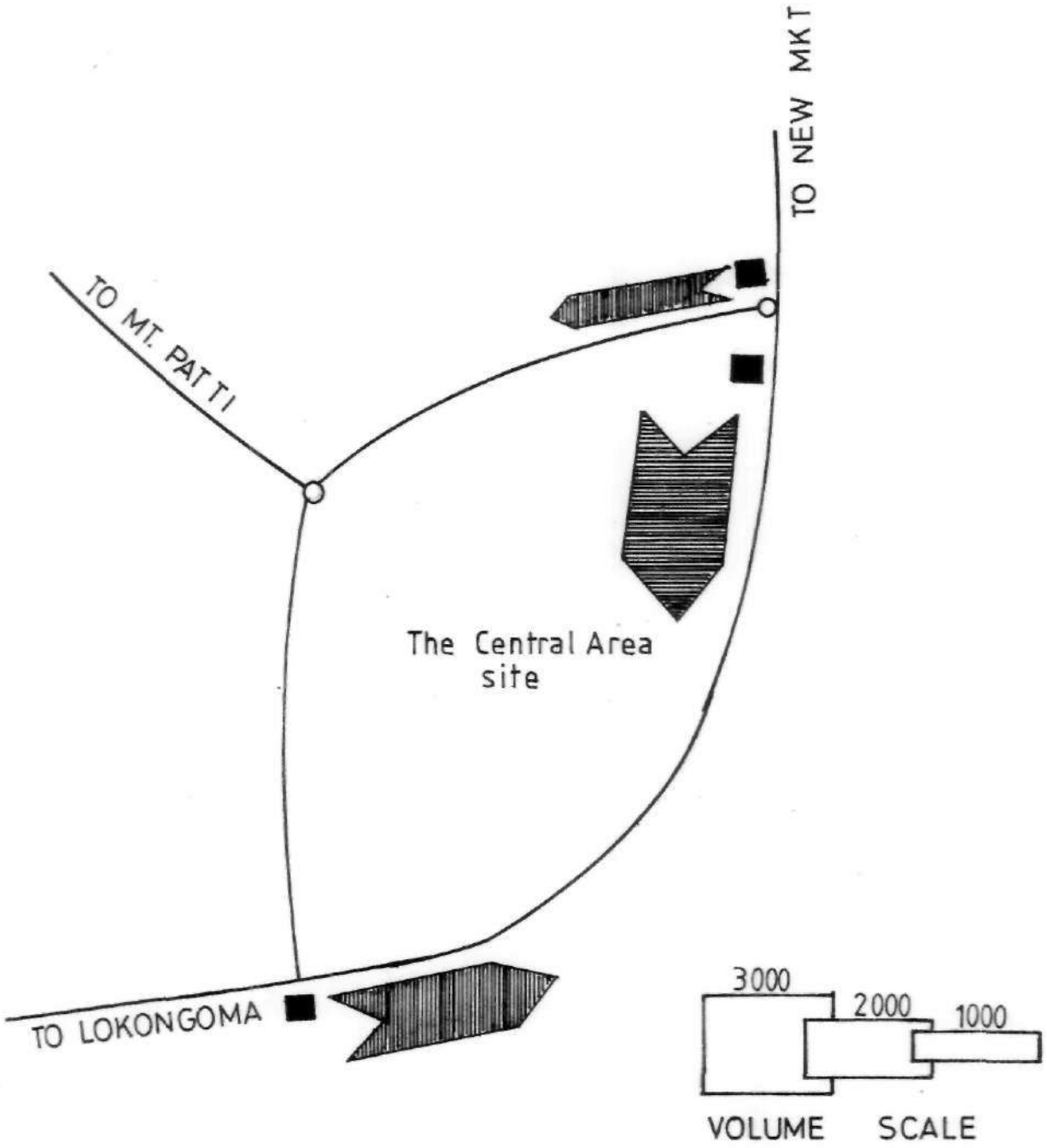



FIG.4.4d TRAFFIC VOLUME ON MONDAY

source: field survey 1994

■ Census point

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SIMON, R.F
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ABU-ZARIA.

all types of vehicles categorised under five (5) broad groups based on their passenger car unit (p.c.u) value viz:

(a) Car, taxi, mini-bus and light van - 1.00

(b) Tractor, trunks - 2.00

(c) Buses (large), Trailer - 3.00

(d) Motor cycles - 0.75

(e) Bicycles - 0.30

The classification counts carried out by traffic mode is graphically represented by bar charts as shown in figure 4.4(a-c).

The total traffic volume according to mode in all the stations indicated that motor-cycle (pcu 0.75) is a very common mode of transport in Lokoja having constituted the largest volume in almost all the counting points. This is followed by car, taxi and then light buse (pcu 1). see 4.4a-c (bar charts).

On a general note the largest traffic count is recorded on Monday and the least on Saturday. Tuesday traffic is being influenced by the regional market which concides on the sampled day of the traffic count. The traffic along Lokogoma, toward the proposed town centre is highest on Monday. This is expected since majority of Government workers reside in the new layout at Lokogoma and some few numbers in Army barrack all in the same direction.

Again on Tuesday traffic is heaviest along murtala road - the only major road that passes through the town. The total

traffic of 6724 and 3974 were taken in point A and b respectively. These figures are envisaged since large numbers of vehicles from other parts of the state have to pass through the road before getting to the market.

The survey carried out shows no definite pattern of traffic flow, the peak period varies from one census point to another. In appendix (i) on Monday 7am - 9a.m then between 11 -12 noon whereas on Tuesday in the same recording point it is between 6-8am and 1 to 2pm in the afternoon. The other census stations make no difference. This variant of peak period of traffic flow of Lokoja internal traffic circulation can be traced to two major factors: first is the frequent irregular movement of motor cycles which dominates the traffic volume of the town transport system and secondly is the constant fuel scarcity in the town which is believed to have made many vehicles constantly stay off road for days.

Generally the traffic flow pattern of Lokoja has shown clearly the irregularity of traffic distribution on the town major and access roads. The over congestion of traffic along murtala road suggests a quick intervention of the transportation of the town through traffic diversion and construction of more access roads and by-passes. The effective functioning of the town centre anticipated depended solely on the reduction of the traffic density along murtala road to at least a minimum level.

ii) The Origin- Destination Survey

The origin - Destination Survey was conducted at the three (3) stations which also run simultaneously with the traffic volume count. Basically the survey was planned for internal-internal movement pattern to getting the volume of traffic to a particular destination and into the proposed central area particularly.

To this effect Road-side interview method was used and this covered a period of 12 hours, from 6.30am to 6.30pm.

The non-response of some motorists during the interview really nullifies the adequacy of the findings here for any planning purpose. In view of this inadequacy, the volumentric count of traffic has been used majorly to infering the gravity of traffic problem of the area around the proposed central area and to a little extend the town as a whole.

Figure 4.4d shows the traffic volume on the three census points on Monday (a typically working day). The high density along Murtala Road suggested an additional bypass to relieving the major road (murtala road) of its through traffic and congestion problem.

4.22 Summary of Lokoja traffic problem

The principal problem in planning for the town traffic hails from any or a combination of the following factors:

1. Foremost is that most of the Eastern motorists passing through the town do so because there is no alternative routes for

them. The large traffic density along Murtala Way (the only road that runs through the town length) suggests that there is the need for another road to ease the traffic load. The Kaduna central area (along Ahmadu Bello Way) has been constantly witnessing traffic congestion, as a result of the failure of the government to expediate action on the implementation of the proposed bypass which would have served as an alternative route for the merely passing through traffic of the town. Today, a sophisticated traffic control mechanism is seriously needed to manage the traffic congestion. The lesson from this should gear our effort toward the provision of additional by-pass for the east bound motorists (traffics). Secondly the inherited pattern of town streets with narrow carriage ways and pavements and frequent intersections was not designed for the vastly increased volumes a traffic that now overloads them. The post state creation traffic was not anticipated from the onset, at the construction of the existing access roads. Nevertheless the existing physical fabric and in particular the road pattern will remain the basis for the town's redevelopment.

Thirdly, the complex mixture of building uses attracts mutually obstructive types of vehicular traffic - cars, buses, taxis, heavy-lorries - all of which use the same main roads. Moreso there is no sufficient space available to provide for service access of lorries and vans to buildings and parking of vehicles.

## 4.30 ESTIMATED POPULATION OF LOKOJA

The population of Lokoja based on 1952 national census was 12,000 and this rose to 35,000 in 1963 with a vary growth rates of 3.15%, 4% and 6% at various internvals of year. This was as a result of the 1976 local government creation exercise and majorly because of the recent state creation. With all these the town population is estimated to 82,000.

This estimated figure is very closed to the 1991 population figure of 77.5 thousands (77,516) for the Kogi local government which comprises Lokoja and the surrounding localities. (1991 census, Lokoja NPC). Given the population of the localities put together to be under 10,000 which we assumed is balanced by about 15,000 people who were away from Lokoja during the census count, the estimated 82,000 figure can be assumed to be near accuracy.

The relatively solved accomodation in the town has brought many families into Lokoja more than ever before.

At this point an annual 6.0% population growth rate is projected for the new state capital from the year 1991 to 1995 beyond which time this spontaneous responses to the state capital is expected to stabilize to a more sustainable growth rates of 5.5% and 4.0% between the period of 1995 to 2005 and 2015 respectively. see table 4.41.

Table 4.41 Lokoja population Estimation by the year 2005

| PERIOD | ESIMATED POPULATION | ADOPTED ANNUAL GROWTH RATE |
|---|---|---|
| 1991 - 1995 | 66,200 - 83,600 | 6.0% |
| 1995 - 2005 | 83,600 - 142,000 | 5.5% |
| 2005 - 2015 | 142,000 - 210,194.64 | 4.0% (Mine) Assume medium rate of migration |

Source: Eco plan survey, 1992.

4.31 Estimated population of communities.

The six communities in Lokoja base on the existing development are:

Lokongoma ward

New layout and Barrack

Filele

Native ward

Sabon-Gari

Adonkolo

Base in the population shown in table 4.41. The share of each community can be stimated as shown in table 4.42.

Table 4.42: Estimated population of constituting communities

| Community | 1995 population estimate (nearest 000 |
|---|---|
| Lokongoma village | 10,000 |
| New layout | 15,000 |
| Filele village | 10,000 |
| Native ward | 25,000 |
| Sabon-Gari | 10,000 |
| Adonkolo village | 15,000 |
| TOTAL | 85,000 |

Source: Field survey, 1994

4.40 Estimation of the central Area size

Planning of the centre requires an estimation of the size of space for its various functions, in this direction two standards have been adopted:

1. Adopting british standard for New towns: one acre per 1,000 people for central area for town with population 100,000.

Table 4.5: Estimation of central area size by 2015: British Standard.

| Year | Population | Area in Acre | Area in Ha | Existing Area in Ha | Required add. area. |
|---|---|---|---|---|---|
| | 1,000 | 1 | 0.4 | - | - |
| 1974 | 35,000 | 35 | 14 | 11.52 | 2.48 |
| 1995 | 82,000 | 82 | 32.8 | 11.52 | 21.28 |
| 2015 | 210,194 | 210 | 84 | 11.52 | 72.48 |

From table 4.5, the existing central area = 11.52 Ha

Required central area (by 2015) = (84 - 11.5)Ha = 72Ha

Community centre population (20,000-35000) = Required (Rq) area per community = 2Ha, for 6 communities = 12 Ha

Rq area for CA 72 - 12 = 60Ha

$$\text{Rq intensity} = \frac{72 - 12}{5.83} = \frac{60}{5.83} = 10 \text{ times intensity of use.}$$

2. Using western Nigeria standard of 9-10% of total developed area for commercial area for a city less than 250,000.

Estimated area to be developed in Lokoja by the year 2015 = 755Ha.

10% of 755 (for overall commercial) = 75.9

Existing area of central area = 11.52

:. Rq area = 75.9 - 11.52 = 64.38Ha

Assuming 60% for the 6 communities = 38.6Ha which implies area for the CA = 75.9 - 38.6 = 37.272.

Therefore the expected size of the central area is 37.6Ha.

:. Given the area 5.83Ha

$$\text{The site intensity} = \frac{37.6}{5.83} = 6 \text{ times}$$

Comparing the two standards, one can see that the British expected size for the central area is 60Ha with 10 times intensity of development.

but that of western Nigeria shows a size of about 38Ha with 6 times of site intensity. Nigerian standard looks more appropriate and therefore shall be adopted for the central area in views our size of the central area shall be 37.6 hectares.

4.50 Central area space allocation: case studies

In this connection, Lokoja is subjected to a number of similar towns - Stevenage (Britain) and Gombi (Nigeria). The need here is to establish suitable space and performance standard for example, the amount of land per 1,000 people needed for public uses, sports et ceteral. Essentially it is to determine which activities should remain within the centre if it must function properly.

A. Uses in Stevenage central area

Stevenage is a new town (in Great Britain) which combines both

administrative and commercial functions. The uses in the central area are listed in table 4.51.

Table 4.51 Uses in Stevenage central area.

| Uses | Space allocated in Areas |
|---|---|
| Public library | 0.50 |
| Dance Hall | 0.85 |
| Cinema | 0.60 |
| Summing pool | 1.20 include car park |
| Youth centre | 0.90 |
| Church | 1.25 |
| Town Hall, Administrative | 2.1 |
| offices | 0.50 including car park |
| Health Centre | 1.20 " " " |
| Out-patients clinic | 7.25 |
| Town Park | 1.10 " " " |
| Apprentic hostel | 16.00 |
| Shops, Banks, T/square | |
| Offices | 11.50 |
| Head post office | 1.25 |
| police station | 1.20 |
| Fire station | 0.80 |
| Bus station | 0.85 |
| Bus Garage | 2.25 |
| Service & filling station | 1.25 |
| Car Park | 18.20 |
| | 70.75 |

Source: Lewis, K (1976)

Deduction

The separate parks for uses suggest that they are strategically located.

Stevenage central area has some forms of residency within it, also a filling station and service Garage - these are considered obstructive in many central areas. The total car park space may be too generus to be adopted in Lokoja in view of the low number of car owners relative to that of Stevenage town.

B. Uses in Gombia proposed central area

Gombi is another town which shares the same characteristic with Lokoja - has almost the same population (65,000). The town also reflect Lokoja in term of physiographic constraint, except for the absence of river in the town. As an administrative headquarter of its local government, it has varieties of functions it must discharge to its region.

Uses in the proposed central area of the town is presented in Table 4.52

Table 4.52: Uses in Gombi central area.

| Element/uses | Area in Hectare | % of total |
|---|---|---|
| Market | | 5 |
| Retail & Services | 5 | 28 |
| Bus. offices | 0.5 | |
| Hotel | 1.5 | |
| Banks | 2 | |
| Cinema | 1 | |
| Restaurants | 1 | |
| Town Hall | 0.5 | |
| Court | 0.5 | 12 |
| Library | 1 | |
| Art and craft centre | 1 | 9 |
| Museum | | |
| Central Post office | 1 | |
| Fire station | 0.5 | |
| Police station | 0.5 | |
| motor park | 3 | |
| Pedestrian pathway | | |
| Civic square | 15 | 26 |
| Parking Areas | | |
| TOTAL | 57 | 100 |

Source: Gombi Master Plan 2010

Deduction

The location of market in the central area of Gombi is a strong indication of the inclusion of traditional concept of design into its central area. Also the centre comprises suh uses as public square and Art craft. Uses such as sport centre, Hospital, light industrial service which are typical functions of Modern central areas were missed out.

Conclusion

A mere comparison between Stevenage town and Gombi shows that space provision for central area uses is more generous in

Gombi than in Stevenage, for instance, space for library which is 0.5Ha in Gombi is just 0.2Ha (0.5 Acres) in Stevenage. And for fire station, it is more in Gombi than in Stevenage town. However, there are interelated space standard for various uses for example, police station.

The obvious differences in the many instances shown can be traced to discrepancy in the planning of the two central areas. While Stevenage central area development has been conceived as a development with high rise buildings, that of Gombi was planned basically to go horizontal which of course requires more space.

Uses required in Lokoja central area

The uses expected in Lokoja central area include:

Shops, bus. offices, Hotel, Banks, Restaurants, Townhall museum, post-office, Hospital, police station, court Art and Craft centre, fire station, public square, library, motor park, cinema, youth centre, Day care centre, mini market, theatre, Government offices, sports centre.

4.60 Sustainance of Lokoja Central area

Since any town centre requires some populations that must keep it to function there is the need to see beyond the 82,000 population of Lokoja.

Therefore beyond the present population of the town, visitors can be attracted into the town via the following

avenues:

1. Tourist attractions available in the town: These attractions have the potential to bring more people into Lokoja by the time they are fully developed. The notable tourist attractions include:

(a) Lord Lugard's residence and office

(b) The spot where the Royal Niger Camp flag was lowered in 1890.

(c) Mount Patti - a massive hill towering over Lokoja with about 15 square kilometre flat top.

(d) The iron of liberty - the spot where slaves were freed in 1860 was marked with two iron poles referred to as the iron of liberty.

(e) The first primary school in Northern Nigeria built at about 1860

(f) The biggest European cementry in Nigeria - contains the remains of the European soldiers of the west-Africa force stationed in Lokoja until 1926 and those of European missionaries. Some of the tombstones in the cementries date as far back as 1867.

2. Its closer proximity to iron and steel industrial complex in Ajaokuta, the town stands in the best position to accommodate the industrial workers in Ajaokuta iron and steel complex (catchment area).

3. A junction to many Federal roads - Roads to Abuja, Benin, and Eastern parts of the country through Ankpa. In this respect the travellers along these roads can stop to rest a while in

the centre either to shop or recreate.

4. The constant daily contact from the state sixteen (16) local government areas, especially the headquarters - to transact businesses, or on government service is an additional avenue for the sustainance of the central area.

Basically the centre is expected to be sustained by both the day time and night population. Subsequently as the town gets developed and grow numerically and qualitatively, it is expected there will be a change which will bring pressure on the central area. This possibility has been safeguarded through flexibility in the design and planning of the centre.

## 4.70 CONCEPTS OF CENTRAL AREA DESIGNS

Central area designs vary in shape and sizes. Some are compact in attribute while others scattered. However, central area concepts are existing concepts that will be studied so as to enable an understanding of the variable concepts. The various alternatives are:

1. Central area within city traffic

This is the most common kind of centres which often develop along traffic routes and in most cases unplanned. The problems with this type include: enormous chaotic traffic, lack of parking spaces, lack of proper delivery points, traffic hold-ups. This could be called an incidential central area. See figure 4.5a.

2. Central area along traffic routes

Like above, this centre develops along traffic routes, problems of lack of organisation and improper utilization of landuses are visible (fig 4.5b).

3. Central area at traffic junction

The central traffic junction becomes a square while areas bounding it consists of shopping centres (Fig 4.5c).
The problem with this is that visitors park along the routes. Although most deliveries are done at the backyard of the shops, it is not convenient for trucks to turn easily. Pedestrians crossing pose a danger. However, this kind of centres are densely built and compact. The relative shopping

# CONCEPTS OF CENTRAL AREA DESIGN

1. CENTRE WITHIN CITY TRAFFIC

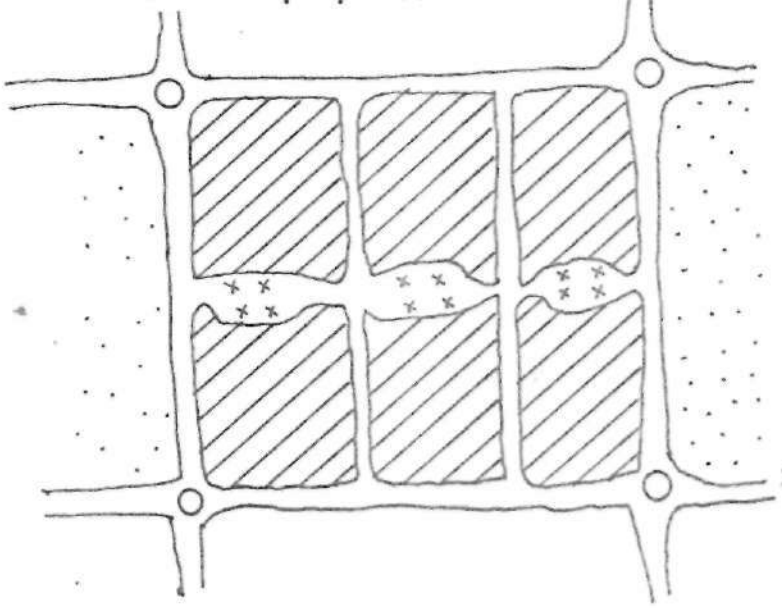


FIG. 4.5a

2. CITY CENTRE ALONG TRAFFIC ROUTES

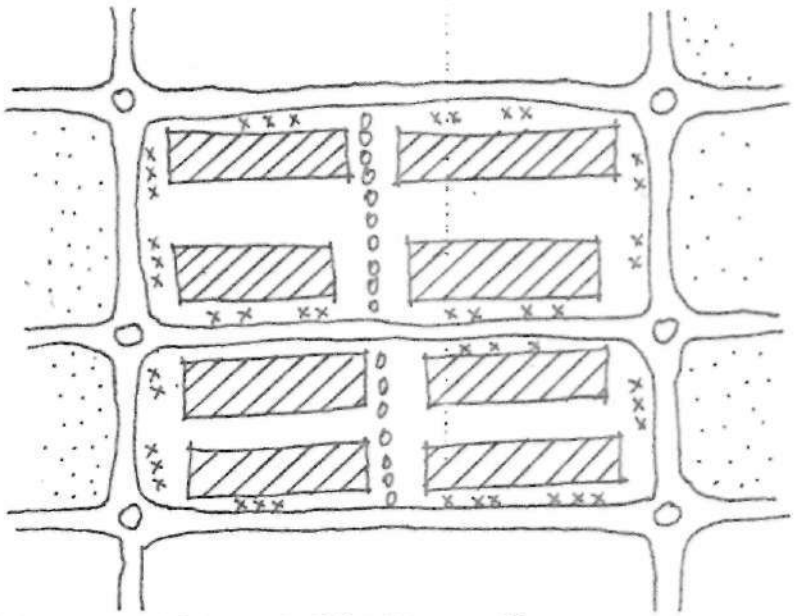


FIG. 4.5b

3. CITY CENTRE AT TRAFFIC JUNCTION

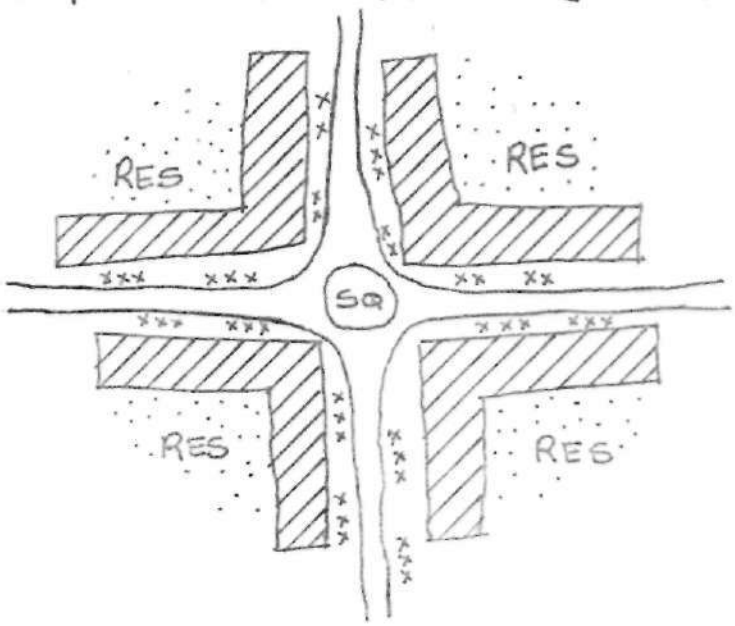



FIG. 4.5c

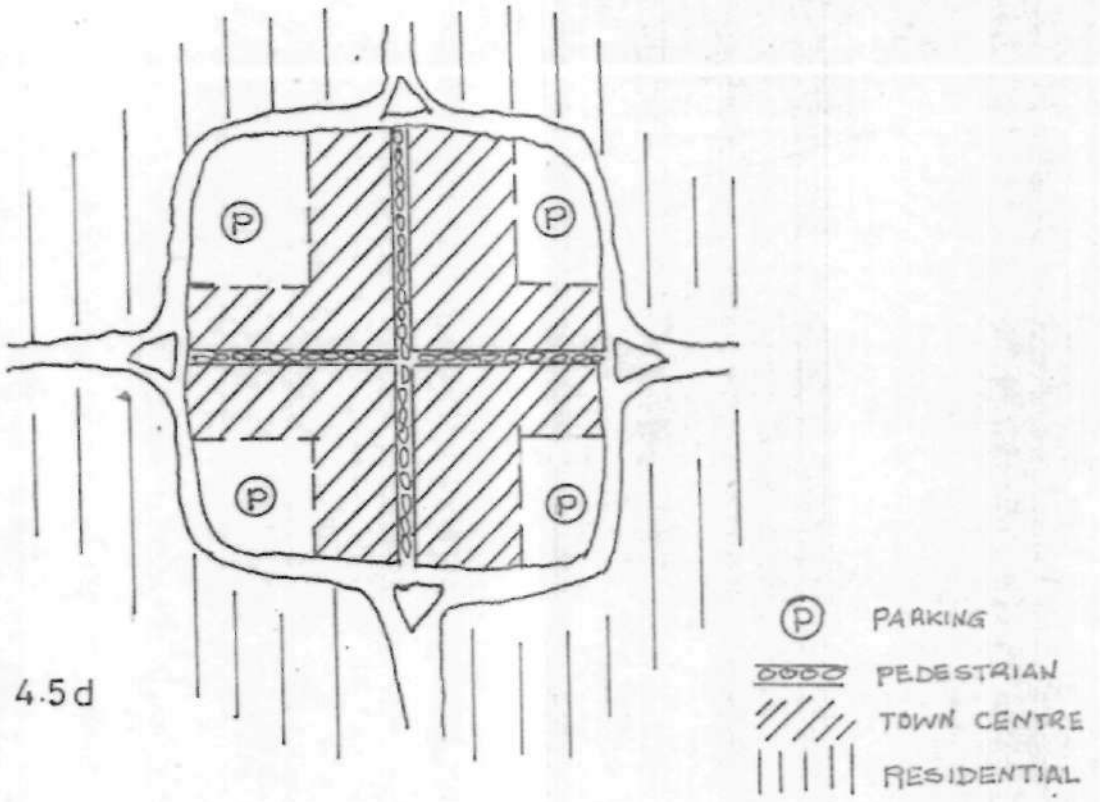



FIG 4.5d

4. PEDESTRIAN PRECINCT, PARKING ENCLOSED BY RING ROAD.

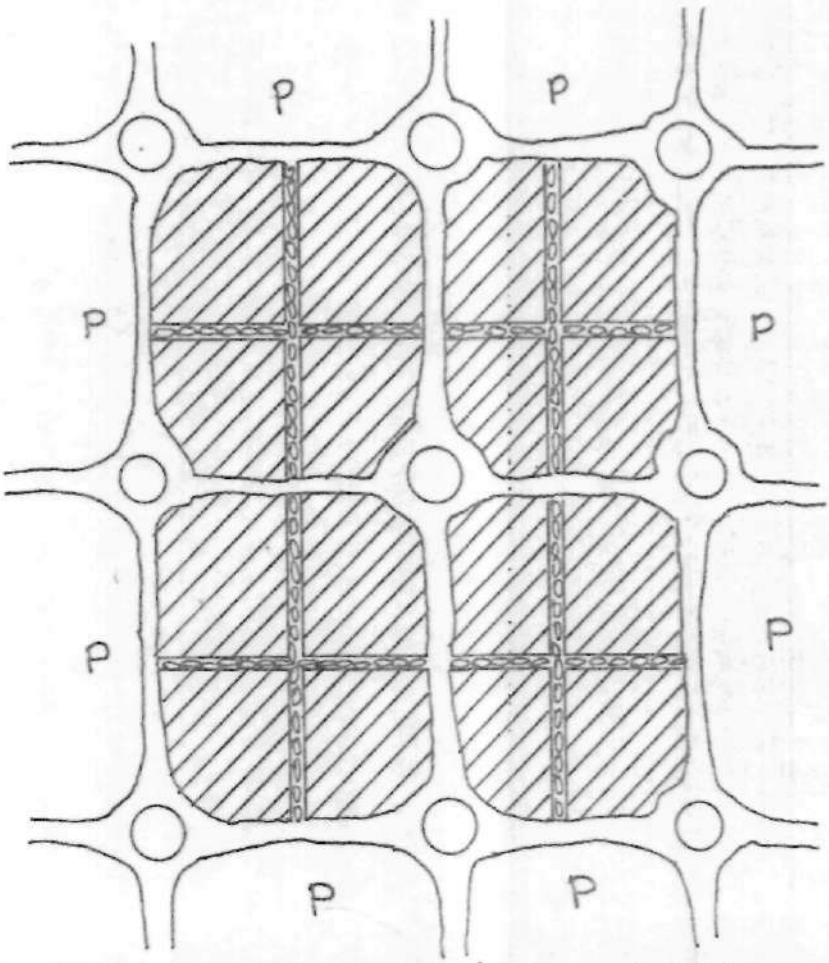



FIG. 4.5e

5. PEDESTRIAN PRECINCT + VEHICULAR TRAFFIC

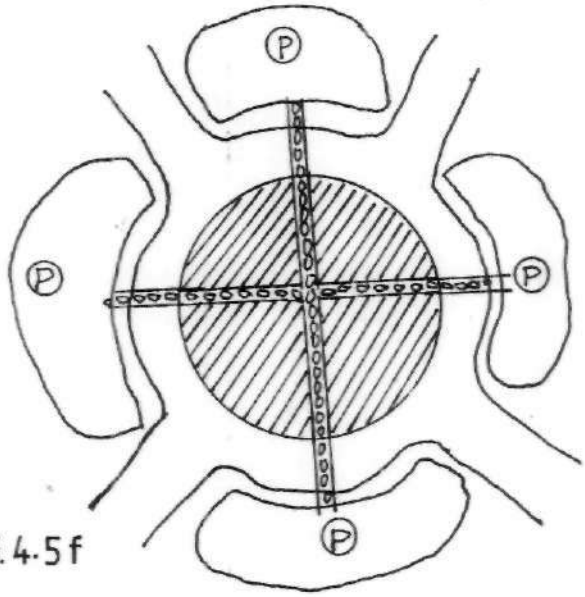



FIG. 4.5f

6. PEDESTRIAN PRECINCT, CENTRALISED CENTRE WITH PARKING SURROUNDING

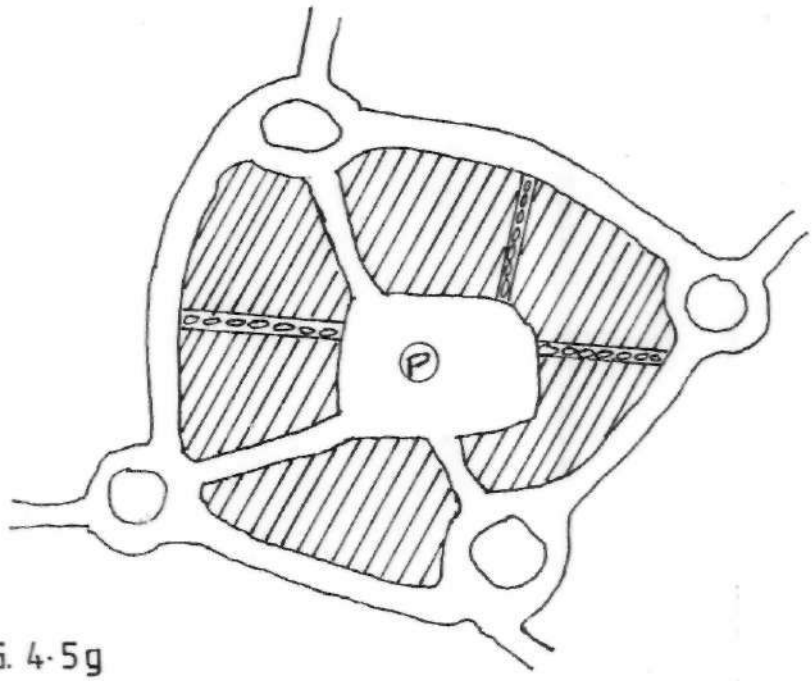



FIG. 4.5g

7. PEDESTRIAN PRECINCT, PARKING ENCLOSED BY CENTRE.

distances are reduced to minimum.

4. Pedestrian precinct with parking enclosed by ringroad

figure 4.5d depicts this type of centre. Here the vehicular traffic is completely separated from the pedestrian traffic. It offers the pedestrians the opportunity to shop round without bordering to think of crossing a vehicular traffic way. This concept like others, poses some problems, noticeable among them is that of servicing the shops with goods.

The free and peaceful shopping made by pedestrians could be further enhanced by integrating squares and playing ground within the centre to make it more interesting.

5. Pedestrian Precinct with vehicular traffic

Here only the peace of pedestrians are disturbed by motor traffic as depicted in figure 4.5e.

6. Pedestrian precinct - centralised centre with parking surrounding.

This is typical of most America central areas. There is a large parking spaces all round the shopping mall or centre. (fig.4.5f).

7. Pedestrian precinct with parking enclosed by centre

This kind of central area is very practical in the sense that the parking areas could easily be used also as delivery point. Visitors after parking could comfortably walk into the centre and do their shopping without vehicular interference. The problem here is that parking spaces meant for delivery trucks

could at the time of delivery be occupied by visitors cars. (fig. 4.5g).

Conclusion

By way of summary, it must be emphasised that in any central area one of those concepts must be existing whether in a distorted form or in a more comprehensive planned method. And to design for a central area, only one of the various concepts can be adopted at a time.

Looking at Lokoja proposed central area site, the pattern has the attribute of a central area along traffic routes or within the town traffic, and in view of the problem associated with such concept it shall not be adopted. The plan for the proposed site is to become a pedestrianised centre.

Against this background an evaluation method has been developed to choosing the most functional and adoptable concept that would harmonise with the site, that is, blend with the site existing situation.

4.71 Evaluation of the design concepts for Lokoja central area

The three design concepts which are subjected for evaluation and which also can blend with the existing situation of the proposed site are:

1. Pedestrian precint with parking enclosed by ring road - Alt '1'
2. Pedestrian precinct with parking surrounding the centre - Alt

3. Pedestrian precinct with vehicular traffic - Alt '3'

Goal and objective for evaluation

a. flexibility of design concept with the site

b. induce interaction

c. Optimum use of facilities

d. Efficient circulation

e. Vehicular effect (pollution)

f. Introduction of traditional concept of design

g. financial feasibility

h. safety of users.

Table 4.6: Evaluation of design concepts for Lokoja Central areas.

| Evaluation criteria | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| a) flexibility of design | 2 | 2 | 3 |
| b) induce interaction | 3 | 1 | 2 |
| c) Optimum use of facilities | 2 | 2 | 1 |
| d) Efficient circulation | 3 | 3 | 1 |
| e) Vehicular effect(Pollution) | 3 | 3 | 1 |
| f) Involving traditional design | 3 | 3 | 2 |
| g) Financial feasibility | 1 | 1 | 3 |
| h) Safety of Users | 3 | 2 | 2 |
| TOTAL SCORE | 20 | 17 | 15 |

Source: 3 is very good; 2 is good; 1 is fair
maximum possible score = 24; minimum possible score = 8

From table 4.6, it is obvious that alternative '1' (that is, pedestrian precinct with parking enclosed by ring road) appear

best having about 20 out of the maximum possible score. Next to it is alt.2, 17 out of 24. The least score goes to alternative '3' with 15 score.

Alternative 1 shall be adopted with little modification for the layout design of the proposed site.

4.80 Site Analysis of the proposed centre.

The existing site is partly built upon and partly undeveloped as shown in Figure 4.6.

Location and size: The site which covers a total area of 37.375 Hactares or 373,750 square metres is borded by Fell Road in the West, Murtala Road in the East, Lord Lugard road (by the Nigeria police headquarter) in the north. The Area Portrays a beautiful scenery when viewed toward the Niger River, and the eastern sunrise.

Soil Suitability: The undeveloped portion is fairly drained with a stream (seasonal) running through it. The soil is suitable being an area of exposed metamorphic and igneous rocks.

Gradient: The contours of the area indicate an area height of between 200-250 feet above sea level (a.s.l), hence the site gradient is between 2 & 3%.

The downward slope of the area (toward Niger River), suggests that a good channelization will be required to cater for the yearly flood which normally arise from rainfall especially between the months of June and October.



PLATE II : Recreational facilities and shopping arcades existing side by side.



PLATE III : Prototype shops by Kogi Properties in the proposed site.




FIG. 4·6

Simon, R.F. Msc thesis '94

**THE PROPOSED SITE EXISTING USES**

Existing uses: The existing functions of the area include Government offices, shopping arcades, court, sport field, police force headquarters, post office, and Hospital. The core is occupied by the government offices - Department of Physical Planning and land Survey, Ministry of Agriculture, Finance and Economic development Ministry, Agricultural Development Programme (ADP) (see plates II & III).

Most of the elements (structures) on the site were built during colonial period, but were later reconstructed at the dawn of the state creation in 1991/92. The site was to fulfil an urgent office accomodation for the state government workers, thus the government offices emerged out of the state government curiosity to providing office accomodation.

Density:

Total Area cover = 37.375Ha

Total built area = 12.88 Ha or 34.5%

Net undeveloped = 24.487 Ha or 65.5%

Developed intensity = 2.9 times

Table 4.7 Shows the percentage of total space of occupied by each of the site.

| | Existing uses/Functions | Area $m^2$ | Area in Ha | % of total | Proposed Uses |
|---|---|---|---|---|---|
| 1. | Offices: | | | | |
| | | 13,000 | 1.3 | 3.47 | shop |
| | Governor office | 7,700 | 0.77 | 2.06 | " |
| | Ministry of Agric. | 3,500 | 0.35 | 0.94 | " |
| | Ministry of Finance | 3,000 | 0.3 | 0.80 | Govt.Off |
| | Agric. dev. Prog. | | | | |
| 2. | Shopping arcades | 2,000 | 0.2 | 0.53 | Existing |
| 3. | Recreational | 21,850 | 2.185 | 5.846 | " |
| 4. | Circulation | 30,000 | 3 | 8.02 | " |
| 5. | Health | 23,000 | 2.3 | 6.153 | reconst. |
| 6. | Post Office | 1,080 | 0.108 | 0.29 | existing |
| 7. | Open spaces | 244,870 | 24.49 | 65.5 | " |
| 8. | Court | 112,50 | 1.125 | 3.0 | " |
| 9. | Police (NPF) | 125,00 | 1.25 | 3.34 | " |
| | | 373,750 | 37.375 | 100 | |

Source: Field Survey March 1994

4.90 Schedules of Requirement

Table 4.8

| Facilities | No. required | No. exist | Area in Ha | Pop. to Serve | Remark |
|---|---|---|---|---|---|
| Civic & Adm. | | | | | |
| Library | 1 | - | 0.8 | 40,000 | Provided |
| Court | 1 | 1 | 0.8 | The town | existing |
| Museum | 1 | - | 0.38 | " | Provided |
| Arts & Craft Centre | 1 | - | 1.2 | " | " |
| Town Hall | 1 | - | 0.6 | " | " |
| Theatre | 1 | - | 0.5 | " | " |
| Youth centre | 1 | - | 0.5 | " | " |
| Comm.& Bus. | | | | | |
| Veg. Market | 1 | - | 0.75 | " | " |
| Shop(Retail) | - | 2 | 4 | " | existing |
| Prof Offices | - | - | 1.6 | " | provided |
| Hotel | 1 | - | 0.72 | " | " |
| Bank | 2 | - | 0.46 | 20,000 | " |
| Cinema | 1 | - | 0.6 | " | " |
| Restaurants | 4 | - | 1.0 | The centre | " |
| Light indust. | 1 | - | 0.8 | The town | " |
| Pub.Ser.&Fac | | | | | |
| Central post office | 1 | 1 | 0.42 | | existing |
| Police station | 1 | 1 | 0.8 | " | " |
| Fire station | 1 | - | 0.5 | " | provided |
| motor park | - | - | 0.72 | The centre | " |
| Sport centre | 1 | 1 | 6.21 | " | integrat |
| Hospital | 1 | 1 | 2.3 | The town | " |
| Govt. office | 1 | many | 1.32 | " | convert |
| Tender care/Nursary | 1 | | 0.4 | The centre | provided provided |
| Open spaces | | | | " | " |
| Pedestrian pathways | - | - | - | | |
| org. space | - | - | 0.2 | | " |
| public square | 1 | - | 1.0 | | " |
| parking area | - | 1 | 2.2 | | " |
| Roads | - | - | | | existing |

# CHAPTER FIVE

## 5.00 THE CENTRAL AREA DESIGN PROPOSALS.

### 5.10 Approach to distribution of uses in the centre.

Working by the already established uses in the site proposed (that is, the sportfield and the General hospital), three distribution methods of uses have been evolved. These are:

1. Radial approach

   In this arrangement shopping centre and public square are centralized and are surrounded by other uses such as civic, offices and other public uses.

   The aim here is to create a vista with the centre interior thereby giving an attractive appearance to the centre (fig.5.10).

2. Peripheral approach

   In this method there is a peripheral zone for shopping, civic and public functions with only the square forming a focal point at the centre.

   It is hoped that such zoning of uses will bring harmony to the whole environment and also create externality where the functionally related uses can benefit from each other.

   Also, shopping centre which is expected to be a congestion-prone use is located at the edge of the centre (fig.5

3. Mixed approach

   Under this approach, it is proposed that the square be located at the edge leaving the public administration at the centre.

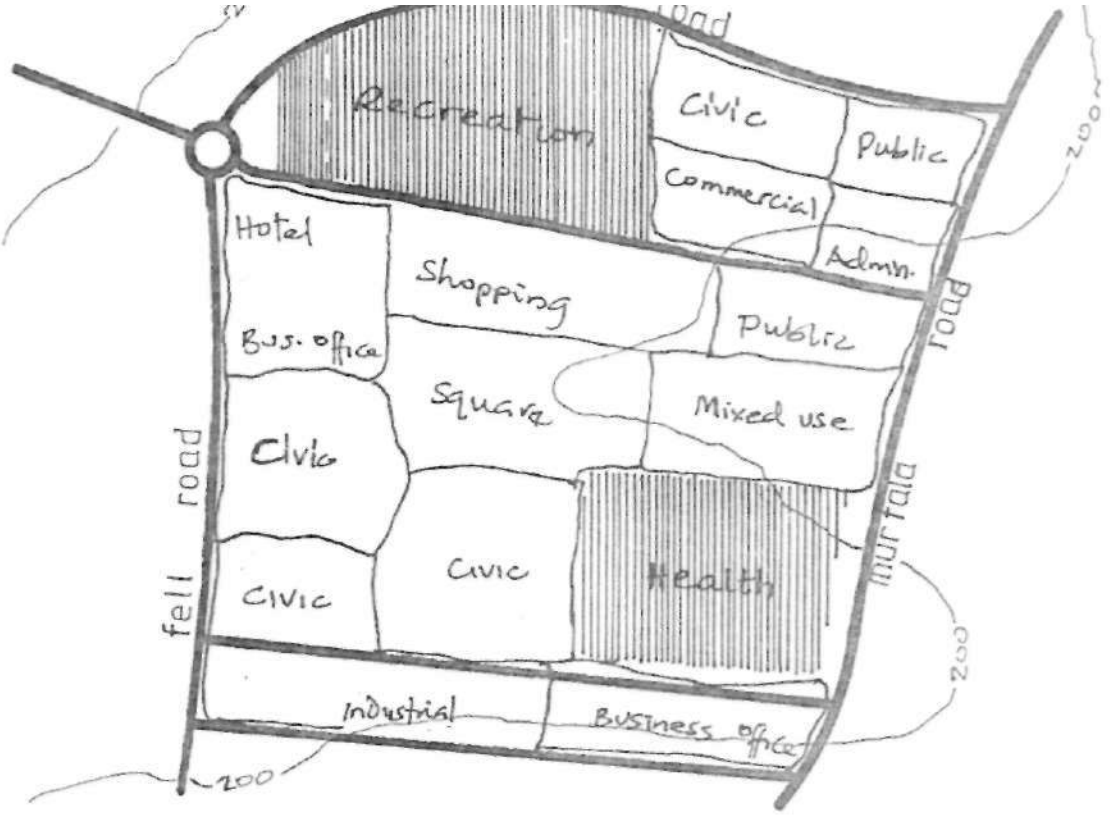



Fig 5.10 Radial approach of distribution.(Alt. 1)

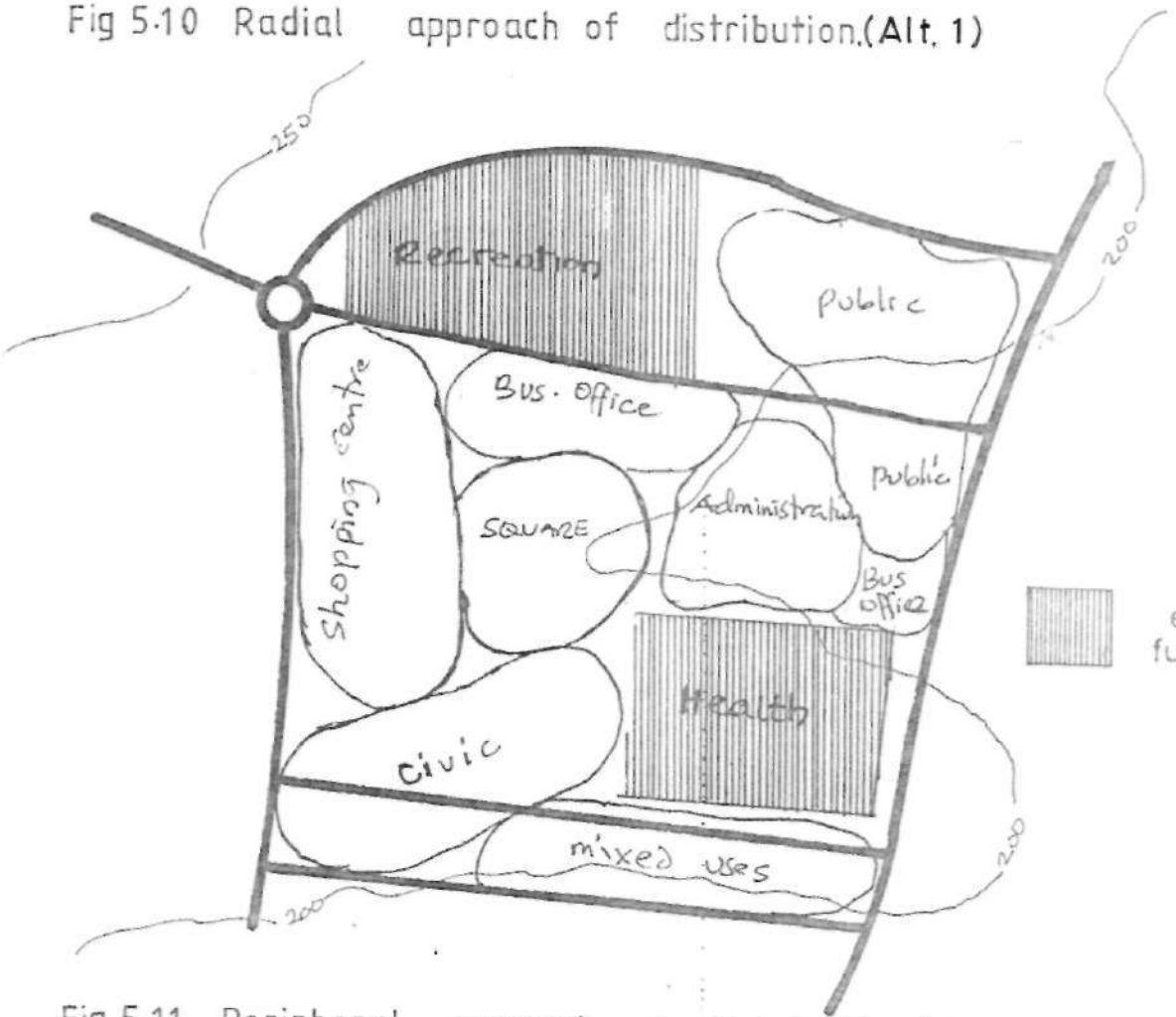



Fig. 5.11 Peripheral approach of distribution (Alt. 2 )

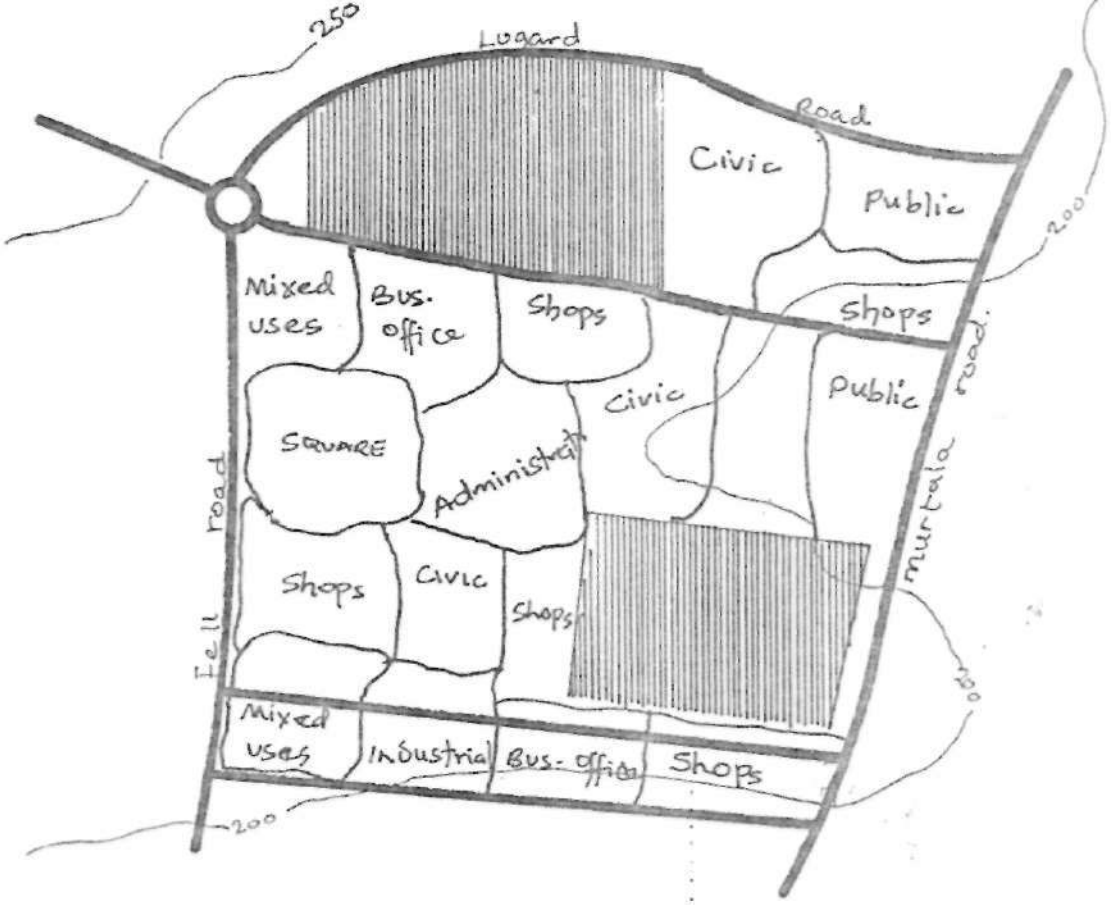



Fig. 5.12 Mixed approach of distribution (Alt. 3)




Fig. 5.13 Final draft of alternative one (1)

This approach negates the uses zoning method. It proposes that functions should be mixed together in such away that shops can be located within public or civic uses. In this connection, it is expected that such approach would reduce time wasted in walking from one zone to another (figure 5.12).

Each of the alternative though seem likely to give a satisfactory result, it is still possible to evaluate their viability and functionality with a view to selecting the best.

## 5.11 Evaluation of the approaches

Factors of evaluation include:

a. Convinience of users

b. Safety of users

c. Externalities (economy of agglomeration)

d. Congestion

e. harmony with the environment

Table 5.0 Evaluation of distribution methods

| | Evaluation factor | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|---|
| a. | Convinience of users | 3 | 3 | 1 |
| b. | Safety of users | 3 | 2 | 1 |
| c. | externalities | 2 | 2 | 1 |
| d. | congestion | 2 | 2 | 3 |
| e. | harmony with the env. | 3 | 2 | 1 |
| | Total Score | 13 | 11 | 7 |

463633

Scoring methods: 3 is very good; 2 is good; 1 is fair.
max. possible score is 15; min. possible score is 5.

From table 5.0 , it is glaring that alternatively is the best. Alternative '1' which has 13 scores is far the best. Alternative '2' follows with 11 scores. The least score goes to alternative '3' with 7 scores.

In view of these scores, alternative '1' is recommended for the central area.

## 5.20 DETAILED ELEMENTS OF THE CENTRAL AREA DESIGN

The detailed layout design of the central area as shown in figure 5.20 is a reflection (or placement) of the various elements contained in the schedule of requirement (table 4.8). Several considerations governed the design concepts:

a) Traditional elements. The design of the centre is based upon the traditional concept of open space or square which forms the focal element of the area. The square so provided is to serve a multi-purpose functions such as socio-cultural, religious and political functions.

b) Indegenous design principle. This is acceptable to the people since the central area design aims to integrate the present uses with the existing situation of the town, particularly the land uses around the centre.

Uses are located such that functional relationship with the surrounding landuses are achieved. Moreso, the centre is conceived as a pedestrian precinct in order to achieve

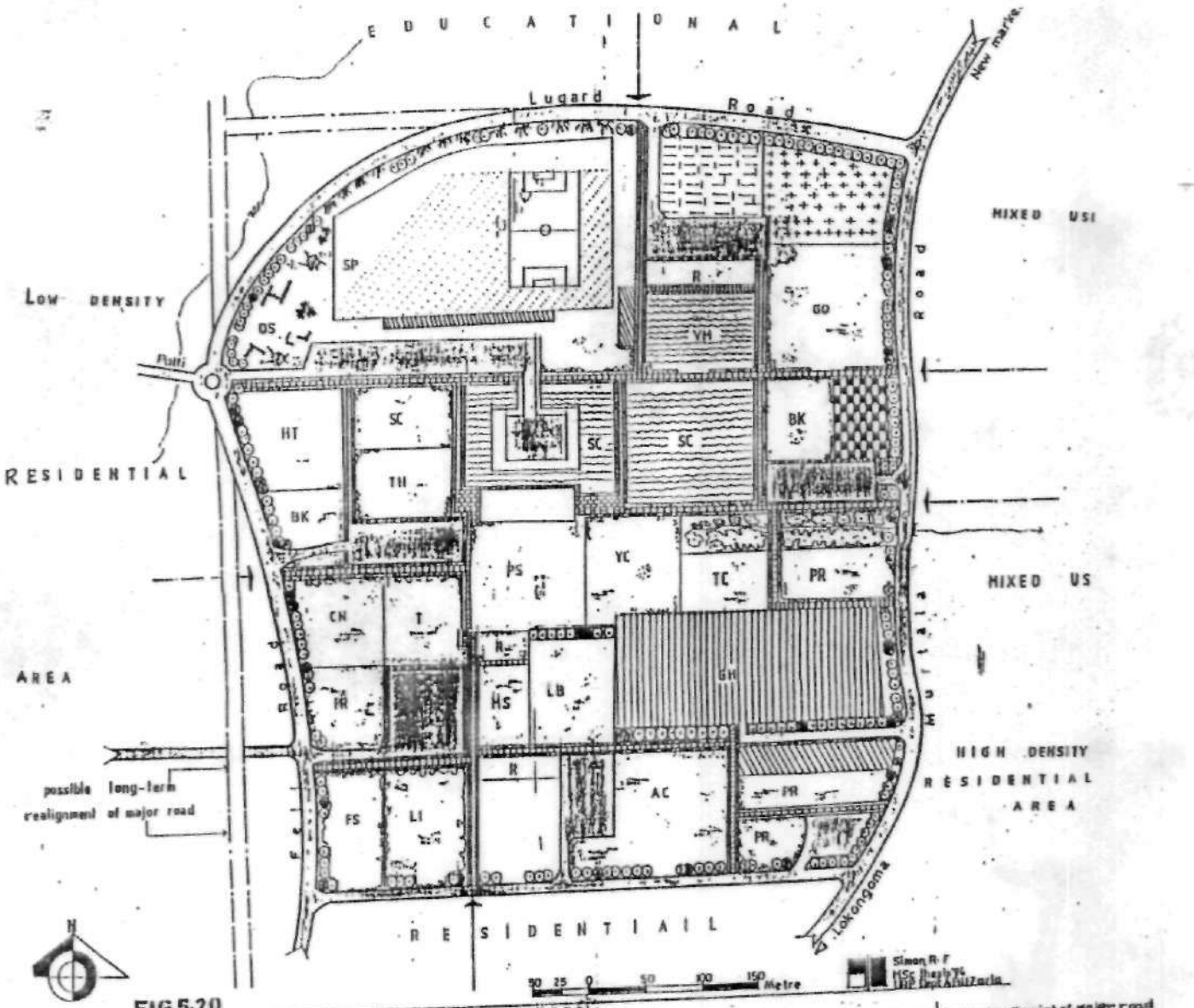



FIG.5.20

EXISTING USES

- shop
- hospital
- govt office
- sport centre
- court
- police station
- post office

PROPOSED USES

- SC shopping centre
- MS museum
- Bk bank
- DC day care/hse.
- LB library
- LI light industry
- AC arts/craft cent
- PO prof/bus.office
- T theatre
- YC youth centre
- R restaurant
- FS fire service stn.
- HT hotel
- TH townhall
- OS organised space
- major road
- car park
- GO govt office
- VM veg.market
- PS public square
- possible future realignment of major road
- principal pedestrian area
- approach route
- feeder's to car park
- green area

# LOKOJA PROPOSED CENTRAL AREA DESIGN

functionality, convenience, safety and attraction.

On this basis the design suggests an improvement of road geometry, reconstruction and termination of some roads in the centre to create harmony for pedestrian circulation.
Also there is consideration for centralization of some basic functions and provision of parking facilities for purposes of giving the central area a unified civic composition and aesthetic disposition.

5.21 The structure of the central area

The centre as shown in the proposed detailed plan is structured in such a way that uses are distributed to harmonise the whole spaces. The major uses are distinctly zoned:

i) Commercial (shopping) zone: This is the major shopping centre of the centre, located at the central position of the centre. It adjoins the public square and sited right opposite the sports arena. Along the same axis is the Hotel which is also strategically located.

ii) Civic and Administrative zones: This comprises such uses as library, Town hall, Government offices, court, Art and craft centre and museum. Here two major zones were used for these civic uses - one is the central location, close to the square and the second at the North-western part. With this method of grouping, monotony is defeated.

iii) Mixed Landuse: There are also some landuses that are inter

mixed. Among these are the professional (Business) offices (located in different part of the centre). Other public services and facilities, post office, police station and fire station service - all are evenly located in view of their roles to the centre's users.

Certain uses which could not be easily altered are left in their original location.

Parking spaces for vehicles are provided in some strategic positions to serve either a major use or group of uses in the centre. That is, the mixed shopping or the recreational zones. The locations of such parking lots is such that they can be controlled by those functions they serve.

Table 4.7 had shown the reorganization of the existing uses in the centre.

## 5.21 Design Principles and Criteria

The three urban design principles employed in the renovation and general re-organisation of the site are:

alteration - that is, the changing of one use to another;

accentuation, in other words, the upgrading of particular uses to meet up with desired standards. All these are necessary since the existing elements in the site were not formerly planned in a conventional way. In short, all the offices in the centre were hurriedly constructed to meet the urgent office accommodation need of the state government at the early stage of the state creation.

The third design principle is that of adoption. Many elements were integrated in the centre's design. Such elements (structures) which also shall remain in their existing location and forms include the recently constructed shopping acades along the Hospital road and those at the main entrance of sports centre. Both the General Hospital and the sports centre are left in their original location with little modification in their forms. The reason for this is because their locations agree or comform with functions locational principles of central area planning. Also the huge investment in those uses militate their relocation.

The hospital is already sited where both peace and access are guaranteed. The location of the sports centre enables an expansion to the existing facilities of the centre. High parking index is also provided both for the vehicles and scooters alike around the sports centre.

In order to achieve the plan of the centre development, various design criteria (objects) were set as guidelines, they include:

) Attractiveness: It is believed that central area elements are unique in character and in outlook. Therefore the centre should be the most highly organised, most architectural and generally those which give the greatest impression of town environment. The modern day central area need to exhibit such uniqueness in a greater dimension - one from which arises an emotional delight and a lasting memory in the minds of

visitors.

The landscape features of the proposed centre portrays a romantic outlook when viewed from western-end towards the Niger river. In the planning of the centre, efforts have been made to achieve some visual order of uses. In the central position, is the main shopping complex and the square with other uses surrounding it.

The civic uses are evenly spaced in an attempt to mitigate monotony of sight. Added to the pleasant outlook of the centre is its landscaping texture: flowing trees and shrubs are planted to enhance the quality of the environment and thus moderate the town's hot micro-climatic condition.

ii) Functionality: This design criterium governs the grouping of like functions with a view to achieving maximum internal interaction and harmony with the surrounding uses. For instance a group of functionally related buildings are grouped for their mutual benefit, for example, the library and museum. Business (professional) offices are located where they can be easily reached by those seeking for such services.

majorly congestion - prone uses like shops are mostly cocentrated in the interior, where the users, safety particularly from wheeled vehicles is at best.

iii) Accessibility: The effectiveness of any urban economy is a function of its circulation. In the like manner for any central area to function, it must be linked with the different segments of the city.

With all these in view, the centre linkage with other parts of Lokoja has been considered. The three existing access roads that connect the centre with the town that is, fell, Lugard and Murtala roads are to be upgraded to highways status. With this tendency, delay and congestion arising from narrowness of road widths are seriously overcome.

The whole centre can be approached by pedestrians in different direction without any interference with motorists.

Most of the parking lots are situated right inside the centre - some few metres away from the major traffic roads. The aim here is to ensure that the layout meets access requirements for deliveries, furniture removal, ambulances, refuse collection and fire fighting services.

iv) Economy: This design criterium seem to be more considered in the development of the centre. The cost of constructing a new central area on a virgin site would have been more than the piece meal development in the proposed site. In which case the adoption and integration of some existing structures in the proposed site would thus be more preferred by the state government.

In the reallocation (or conversion) of the existing structures in the centre, adequate effort is taken to see that each allocated structure fits the use to which it is put. For example, the governor's office is converted into shopping complex, and it is suitable for the new uses.

v) Flexibility: As much as possible some levels of security have

been created for the centre to enable it handle any developmental change. The whole area is so planned as to accommodate sudden changes and re-organisation when such are deemed very necessary.

For example, the major artery at the west-end (fell road) of the centre can be re aligned to meet possible future demand. And if this is done, much space is thus reclaimed for the central area.

Another possible way of accommodating an unforseen changes is through the introduction of vertical development into the centre. In this arrangement both shop and Business office can share the same building block while the shops occupy the ground floor, the Business offices control the upper floor.

.30 Proposal for utility and service system.

These underlisted proposals take full account of the projected economic developments of Lokoja and the financial returns of the centre when it is fully developed.

i) Storm water Drainage: Many parts of Lokoja would require channelization if they must be developed. The proposed centre is not an exception being a slopy area with topographical gradient of between 2 and 3 percent. Much as the physiographic conditions of the site are favourable for water run-off (gravitation) especially toward the Niger river it is essential to construct storm water channels in the centre.

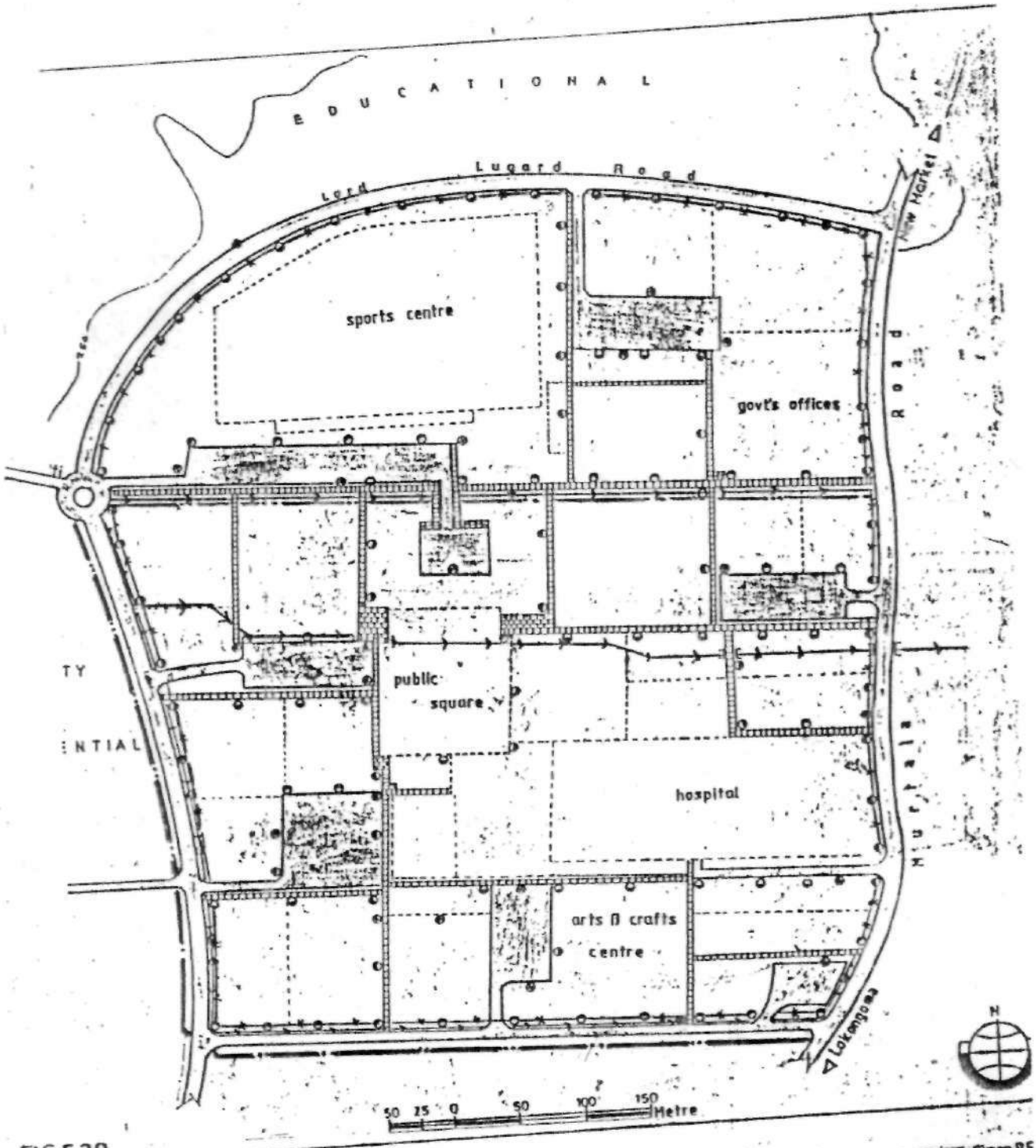



FIG 5·30

PEDESTRIAN WAY
ROAD
PROPOSED USES' BOUNDARY
MAJOR STORM DRAINAGE
" POWER DISTRIBUTION
MAIN WATER "
FLOOD LIGHT
GARBAGE RECEPTACLE
CAR " PARK

Steven RF
M.Sc. Thesis
URP DEPT

# THE PROPOSED CIRCULATION, UTILITIES & SERVICES

The central channel that runs from the public square and shopping centre are to be emptied in the existing stream in the green area.

All the channels are to be covered with concrete.

ii) Fire services: The major fire service is situated at the south-western corner of the centre, along Fell road. This location is strategically chosen so that the fire tenders can take full advantage of the major road to reach any part of the centre as quick as possible in case of fire outbreak.

It is however, recommended that the major public and shopping complexes be provided with some fire extinguishing equipments in their enclosure.

iii) Electricity supply: The two types of electricity network distribution methods: surface and underground are likely to be work in the centre. However if the surface network distribution should continue to be in use, as it is existing, then conscious efforts must be made to avoid trees planting at a distance less than 6 (six) metres off the NEPA tension cable path. Surface network distribution has been recommended for the centre since it costs less to maintain it.

Parking lots and pedestrian ways are provided with flood light. This is for the purpose of safety and utilitarian functions of the centre especially in the night time. NEPA has the monopoly of power supply, as such they are expected to handle the redistribution of the power and its every technical detail.

iv) Solid waste disposal: Much as the centre is been freed from vehicular traffic, there is the need for alternative methods of clearing debris or refuse in the centre. In this connection, all the parking lots are provided with garbage receptacles so that refuse wagons can reach out to them for onward transportation to the dumping site.

It is suggested here that the rubbish wagons so provided work between 6a.m and 8a.m or 5 to 6.30pm, and essentially during the general sanitation day when the centre is less congested and engaged.

Water supply distribution: Distribution is made to every available building and to all the parking spaces. It is expected that priority be given to those services that require water to function, for example, laundry, restuarants and light industries.

The major pedestrian walkways are also provided with water points. This enables constant care of flowers and shrubs planted along the routes. see figure 5.30.

## 5.40 CONCEPTUAL FRAMEWORK FOR THE DESIGN.

| | | Requirement |
|---|---|---|
| 1. | Rapid economic development and changing needs. | 1. vehicular road improvement |
| 2. | Socio-cultural heterogenity | 2. New business and civic functions. |
| 3. | modern concepts of social organisation and order. | 3. pedestrian linkages |
| | | 4. Landscaping (planting of trees and shrubs. |

| Design principle and conept | Design criteria. |
|---|---|
| 1. Compactness and development due to highland value | 1. Attractivness |
| 2. High parking index due to high traffic volume | 2. Functionality |
| 3. Open spaces and square to conform with traditional concepts. | 3. Accessibility |
| 4. Environmental area concepts (pedestrian precincts or cells). | 4. Economy |
| 5. Unity and Conformity | 5. Flexibility |

**Design proposals**

1. Provision of mixed landuses and fundamental overlapping.
2. Relationship of landuses and transporation
3. Pedestrian walkways landscaping
4. Realignment of all major roads to accommodate more traffics.

5.60 POLICY PROPOSAL FOR USES DISPLACEMENT

In most Nigerian town centres there are uses, particularly markets which have no need to be in the central Area and which prevent it from functioning satisfaction, but which there is no prospect of moving for many years. Meanwhile, buildings which are urgently needed in this central area may not be represented there at all. In the light of this fact and the universal pursuance of a policy of certain

central uses' decentralization the following congestion prone uses are hereby recommended for relocation outside the confine of the centre. These include petrol filling station, large places of worship such as central mosque, church and shrine; market and residential uses.

(a) Petrol filling station and Repair Garages: These uses vary from selling petrol, oil, lubricants and carrying out of minor repairs to regular servicing.

They represent a possible traffic hazard as well as a noise nuisance and fire risk to neighbours. The recent petroleum scarcity which resulted in many vehicles having an indefinite queue around the petrol station is a serious challenge to the town planners. There is thus a need for a re-appraisal of our Petrol stations location especially in a prime location like the central area.

A petrol station usually need a prominent site with a generous frontage of about 150-200ft (46-61m). Apart from the negative effect those uses could have on both circulation and safety of traffics. It has been discovered that such space standard are too generous in Nigeria situation. Also most of the filling stations in our central areas compete vigorously with intenerant traders. This situation is not healthy enough for any developing nation. The petrol filling stations located in the heart of Kaduna central area have been razed down several times by fire.

(b) Places of worship: These include churches, 'central' mosque

and shrine. In Britain, christian churches buildings have occupied central-area sites in great numbers over many centres. Today, there are large measure of decentralization of pastoral and social work to the suburbs, leaving central area building under used or unused. This has created difficult problems of alternative use for the buildings many of which have considerable architectural or historical merits (Gerald, 1978).

The fact that most Nigerian central areas are constantly victims of congestion during particular times especially on worship days and religious festivals is an enough excuse for such uses decentralization to areas outside the confine of the central areas. At any rate, one wonders why such uses should be situated where no sizeable congregation is in residence. Although those places of worship symbolize spiritual unification of the city dwellers where they are established and that is not to say that spiritual unification has a geographical boundary as we are made to believe today. Among the Nigerian cities that have had their central areas partly occupied by public worships are: Zaria (traditional area), Ilorin and Minna.

(c) Traditional Market: It is a common occurence in most Nigerian cities to find traditional markets on the same site with central areas. Although historically the morphological growth of many cities particularly the central areas started from market centres. Today most Nigerian cities, for example,

Ibadan, Kaduna, Maiduguri and Minna have suffered the consequences caused by such mixed uses. There are now evidences of traffic congestion, space competition and environmental degredation around those centres. It is recommended here that such traditional or regional commercial uses be relocated in a separate area.

(d) Residential use: The modern central area is becoming less and less suitable for residential purpose as a result of pollution especially the rangling of vehicles and the visitors and moreso because of land scarcity especially here in Nigerian cities where residential buildings are being converted to commercial uses.

Also the small towns and large cities have the large proportion of their central areas intermixed with residential use. It is not uncommon to find a building (storey) being used for both residential and commercial purposes.

Inspite of the consequences of this to the living environment there have arose arguements that some people will still need to live in the central area in order to do their jub satisfactorily, among those are caretakers, (securities), workers in hotel, entertainment, hospital.

From the point of sectorial planning such uses can be accommodated but not the actual residential building.

The reason why most Nigerian central areas have been seriously intermixed with residential uses is because they were not planned formally. This is the case with most old traditional

cities like Oyo, Ibadan and Zaria. The intermixture has also been traced to their morphological development. In otherwords their inner cities grew organically around particular elements such as mosque, palace and market. And as those towns began to grow from one level of status to another, it becomes a problem to correct some of the already established elements (uses) either by way of total demolition or redevelopment. In view of the gravitational effects of those uses as enumerated above, it is hereby recommended that such uses be excluded from our present day central areas. This new orientation of decentralization is highly relevant for the healthy growth of Lokoja central area.

# CHAPTER SIX

## 6.00 IMPLEMENTATION POLICIES

Implementation of this scheme like any other should be properly monitored to avoid detraction which can lead to a premature failure. In the whole the scheme shall be carried out under this framework: This involves:

1. Organization of suitable controls to ensure that proposed development/services fit in with the plan.
2. Carrying out an investment programme to provide public services.
3. Working out suitable sequence of action to ensure that related projects (developments) follow each other as required.
4. And ensuring that such development (projects) is carried out within its schedule before the end of the planning period.

## 6.10 IMPLEMENTATION MANAGEMENT STRATEGIES.

In many countries of the world, central area administration is often isolated from the generally accepted city administration, in which case the agencies responsible for the administration of the central area are autonomous and have little or no interference with the supposedly town planning authority. This system has been found to be very effective in central area development and enables a non division of attention in such development.

The system which seem to be generally accepted or rather in

use in developing countries especially here in Nigeria is that the planning set-up controls both the physical developent at all levels. In the act of Town and country planning, the administrative set up of physical planning implementation cut across every section or level of planning whether micro (for example city centre etc) or a larger dimension such as master or regional plan.

To effect implementation of plans, most Nigerian states have instituted physical planning boards to monitor such implementation and the sequencial growth of their cities. No such separate administration has been instituted purposely for central areas. Development of central area has never been given any serious consideration. This laxity has been justified from our non-chalant attitude toward central area development. There has been little Government investment on such development and as a result no city has really got its central area planned in a conventional way.

In this new order, it is suggested that for an attractive and economic return our central areas must be well planned and possibly managed in accordance to that of United State strategy. Administrative framework of such will involve a combination of physical development agencies, different profession and local administration which would work as an entity. The same body would see to the implementation of any scheme within the confine of the central area development.

6.20 Scheduling and phasing of the proposed plan.

In view of enormisity and detail work that are to be done in the proposed plan which can not be carried out at one shot, the whole scheme therefore has been phased such that it will be implemented over a period of four (4) years. There are 4 main phases, the first of which is due to go into operation in 1995. Below is a general indication of the timing of the schemes.

1995 - 1996 provision of new open space and preliminary work on the central circulation proposals including pedestrian walk-ways.

1997 - 1998 First two stages of the transport linkages, road expansion commencement of shops/office reconstruction, arts centre, civic offices, public hall and parking.

1999 - 2000 Commencement of further shops, offices, entertaiment, facilities and construction of storm drainage, sewage network, and Electricity distribution network.

6.30 Collaboration in carrying out of the programme by agencies

The actual carrying out of the scheme programme by the various agencies on a day by day basis through the development operation process is a very critical step which must be

followed in the implementation.

It is required that each agency and the people within them be informed of how their action should reflect the agreed plan in their daily decision and routines.

The implementation authority can react to initiative (from either outside or within) as they arise especially where new cirumstances arise, they should consider taking the action that will stand to benefit the entire community. In addition to this, the authorised agencies should consider where they can intervene to stimulate activity, where this is seen to be slack.

On the actual execution of the plan, there is the need to assign responsibilities to each of the different agencies that constitutes the implementation Authority. This is in an attempt to prevent overlapping of responsibilities.

1. NEPA - Power supply to the centre and their distribution.
2. State Min. of work - provision of utilities and construction of circulation network like roads etc. Also water extension.
3. Land Survey (Physical planning department) - Suppervision of the work,ensuring that every detail is followed.

4. Kogi property development - Revenue/Rent collection, management and maintenance.

6.40 Financing the scheme

Financial difficulties are often seen as the main obstacle to the implmentation of most physical development. Those countries with a long experience in Town and country planning have often financed their programmes through normal municipal budget sources with the assistance of long and medium terms loans from the central government.

In view of the uncertainty or limited financial backing that can be enjoyed in developing countries through this medium, combination of the following sources of finance have been suggested for this central Area development:

1. Loans: Land development of this type should be financed, at least in its initial stages by some types of loan. In time past the conditions of loans have had an influence on the extent to which the local authority feel obligated to make a quick profit from proceeds of disposal rather than keep capital tied up in land. But today, with the creation of urban development bank and other financial institutions these hard conditions have been drastically reduced to a bearable level.
2. Profits from disposal or from rent revenue:- Revenue can be generated from the central area itself. This is through disposal of the land or building through leasing. The money

(funds) from the sale or lease of the centre (site) can be used to finance the development of infrastructure or services. In this way the central area scheme can attempt to be self-financing, by keeping separate accounts.

Leasehold system allows capital payment in advance rather than entirely by annual rent. Such system requires the future leaseholder to pay off part of the rent in cash in advance in addition to yearly payments. The only problem here is that of inflation. The rent can easily be subjected to inflation. And like the people of Sweden, such effect can be mitigated by introducing amendments to the leasehold in order that the rents from leases are adjusted for inflation and to ensure that rents are adjusted if use changes. Hence the central area planning agencies have the ability to fix the timing of land use according to development schemes.

3. Participation of private capital. This can be through aid, loan or direct involvement.

4. General Revenue: The centre may also be financed from the Government's normal statutuary revenue allocation. That is the government's grant from the yearly budget.

It is hoped that any of these or a combination of the proposals will solve the immediate financial implementation problem of the centre.

## 6.50 CONCLUSION

From the point of view of what a central area ought to be

that is, offering central services to the city populace and its environs or as an organic nucleus which alone can give cohension to the community; and what it ought not, in otherwords, not capable of controlling its generated congestion, it has already been observed that copying a particular type of design from a particular country for implimentation in another country will not only be limited by finance but also by incompatible culture and tradition. Unfortunately however, Nigerians have acquired a culture of emulating European lifestyles because they consider them as development not withstanding their negative impacts.

At this stage where by it becomes necessary we plan our central areas, a realistic plan must not only be steered but must also be monitored to a successful implementation. Also, uses should not just be ascribed as central by virtue of their traditional value but the consequences of such uses be seriously weighed with a view of getting the best out of them.

Ideally, we should be looking towards decentralisation of certain central area functions so that central area can suit the convinience of the society at large.

Unless this is done some good central area designs will remain mere effigies of their original intension.

It is believed this work has not only drawn our attention to the intricacy of orthodox central area planning approaches but on a more important note is an eyes opener to the strategy of uses decentralization, particularly of those uses whose

presence is seriously joepardising the whole essence of central area planning.

It is therefore adviced that the social and aesthetic reasons for central area planning should not be traded away for economic benefit. This is because the survival of our towns and cities is solely depended on the social strength of the central areas.

It is my submission that the conservation of our central areas be a major objective of the search for quality in urban planning and design.

**QUESTIONNAIRE**

**DEPT. OF URBAN AND REGIONAL PLANNING**

**AHMADU BELLO UNIVERSITY, ZARIA**

**SURVEY: PLANNING THE PHYSICAL DEVELOPMENT OF LOKOJA CENTRAL AREA - BY SIMON R.F.**

In brief by Central area I mean an area in which most of the main economics (business), Social, Cultural and administrative activities of the town are concentrated.

1. In view of the rugged physiographical nature of Lokoja terrain, which direction is likely to be the town physical development?

   .....
   .....

2. What has been the efforts of the physical planning development (Ministry of land and Survey) to producing a viable master plan?

   .....
   .....

3. What are the major guiding factors in the land use distribution of the town:.....

   .....
   .....

4. Do you have particular areas reserved for specific uses? If yes, where are these areas:.....

   .....
   .....

5. What have been the effort of the Kogi State goverment towards the physical improvement of Lokoja town.

   .....
   .....

6. What can we say are the major physical development in the town since the creation of Kogi State:.....

.....
.....

7. Where is the specific location of the town centre (Remember our definition of central area.....

.....
.....

8. What facilities are expected of the site but presently lacking:.....

.....
.....

9. Has there been any other constraints to the present location of the centre?.....if yes mention them.....

.....
.....

10. If the present centre is to be rehabilitated do you think a great success would be achieved.....if No where would you preferred a new centre be located assuming a new one is to be built:.....

.....

11. Do you think the choice of site made above would have the capacity to accommodating more road networks and traffic volume in the years to come?.....
.....
If yes, to what capacity.....
..... (state the number of vehicles)

12. What major physical developments you have not been able to achieve so far:.....
..... .....
And what are the major constraints behind that:.....
.....
.....

13. Do you envisage a dual city for Lokoja?.....
If yes how do you think the town would be effectively administered.....
.....
Thank you.

# CLASSIFIED TRAFFIC CENSUS

| Location: | | State: | Site No. |
|---|---|---|---|
| Direction: From | to | | |
| Weather: | Day: | Date: | |

| Hour ending | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (i) Motorcycles and Autocycles | | | | | | | | | | | | |
| (ii) Passenger cars Including Taxis | | | | | | | | | | | | |
| (iii) Pick - ups and other small commercial vehicles | | | | | | | | | | | | |
| (iv) Two-Axle Lorries, Tippers etc. | | | | | | | | | | | | |
| (v) Buses, Coaches and Mammy Waggons | | | | | | | | | | | | |
| Hourly Totals | | | | | | | | | | | | |

APPENDIX - i Lokoja: Monday, 7 - 3 - 94

| VOLUME IN P. C. U. | | | |
|---|---|---|---|
| TIME | POINT A | POINT B | POINT C |
| 6 - 7 | 374.49 | 219.33 | 212.49 |
| 7 - 8 | 692.64 | 472.91 | 275.32 |
| 8 - 9 | 765.31* | 444.5 | 190.56 |
| 9 - 10 | 567.31 | 155.65 | 288.56 |
| 10 - 11 | 723.31 | 331.91 | 102.58 |
| 11 - 12 | 789.81* | 374.25 | 112.75 |
| 12 - 1 | 594.46 | 364.5 | 183.91 |
| 1 - 2 | 600.47 | 439.41 | 189.47 |
| 2 - 3 | 428.63 | 371.99 | 281.91 |
| 3 - 4 | 384.98 | 321 | 268.91 |
| 4 - 5 | 404.48 | 443 | 284.39 |
| 5 - 6 | 448.99 | 476.75 | 96.91 |
| TOTAL | 6774.88 | 4415 | 2487 |

Source: Traffic volume survey, march, 1994 (field survey).
* refers to peak period.

APPENDIX - ii Lokoja: Tuesday, 8 - 3 - 94

| VOLUME IN P. C. U. | | | |
|---|---|---|---|
| TIME | POINT A | POINT B | POINT C |
| 6 - 7 | 652.96* | 244.91 | 103.33 |
| 7 - 8 | 640.99 | 380.07 | 113.49 |
| 8 - 9 | 586.16 | 280.9 | 129.33 |
| 9 - 10 | 525.49 | 365.49 | 84.99 |
| 10 - 11 | 452.58 | 357.75 | 51.58 |
| 11 - 12 | 548 | 211.83 | 57.74 |
| 12 - 1 | 540.23 | 365.5 | 81.57 |
| 1 - 2 | 660.64* | 336.9 | 64.32 |
| 2 - 3 | 515.82 | 375.9 | 62.99 |
| 3 - 4 | 525.74 | 295.41 | 59.58 |
| 4 - 5 | 559.98 | 339.08 | 58.32 |
| 5 - 6 | 515.82 | 419.99 | 63.74 |
| TOTAL | 6724 | 3973 | 930 |

Source: Traffic volume survey, 1994
* refers to peak period.

APPENDIX - iii Lokoja: Saturday, 9 - 3 - 94

| VOLUME IN P. C. U. | | | |
|---|---|---|---|
| TIME | POINT A | POINT B | POINT C |
| 6 - 7 | 382.98 | 112.99 | 95.99 |
| 7 - 8 | 290.79 | 195.81 | 106.75 |
| 8 - 9 | 264.99 | 217.15 | 103.74 |
| 9 - 10 | 348.08 | 193.4 | 127.32 |
| 10 - 11 | 331.91 | 221.91 | 145.83 |
| 11 - 12 | 319.5 | 198.24 | 136.99 |
| 12 - 1 | 354.91 | 170.73 | 158.58 |
| 1 - 2 | 429.49* | 211 | 132.99 |
| 2 - 3 | 344.49 | 182.16 | 79.91 |
| 3 - 4 | 340.91 | 242.25 | 135.08 |
| 4 - 5 | 312.24 | 214.33 | 111.25 |
| 5 - 6 | 243.74 | 145.58 | 78.82 |
| TOTAL | 3964 | 2305 | 1413 |

Source: Traffic volume survey, March, 1994 (field survey).
* refers to peak period.

Appendix -iv

| | TRAFFIC COMPOSITION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | MONDAY | | | TUESDAY | | | SATURDAY | | |
| | A | B | C | A | B | C | A | B | C |
| CAR1 BUS PCU-1 | 2062 (1) | 2522 (1) | 970 (1) | 153 (1) | 2198 (1) | 468 (1) | 1971 (1) | 1067 (1) | 679 (1) |
| TRACTOR, PCU-2 | 0 (2) | 97 (2) | 78 (2) | 31 (2) | 62 (2) | 13 (2) | 25 (2) | 17 (2) | 6 (2) |
| LARGE BUS PCU-3 | 94 (3) | 19 (3) | 3 (3) | 90 (3) | 97 (3) | 18 (3) | 55 (3) | 4 (3) | 47 (3) |
| MOTOR CYCLE PCU-0.75 | 5830 (0.75) | 2164 (.75) | 1691 (.75) | 6459 (.75) | 1606 (.75) | 509 (.75) | 2634 (.75) | 1450 (.75) | 764 (.75) |
| BICYCLE PCU-0.33 | 86 (.33) | 16 (.33) | 50 (.33) | 52 (.33) | 31 (.33) | 31 (.33) | 41 (.33) | 25 (.33) | 25 (.33) |
| TOTAL | 6774.8 | 4415 | 2487 | 6724 | 3973 | 930 | 3964 | 2305 | 1413 |

Source: field survey, March, 1994

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