THE ANALYSIS OF SPATIAL CHANGES IN AGO-IWOYE BETWEEN 2000 TO 2014 GIS APPROACH (A CASE STUDY OF AGO-IWOYE OF OGUN STATE)

AWORINDE OLUWATOBA [illegible]
MATRIC NO: 12/[illegible]

FEBRUARY, 2015

THE ANALYSIS OF SPATIAL CHANGES IN AGO – IWOYE BETWEEN 2000 TO 2014 GIS APPROACH.

(A CASE STUDY OF AGO - IWOYE OF OGUN STATE)

BY

AWORINDE OLORUNTOBA ADEKUNLE

12/07/2188

A PROJECT RESEARCH SUBMITTED TO THE DEPARTMENT OF URBAN AND REGIONAL PLANNING, ABRAHAM ADESANYA POLYTECHNIC, IJEBU –IGBO, OGUN STATE.

AS PART OF FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE NATIONAL DIPLOMA IN URBAN AND REGIONAL PLANNING.

FEBRUARY, 2015

CERTIFICATION

I certify that this research work was carried out by **AWORINDE OLORUNTOBA ADEKUNLE**with Matriculation Number: **12/07/2188** of Urban and Regional Planning Department, Abraham Adesanya Polytechnic, Ijebu Igbo, Ogun State, Nigeria.

Under my supervision.

_____ _____

Mr. Fasina S.O. **Signature/Date**

Urban and Regional Planning

School of Engineering Technology

Abraham Adesanya Polytechnic,

Ijebu Igbo

Project Supervisor

DEDICATION

This research work is dedicated to almighty God who has given me the grace and opportunity for completing this programme.

I also dedicate this to my loving father, **Pastor and Mrs. G.R. Akinwale,** and to my loving and great mother, **Mrs. Juliana Aworinde,** who played a vital role in my life, and also in financially aspect may Almighty God continue to bless and guide them to reap the fruit of their labour in Jesus name. (Amen).

ACKNOWLEDGEMENT

The glorious one, the Author or authors, the most consistent, the most knowledgeable, the all-embracing to you alone I owe all the gratitude. For you is the Mighty one. I say a lot of thanks to Almighty God.

My appreciation goes to Almighty God for his love, grace, blessings and mercies over me and guiding my life to this day.

My sincere appreciation goes to my able supervisor **Mr. Fasina S.O.** for his guidance in the write up of this project. May the Almighty God continue to bless you and your entire family in Jesus name (Amen).

My appreciation also goes to my loving and caring **Pastor and Mrs. G.R Akinwale** and also to my dynamic brothers, **Dare Aworinde, Ayo Akinwale and Adenuga Oluwafemi,** also to my In-laws in presence of **Mr. and Mrs. Adekunle, Mr**. and **Mrs. Wole Ajibade Pastor and Mrs. Oke.**

My appreciation also goes to my great mentor, **Mr. Sunday Olanrewaju *(Arab Monie),*** if you are reading this page, it means that you are my relatives, mentor, faculty member, colleagues, friends or classmate whoever you are; I appreciate you, endorsement and encouragement that resulted in this moment. Writing acknowledgements.

If I start mentioning everyone when I owe my gratitude, the length of the acknowledgements might exceed the number of pages of dissertation. And even after that, I would still have a fear that I forget to mention someone who helped me to get through not only the process of crafting this manuscript, but also the exciting and adrenaline-driven process of the graduate study Thanks you for your time, expertise support, advice, energy, interest, tolerance, kindness, care, patience, faith, inspiration, friendship and love. The tide always rolls.

ABSTRACT

This paper analyses spatial changes in Ago-Iwoye city between 1980-2010, using geographic Information System (GIS). Among others, it determines the rate, pattern and direction of city development in the period under consideration. Landsat imageries (landsat MSS 1978, SPOT XS Landsat TM, 1995 and JERS-1 SAR imagery, 1995) and updated maps for 2010, where digitized and overlaid using Archview 3.2a, while the pattern, direction, as well as rate of growth of the city for the years aforementioned were determined to using IDRISSI package. The study reveals that from about 14hectares in 1914, the built-up area of Ago-Iwoye increased to 20.72 hectares, 96.02 hectares, 190.9 hectares and 274.9 hectares respectively in 1949, 1978, 1995 and 2003. The city's ecological footprint is observed to be widespread, while mechanisms of changes are identified to include population increase and certain space adjustment techniques.

TABLE OF CONTENT

CHAPTER ONE

1.0 INTRODUCTION

Cities in most developing countries like, Nigeria have been undergoing unprece dented changes both in population and spatial extent. The mechanisms of rapid city expansion in the developing countries are, rural-urban migration and natural increase. The former is accentuated by skewed policies of location of socio-economic activities in favour of the cities. In any case, expansions are gradually, and in some cases, rapidly encroaching into immediate rural farmlands thereby overwhelming the natural environment and destroying the ecosystem. The strain on the natural resources base is compounded by unplanned or uncontrollable city growth in the context of rising consumption levels.

For effective and functional city design and planning, data is required on changes taking place within and around the cities as well as the underlying mechanisms of change Such information is vital in development control activities and prevention of haphazard development and its consequences. The changes in land use overtime calls for continuous updating of maps and its analysis so as to examine the rates and direction of growth of cities as well underlying factors of growth for specific periods. These analyses and spatial information cannot be adequately extracted from the archive hand drawn maps because most of the information content is not satisfactory. Also there is loss of details due to generalization; hence there is a need to introduce the use of Geographic Information System (GIS) into planning profession in order to generate satisfactory and adequate spatial information for an effective and functional plan. It is equally important to study changes in urban spatial expansion so as to estimate rate of urban incursion into-temporal determination of the rates of growth, the spatial extent as well as direction of spatial expansion of Ago-Iwoye, a rapidly expanding pre-colonial city, using Geographic Information System.

1.1 CONCEPTUAL BACKGROUND

The development of GIS technology is relatively recent by historical standard but, its potentials in urban and regional planning is widely acknowledged (Adeboyejo, 1997; Ajala, 2000; Morrow and Watkens, 1984) Apart from the fact that it encourages a systematic approach to urban and regional environmental information collection and management, and its importance in evaluating extensive urban development projects (Adeboyejo 1997), it can be employed for nearly every research that involves good functionality in land based spatial analysis and problem modeling as well as regional feasibility analysis and site selection.

The general definition of GIS provided by the World Bank (1993) states that it "is a systematically designed, spatially indexed approach for organizing information about places or regions in order to facilitate analysis of relationships between different social, economic and environmental variables". While the above definition is though encompassing, it is largely descriptive. There are however more concise definitions. For instance, according to Burrough, (1986;p9) "GIS is a powerful set of tools for collecting, storing, retrieving at will, transforming and displaying spatially referenced data from the real world". Again, according to Cowen, (1988) "GIS is a decision support system involving the integration of spatially referenced data in a problem solving environment". Put differently, GIS is a powerful set of tools for collecting and processing spatially referenced data and for solving numerous planning problems in urban and regional fields. The systems have inbuilt powerful procedure for rigorous and complex spatial analysis such as that involving generation of graphical output, buffers, spatial overlay etc. the relevance of Geographic Information System (GIS) for spatial analysis and planning is in its ability to capture, store and analyze spatial data. The level of accuracy, comprehensiveness and convenience in retrieving data are some of its other attractions.

Extensive works have been conducted basically in developed countries on how application of GIS can be used to manipulate and analyze different spatial data. It was

first applied in Canada in 1965 to make an inventory of the state of fauna and flora across the country. Presently, its application has greatly increased across the world. Scholars have applied it in various disciplines. For instance, Jone and Watkens (1984) demonstrated its application to monitor United States Census. Also Way, (1981) applied it for image and map interpretation to site selection and engineering issues for a major industrial complex. Deforestation has also been monitored using photo grammetry and remote sensing (GIS component) in Esterns Europe, Mexico by Rodriguez-Seryarno (1981). Fazal (2000) also studied urban expansion and loss of agricultural land using this tool in Sharanpur city in India.

In developing countries like, Nigeria, studies conducted on application of GIS to urban and regional planning remain either at the level of theoretical discussion (Ayeni 1985, Ajala 2000) or analyses are partial application of GIS as in Adeniyi (1980) who employed a combination of remote sensing and computer techniques to acquire basic land use data for monitoring urban growth in lagos state. The above studies which are largely peripheral to GIS applications and the various descriptive analysis of spatial expansion of urban centres (Adedibu et al 1998, Adindu and Ogbonna 1998, Salami, 1997) among others, severely limits accuracy and adequacy of urban spatial analysis, and consequently the understanding of the structure and functioning of cities as well as the implications of city development on rural hinterlands. These are some of the major concerns of this study.

The rate at which cities encroach into rural land is overwhelming, though there are very considerable differences on how urban centres grow between different regions. In developed countries, there are empirical evidences to show that rapid urbanization in some of the great cities had displaced rural lands. For example, in Britain, above 5,700 acres of agricultural land are transferred to urban uses each year (Best, 1970), while in Jarkarta, an estimated 40,000 hectares of rural land is converted to urban uses annually. Similarly in Egypt, more than 10% of the nation's productive

farmlands have been converted to urban use during the last 30 years (Bernstein 1993). Chabra (1985), established that the loss of agricultural land to human settlement is far more serious in India than elsewhere. He expressed that about 1.5 million hectares of land mostly agricultural went to urban growth between 1955 and 1985 and further 80,000 hectares were expected to be transformed between 1985 and 2000.

The pace of urbanization in Africa since the Second World War has accelerated markedly and is expected to continue to do so in most African countries for some time to come. In Nigeria, the pace of urbanization has been dramatic showing extraordinarily high rates of growth per annum (Egunjobi 1999). Consequently, there has been rapid expansion of Nigerian cities' areal extent which is now sometimes tenfold their initial point of growth (Egunjobi, 1999; 2002; Ogunsanya, 2002; Oyesiku, 2002). A crucial aspect of this is that city growth is largely uncontrolled (Egunjobi, 1999; 2002); and so the cities are characterized by slum housing conditions, limited coverage of urban services, unreliable service provision, general environmental deterioration, and confused transport systems etc. There are quantitative and qualitative housing deficiencies (Agbola, 1998; 2005; Egunjobi, 1999; 2002). The rate of household formation is far higher than the rate of housing construction. The immediate result of this problem is homelessness and household crowding. In response to the huge unmet housing demand Agbola (2005) noted that Nigerians in response have doubled up in their various apartments with between six (6) to ten (10) people in a bedroom.

Thus urban Centre's in Nigeria are under severe strains imposed among others by inadequate housing.

1.2 STATEMENT OF THE RESEACH PROBLEM

One of the foremost problems associated with spatial changes. This is because industrialization and civilization are pull factor for the rural-urban migrants as well as cross-national migrants. In recent times most Nigerian cities especially Ibadan, Lagos and Kano have experienced tremendous planned and unplanned growth due to

population explosion, which led to congestion, environment degradation and urban socio-spatial upheavals. Planners and other urban gatekeepers manage urban space and residents for the purpose of efficient functioning and performance of urban systems. They however require the understanding of changed process in urban land use and the interactions with the changed agents in order to discharge their functions in urban space. In essence, managing and planning for towns require the understanding of the forces and processes operating in them and the factors that naturally sort people of different socio-economic status out in space. Information on the existing land use/land cover pattern, its spatial distribution and changed process is a pre-requisite for planning, utilization and formulation of policies and programme for making any micro and macro-level developmental; unfortunately they are not readily available. Adeniyi [8] observed that information on land use can now be more easily and reliably obtained from remotely sensed and imagery.

The continuous process of change and development in the urban environment has assumed such dimensions that efficient and effective methods of collecting, analyzing and storing reliable spatial data on the physical, social and economic features are indispensable for dealing with the manifold and complex problems of urban management and planning. Since the old *laissez faire* approach to regulating the growth of urban development is inadequate and no more relevant to the modern cities, there is a veritable need for an institutional control of urban development [9]. This in essence requires a sound knowledge of urban growth and a versatile tool for modeling and simulating such process in order to afford urban planners the necessary tool and skill for monitoring urban land use change.

1.3 SIGNIFICANT OF THE STUDY

To detect the dynamics of landscape pattern in Ago-Iwoye, with the grow pattern between 2000-2014.

1.4 SCOPE OF THE STUDY

The widening scope and increasing complexity of urban and regional phenomena which are casually related to complex social, economic and political processes in the cities and national or regional space have continued to pose a great challenge to professionals and practitioners in urban affairs. It is argued that the need to understand the complex and changing nature, structure and functioning of cities within their regional context and plan for them to enhance their practical functionality directly calls for a refinement of methods and techniques of analysis (Adeboyejo 1997).

1.5 AIM AND OBJECTIVE

The study attempts to examine changed pattern of the urban land use in Ago-Iwoye city between 2000-2014 thus providing explanation to the structural changes and the changed processes in a typical unplanned urban settlement.

The specific objectives include:

- To examine the process of urban land use changes between 2000 and 2014
- To identify the socio economic aspect of the changed process
- To provide explanation to structural and lateral changes in the urban land use
- To examine the influence of base year density on urban land use change

1.6 HYPOTHESIS

Ho → Analysis of spatial changes does not have any influence on Ago-Iwoye as at 2002-2014

H1 → Analysis of spatial change have a great impact on Ago-Iwoye as at 2002-2014

Ho → There is no relationship between Analysis of spatial change and Ago-Iwoye as at 2002-2014

H1 → There is a strong relationship between Analysis of spatial change and Ago-Iwoye as at 2002-2014.

1.7 METHODOLOGY

1.7.1 RESEACH DESIGN

The data required for this study is the vegetation and land use map of Ago-Iwoye for different time periods. The earliest land use maps of the city were those for 2000 and 2014, which were obtained from the Nigerian Baptist Thological Seminary as compiled by the Missionaries. Land use maps for the periods 1978 and 1995 were derived from the following imageries: Landsat MSS Imagery (1976 and 1978), SPOT XS Landsat TM (1993-1995), ERS-1 SAR (1993-1995). They were obtained from the Ministry of Agriculture and Natural Resources. Through fieldwork, the 1995 land use map was updated in 2003 to produce the current land use map.

The above maps were digitized using Archview 3.2a. Although maps are obtained for very irregular periods, their outputs are sufficient enough to analyze changes in city spread and examine the implications of city growth on the rural hinterland.

1.7.2 METHOD OF DATA COLLECTION AND ANALYSIS

Data used in the paper were obtained from across-sectional survey of households in Ago-Iwoye, Ogun State, Nigeria. The sampling frame utilized was the total number of estimated households in Ibadan Municipal Areas of 1999. The average household size declared for Nigeria in the result of the National Population Commission (NPC)1995/96 household survey is 4.48; this was used to divide the projected 1999 population of each locality as defined by the National Population Commission (NPC) in the Ago-Iwoye municipal area to obtain an estimate of household number. Due to cost consideration,

a total of seven hundred and twenty-one households were selected as the sample size. This sample represents 0.20 percent of the estimated households in Ibadan as of1999. To make for effective and objective coverage, due to non-availability of the list of all households in each locality in Ibadan, the number of questionnaire forms administered in each locality was proportional to the total number of estimated households in each

locality. For the purpose of intra-urban analysis, each of the locality in Ibadan municipal area as defined by the National Population Commission (NPC) was accordingly sorted into four residential areas – high density residential area (comprising traditional core high density residential area of Ibadan and non-traditional core high density residential area), medium density residential area and low density residential area according to where it was located. This was done following existing studies and in addition to reconnaissance survey and consultation with town planners. The classification of high density into two – traditional core and nontraditional core – was based on the observation that these two residential areas which are usually classified together in Ibadan are distinct in social and physical patterns. This was observed from the literature, reconnaissance survey and consultation with town planners. In terms of socio-economic status and housing condition non-traditional core high density residential areas are better off.

Also, in terms of ethnic status, traditional core areas are relatively homogeneous in the sense that majority of the residents are indigenes of Ibadan. In the non-traditional core high density residential areas, residents are of different ethnic background. These factors that guided our division of high residential density areas into two are critical factors of residential differentiation which have been identified in the literature. Table1 shows the summary of the four residential areas, projected 1999 household number and number of questionnaire forms administered. The sampling procedure adopted was aimed at sampling along the major streets in each locality. Systematic random sampling was used in the selection of houses along the streets. The first house was selected by the use of random numbers and all subsequent units in the sample were chosen at uniform intervals of fifth houses. From each selected houses, a household, particularly a woman and her spouse (if any) were interviewed. Information was collected on housing attributes and physical well-being. Multiple regression and analysis of variance (ANOVA) is used to test the stated hypotheses. The regression model is used to examine if there is gender difference in the impacts of the housing stressors. The model is of the form:

$Y1 = ai + b1X1 + b2X2 \ldots + bnXn + e$

Where:

Y= dependent variable – Physical well being

ai = base or multiple regression constant referred to as Y intercept

b's=regression coefficients or unknown parameters which indicate the change in Y per unit change in the explanatory variables

X's= independent variables (housing stressors variables - high rent/cost; lack of space; housing discomfort; physical condition of housing; and dissatisfaction with housing)

e = error terms or residuals

1.7.2.1 Choice of Variables

1.7.2.2 Dependent Variable – Physical Wellbeing

Physical well-being variables are specific measures of health problems and psychological distress. Health problems included are those that are particularly related to poor housing condition. Such health problems include cough, wheeze, blocked nose, skin infections, tiredness/body weakness, malaria, headache, diarrhea etc (Martin, *et al.*, 1987; Platt *et al.*, 1989; Strachan, 1988; Hyndman, 1990 etc). Psychological distress has two major forms (Mirowsky and Ross, 1989; Theodore *et al.*, 1993) depression and anxiety. Argument in the literature is that depression and anxiety are no distinct forms of psychological distress. They are instead closely intertwined (Dohrenwend *et al.*, 1980; Marrow sky and Ross, 1989). In this study, Theodore *et al.*, (1993) scale of psychological distress which comprises ten items that reflect various symptoms, including aspects of both anxiety and depression is adopted. Table 2 shows the definition of physical wellbeing variables.

1.7.2.3 Independent Variables

The literature indicates that housing stressors have both tangible and intangible element sand that the relationship between these may be a result of individual tastes and preferences, previous housing experiences, variations in aspiration levels and cultural factors such as ethnic background (Stokols and Shumaker, 1982; Smith *et al.*, 1993; etc).

Indicators of housing stress identified in the literature are: physical conditions of housing, lack of space per person, high rent/cost, and dissatisfaction with housing and housing discomfort (Smith *et al.*, 1993; Theodore *et al.*, 1993; 1996). The physical condition of housing has two component items which are: state of neighbourhood utilities/services and the state of repair of the housing unit. Space per person has both objective and subjective indicator. Objective indicator of space per person is the number of persons per room. Subjective indicator used is the felt lack of space as measured by the perceived/felt lack of space/privacy. Indicator of housing discomfort used is the prevalence of pest in the house. Dissatisfaction with aspects of housing is a subjective measure of the housing quality. High rent is measured as the proportion of the household's income spent on accommodation. Table 3 shows how each of these housing stressors variables used as independent variables is measured.

1.7.2.4 Test of multi-collinearity among the Independent variables

The correlation coefficients among the independent variables used in the analysis are shown in Tables 4 (women) and 5 (men). These tables show that the correlation coefficients among the independent variables are relatively low, the highest being 0.338 (Table4) and 0.334 (Table 5) between the felt lack of space and dissatisfaction with housing.

There is no multi-collinearity occurring between the independent variables.

Table 1: Residential areas, projected 1999 household numbers and number of questionnaire forms administered in Ago Iwoye Municipal Area

S/N	Residential Area	1999 Population Projection	Number of Households	Number of Questionnaire Forms administered
1	Traditional core high density	829,203	185,090	384
2	Non-traditional core high density	329,719	73,598	150
3	Medium Density	295,917	66,053	136
4	Low Density	94,716	21,142	51
	Total	**1,549,556**	**1,549,556**	**721**

Table 2: Definition of Physical Well-Being Variable

Code	Variable	How Measured
Y	Physical well-being	(i) Specific physical health problem- 1 if experiencing any of the following specific health problems: persistent cough, wheeze, blocked nose, breathlessness, skin infections/diseases (e.g. eczema, rashes), tiredness or body weakness, feverish or feeling hot internally, malaria, headache, cholera and diarrhea. (ii) Psychological distress- 1 if often or sometimes experiencing any of the following: (i) anxious about something or someone; (ii) that people are trying to pick quarrels or start argument with you; (iii) so depressed that it interferes with your daily activities; (iv) that personal worries are getting you down physically ill; (v) moody; (vi) felt you were confused; (vii) are you ever bothered by nervousness? i.e. by being irritable, fidgety or tense;(viii) do

		you feel that nothing ever turns out for you the way you want it to? (ix) do you have trouble concentrating or keeping your mind on what you are doing? if the respondent is the worrying type.

CHAPTER TWO

2.0 HISTORICAL BACKGROUND OF THE STUDY

2.1 CONCEPTUAL FRAMEWORK

The primary focus of this integrated analysis of biophysical and socioeconomic potential for restoration is to 1) spatially identify ecological, demographic, and economic potential for riparian restoration and 2) identify changes in patterns, policies, or practices that influence the future likelihood of restoration. In our conceptual framework (Fig. 170), patterns of critical riverine ecosystem components and major human population centers and land uses create a spatial context for locating restoration efforts.153 Important biophysical and human processes interact differently at different spatial extents (Fig. 171), leading to changes in what matters most in prioritizing locations as one considers, first, the entire river network, then high priority river reaches within the network, and finally focal areas within priority reaches. This approach assumes that potential for increased ecological function of various candidate river reaches and focal areas is related to the difference between current patterns and historical conditions in 1) river channel complexity and hydrology and 2) floodplain vegetation (Fig. 173).

Constraints and incentives for restoration created by human systems are determined by 3) the patterns of human populations and structural development of the floodplain and 4) the economic values and productivity of the land within the floodplain. We have classified the floodplain along the Willamette River using these four major typologies, and thereby have provided a quantitative basis for identifying areas with both high potential for increased ecological benefit and low socioeconomic obstacles to restoration.

2.1.1 High Restoration Potential

The lower right quadrant of Figure 170 represents areas with high potential for ecological recovery and low constraint from human settlement and land value. These lands should have the greatest potential for future ecosystem recovery. Such areas are

better suited for conservation and restoration because their ecological values could increase more than other areas. The efforts put forth and costs absorbed by communities to prevent channel change and flooding are often higher here than elsewhere. Economic constraints and demographic pressures are frequently lower. Ecological recovery is likely to be greater on these lands, while social pressures to reverse restoration are likely to be lower.

2.1.2 Potential for Policy Change and Incentives

The upper right and lower left quadrants of 170 depict those areas that combine either high potential for increased ecological value with high demographic and economic constraints or low potential for increased ecological value with few constraints. Lands in these categories are mixes of positive and negative features. In these areas, decision makers can focus on alternative policies or practices that might move a site into the lower right quadrant. Policy changes and incentives tend to modify demographic and economic constraints rather than changing the potential for ecological benefits. Examples would be changes in lending rules or interest rates, federal farm assistance requirements, or converting through purchase, private to public lands. Other possibilities would be use of land zoning restrictions or taxation policies that would have minimal economic consequences but major ecological benefits.

2.2.3 Low Restoration Potential

Areas that combine low potential for increased ecological response with high demographic and economic costs are likely to be poor choices for restoration. These areas fall in the upper left quadrant of 170 depict. These sites provide little ecological benefit, are located in areas where pressures for future modification are high, and investments in restoration may be costlier than other areas because of property values. In contrast to lands described above, these areas are more suited for intensive use because their conversion will achieve less ecological response per unit of investment. Before rejecting lands in the low restoration potential category, however, the following questions should be asked. First, are critical habitats or at-risk species present? If so, restoration outcomes may warrant heroic efforts even in the face of

large socioeconomic obstacles. Second, do these lands present opportunities to learn about the values of and approaches for conservation and ecological restoration? Particularly in urban areas, these sites are where people live and work. As we pass these habitats every day and use them for recreation, such landscapes provide a tangible link between people and the natural processes upon which we depend.

2.1.4 Spatial Framework

In this analysis of the Willamette River and its floodplain, the floodplain provides the most constant and quantifiable spatial framework for comparing physical, biological, demographic and economic characteristics of the river corridor. Channel position, forests, and land use may change, but the floodplain, i.e., the area historically inundated by floods, is relatively constant. We employ a framework for floodplain assessment by mapping 1-km "slices" of the Willamette River floodplain at right angles to the floodplain's center axis.

2.2 LITERATURE REVIEW

Observation from literature show that the term 'stressor' as generally applied in the vernacular of the social sciences is understood to mean a condition that produces some degree of social dysfunction or stress inducing effects (Theodore *et al,* 1993; Vila, 1994; Theodore *et al.*, 1996; Harries, 1997; etc.). In the field of stress theory, relationships between stress and dysfunction have been more fully developed. Stress theory is an outgrowth of the relationship between stress and detrimental performance. First applied to machines, it was later used to provide a framework for understanding links between stressful life events and ill-health (Harries, 1997:1254). The father of stress theory, Hans Selye, defines stress as "the non-specific response of the body to any demand" (Selye, 1983); stress may be good "stress", or bad "distress" (Selye, 1980). Evans (1982) suggests a "negative" definition; "any situation in which the environmental demands on individuals exceed their abilities to respond".

Stressful situations in some contexts may have positive outcomes because they help to produce successful coping strategies. In many other situations, however, the

individual experiences fatigue and distress. This reduces the likelihood that he or she will be able to respond effectively to the next set of stressors. As a review of literature reveals, a wide range of circumstances has been characterized as potentially stress-inducing. The common feature is either a situation that requires continual adjustment to a high stress environment, for example in the workplace (La Rocco *et al.*, 1980) or in an inner city residential neighborhood (Cohen *et al.*, 1982); or a sudden and marked change to which the individual has to respond. Some of the earliest work was focused on the issue of job loss (Gore, 1978; Kasl and Cobb, 1982) and other economic hardships (Liemand Liem, 1978; Thoits, 1982; Voydanoff, 1990). Stress in relation to both these situations is exacerbated by lack of control or perceived lack of control over stressful circumstances.

In later studies, the focus moved to a variety of potentially stressful life events such as pregnancy (Nuckolls *et al.*, 1972; Barvera, 1981); divorce (Kessler and Eses, 1982; Weinraub and Wolf, 1983); bereavements (Walker *et al.*, 1997); chronic diseases (Workman, 1984) and physical disabilities (Schulz and Decker, 1985). In such circumstances, it is assumed that there is a disruption of everyday activities and a marked change in behaviour patterns in response to the stressors (Smith *et al.*, 1993). Stress inducing effects of poor housing are part of a research tradition that has developed markedly during the last three decades (Smith *et al.*, 1993:603). Although few studies have focused on housing, Smith et al note that it is plausible to suggest a scenario of stress that is consistent with these earlier studies. An environment that is continually and uncontrollably noisy, noxious, depressing or dangerous could be hypothesized as seriously impairing on individual's ability to respond appropriately (Pacione, 1990). If existing sources of stress are not removed, or if new stressors are introduced, the coping resources of the individual in question will be severely strained. In addition to the events and situations generally perceived to be stressful, Lazarus (1984) points out that, in some circumstances, the details of everyday life in stressful environments might amount to another source of stress, particularly for households that are already facing difficult times.

Investigations on the impact of housing on human well-being have attempted to isolate the relative contributions of different housing stressor, including both objective circumstances of housing (in physical, social and economic terms) and subjective or perceived evaluations of the housing situation(Kasl and Harburg, 1975; Martin, 1987; Smith, 1990; Neil, 1991). Researchers have reported that inadequate housing can be linked directly and indirectly to a range of outcome measures, including physical illness (Duvall and Booth 1978; Theodore etal 1993); strained interruptions in adolescent development (Simmons *et al.*, 1987; Hendershott, 1989); strained patterns of family interaction (Edwards *et al.*, 1982) and psychological distress (Cappon, 1971; Mitchel, 1971; Kasl, 1974). Edwards *et al.* (1982:242) also note that mental stress, physical disorders and psychological illness in particular have been observed with remarkable consistency to be related to housing (Schmitt, 1966; Fanning, 1967; Capon, 1971). They also assert that females may be more adversely affected by housing, since in enacting traditional sex roles they are more likely to be confined to the dwelling than men (p. 244). Empirical investigation of this kind is rare in Nigeria. The null hypotheses tested in this paper are that: (i) there is no significant effect of housing stressors on the physical well-being of women and men - we expect that there is no gender difference in the effects of housing stressors on the physical well-being, and (ii) there is no significant intra-urban variation in the effects of housing stressors on the physical well-being of women and men.

2.3 What is Spatial Analysis?

Through spatial analysis you can interact with a GIS to answer questions, support decisions, and reveal patterns. Spatial analysis is in many ways the crux of a GIS, because it includes all of the transformations, manipulations, and methods that can be applied to geographic data to turn them into useful information. While methods of spatial analysis can be very sophisticated, they can also be very simple. The approach this course will take is to regard spatial analysis as spread out along a continuum of sophistication, ranging from the simplest types that occur very quickly

and intuitively when the eye and brain look at a map, to the types that require complex software and advanced mathematical knowledge.

There are many ways of defining spatial analysis, but all in one way or another express the fundamental idea that information on locations is essential. Basically, think of spatial analysis as "a set of methods whose results change when the locations of the objects being analyzed change."For example, calculating the average income for a group of people is not spatial analysis because the result doesn't depend on the locations of the people.

Spatial pertaining to or involving or having the nature of space; "the first dimension to concentrate on is the spatial one"; "Spatial ability"; "spatial awareness"; "the spatial distribution of the population".

2.3.1 Types of Spatial Analysis

Types of spatial analysis vary from simple to sophisticated. In this course, spatial analysis will be divided into six categories: queries and reasoning, measurements, transformations, descriptive summaries, optimization, and hypothesis testing.

- **Queries and reasoning** are the most basic of analysis operations, in which the GIS is used to answer simple questions posed by the user. No changes occur in the database and no new data are produced.
- **Measurements** are simple numerical values that describe aspects of geographic data. They include measurement of simple properties of objects, such as length, area, or shape, and of the relationships between pairs of objects, such as distance or direction.
- **Transformations** are simple methods of spatial analysis that change data sets by combining them or comparing them to obtain new data sets and eventually new insights. Transformations use simple geometric, arithmetic, or logical rules, and they include operations that convert raster data to vector data or vice versa. They may also create fields from collections of objects or detect collections of objects in fields

- **Descriptive summaries** attempt to capture the essence of a data set in one or two numbers. They are the spatial equivalent of the descriptive statistics commonly used in statistical analysis, including the mean and standard deviation.
- **Optimization** techniques are normative in nature, designed to select ideal locations for objects given certain well-defined criteria. They are widely used in market research, in the package delivery industry, and in a host of other applications.
- **Hypothesis testing** focuses on the process of reasoning from the results of a limited sample to make generalizations about an entire population. It allows us, for example, to determine whether a pattern of points could have arisen by chance based on the information from a sample. Hypothesis testing is the basis of inferential statistics and forms the core of statistical analysis, but its use with spatial data can be problematic.

CHAPTER THREE

3.0 THE STUDY AREA

3.1 INTRODUCTION

Ago Iwoye is a town in Ijebu North Local Government Area of Ogun State, Nigeria. It is one of the most popular towns in the state. The town is made up of seven strategic districts which include Idode, Imere, Isamuro, Ibipe, Imososi, Igan and Imosu. Oba Abdulrazak Adenugba is the current Ebumawe of Ago-Iwoye. The state-owned University, Olabisi Onabanjo University, 1982, is located in Ago-Iwoye.

3.2 HISTORICAL BACKGROUND OF AGO-IWOYE

Before 1931, there was no place going by the name Ago-Iwoye. The present Ago-Iwoye, prior to this time was simply know as Ago (meaning camp). It was as a result of the efforts and petition of the Ago Iwoye progress Union (Inaugurated in 1926) that the town came to be known, both informally and officially, as Ago-Iwoye, which means the "camp of healing". Why this name? The answer is 1831. The gbedeke war of 1831 (or isamuro was as called by the Egbas), a war borne out of greed tribalism and white egocentrism. The trend back in the days was that the white enticed various lands to right wars and raid one another, in order that there may be slaves available for them to buy. This war forced the people of Iwoye (not Ago Iwoye) for flee for their dear lives, as the Egbas ruthlessly attacked and destroyed their land.

They pitched their tents in a new area known as Imososi (whose leader was Meyelu). Finding only a few settle there. Such townships comprising of Ibipe, Isamuro, Idode, Odosinusi, Igan, Imosu and Imere emigrated from Orile-Iwoye and settled at Ago. They rotated the central leadership between their various Baloguns (war leader). The first Balogun to made leader was Balogun Meleki of Igan townships. They explain why Ago-Iwoye was once required to as Ago-Meleki.

However, when a British Commissioner visited between 1893 and 1895, asking

for the Baale of the town, the then chief-balogun, Ogunfowodu, became to be called Baale and so was his successors. This went on until Oba Alayalua Akadi Adenugba was installed in 1932, as the first Ebumare of Ago-Iwoye.

3.3 PHYSICAL CHARACTERISTIC OF THE STUDY AREA.

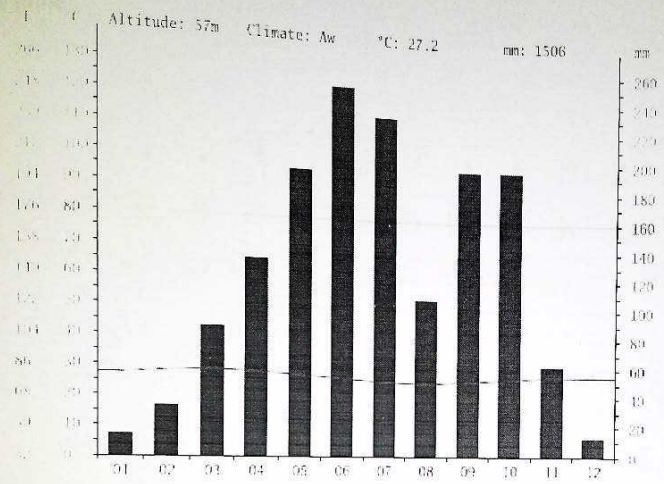
The state owned University, Olabisi Onabanjo University is located in Ago-Iwoye, the university was founded July 7, 1982 as Ogun State University and was renamed Olabisi Onabanjo University on may 29, 2001 in honour of a great citizen of the state, Chief (Dr.) Olabisi Onabanjo, whose efforts as the then civilian governor of Ogun State gave birth to the university.

The University is operated on a multiple campus basis. The main campus in Ago-Iwoye is popularly called Permanent Site (PS) by the students and a Mini Campus which is home to the Science Department, Agriculture is in Aiyetoro, Engineering is in Ibogun, and Medicine is in Sagamu and Pharmacy and Biochemistry in Ikenne.

3.4 THE CLIMATIC PATTERN OF THE STUDY AREA

The City has a tropical climate; the summers are much raining than the winters in Ago-Iwoye. According to Koppen and Geiger, this climate is classified as, the temperature here averages 27.2°C the average annual rainfall is 1506mm

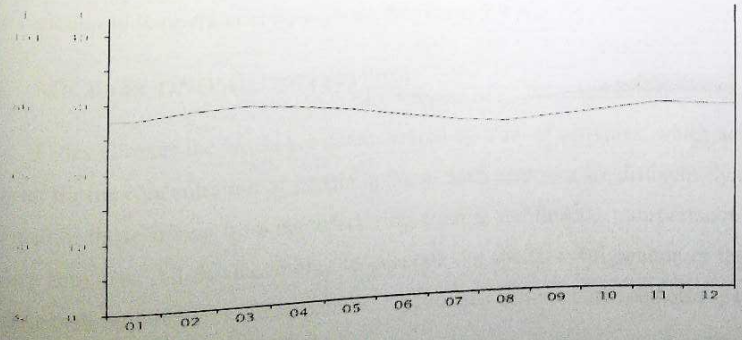
Climate Graph



The least amount of rainfall occurs in December, the average in this month is 13mm.

The greatest amount of precipitation occurs in June, with an average of 248mm.

Temperature graph



The temperatures are highest on average in March, at around 29.0 °C. The lowest

average temperatures in the year occur in August, when it is around 25.1 °C.

Climate table

month	1	2	3	4	5	6	7	8	9	10	11	12
mm	14	33	86	132	192	248	229	107	195	195	62	13
°C	27.5	28.5	29.0	28.5	27.7	26.6	25.6	25.1	25.9	26.7	27.7	27.5
°C (min)	22.4	23.6	24.5	24.2	23.6	23.0	22.6	22.1	22.8	23.1	23.2	22.4
°C (max)	32.7	33.5	33.6	32.9	31.8	30.2	28.6	28.2	29.1	30.3	32.2	32.7
°F	81.5	83.3	84.2	83.3	81.9	79.9	78.1	77.2	78.6	80.1	81.9	81.5
°F (min)	72.3	74.5	76.1	75.6	74.5	73.4	72.7	71.8	73.0	73.6	73.8	72.3
°F (max)	90.9	92.3	92.5	91.2	89.2	86.4	83.5	82.8	84.4	86.5	90.0	90.9

The variation in the precipitation between the driest and wettest months is 235 mm. The variation in temperatures throughout the year is 3.9 °C.

3.5 SOCIO ECONOMIC ACTIVITIES

Cities all over the world are characterized by a set of activities, which actually account for the concentration of people in them. Such activities are distinctively urban and include those arising from manufacturing, trading and finance, transportation and tertiary activities. All these combine to generate the spatial configuration of the city because their requirements are sometimes functionally differentiated and also spatially segregated.

CHAPTER FOUR

4.0 DATA PRESENTATION AND ANALYSIS

Table 3: Definition of Housing Stressors Variables

Code	Variables	How measured
1	House rent/cost	
X1	High rent	Proportion of the household's income spent on accommodation.
2 X2 -	Lack of space Objective measure of lack of space	Number of persons per room
X3		
3	Felt lack of space - 1 if felt lack of privacy in the house	- 1 if at home there are too many people around - 1 if in the house, the respondent has almost no time alone - 1 if in the house people get in each other's way - 1 if at home respondents don't have enough room to do things conveniently.
X4	Prevalence of pest in the House	1 if pest is prevalent in the house
4	Physical housing condition	
X5	State of deterioration of the housing unit	- 1 if there are any cracks in the walls of the house - 1 if there are any cracks in the floors of the building - 1 if the roof of the house is leaking and

		needs repairs - 1 if the house needs general repairs
X6	Neighbourhood condition	- 1 if each of the following neighbourhood facilities is in bad condition: neighbourhood road quality, garbage collection, public transport, street light, water supply, school quality, shops, power supply and general condition of the neighbourhood.
5	Housing dissatisfaction	
X7		-1 if dissatisfied with any of the following aspects of housing: kitchen, balcony/corridor/verandah, backyard, bathroom, toilet, ventilation, water supply in the house, power supply in the house, noise, smell, safety and courtyard.

Table 4: Correlation Coefficients among housing stressors variables (Women)

Variable	**X1**	**X2**	**X3**	**X4**	**X5**	**X6**	**X7**
X1 High rent/cost	1.000						
X2 Objective measure of lack of space	-.087	1.000					
X3 Felt lack of space	-.067	.209	1.000				
X4 Prevalence of pest in the house	-.042	.126	.220	1.000			
X5 State of deterioration of the housing unit	.068	-.136	-.280	-.311	1.000		
X6 Neighbourhood condition	-.030	.123	.202	.211	-.318	1.000	
X7 Dissatisfaction with housing	-.065	.129	.338	.263	-.461	.481	1.000

Table 5: Correlation Coefficients among housing stressors variables (Men)

Variable	X1	X2	X3	X4	X5	X6	X7
X1 High rent/cost	1.000						
X2 Objective measure of lack of space	-.087	1.000					
X3 Felt lack of space	-.026	.178	1.000				
X4 Prevalence of pest in the house	-.042	.126	.261	1.000			
X5 State of deterioration of the housing unit	.068	-.136	-.317	-.311	1.000		
X6 Neighbourhood condition	-.030	.123	.284	.211	-.318	1.000	
X7 Dissatisfaction with housing	-.065	.129	.334	.263	-.461	.481	1.000

Table 6: Impact of housing stressors on physical well-being of women

Housing Stressors	Physical well-being of Women					
Variable	Proportion of Variance (R-quare Change)(%)	R	R-Square	Std. Error of the Estimate	F- Change	Sig. Change
High rent/cost	0.1	.030	.001	3.9588	.657	.418
Lack of space	4.2	.206	.043	3.8808	15.533**	.000
Housing discomfort	0.6	.221	.049	3.8710	4.610*	.032
Physical condition of housing	1.5	.252	.063	3.8463	5.602**	.004
Dissatisfaction with Housing	3.6	.316	.100	3.7735	28.702**	.000

* Significant at $p<.05$

** Significant at $p<.01$

Source: Field survey, 2001

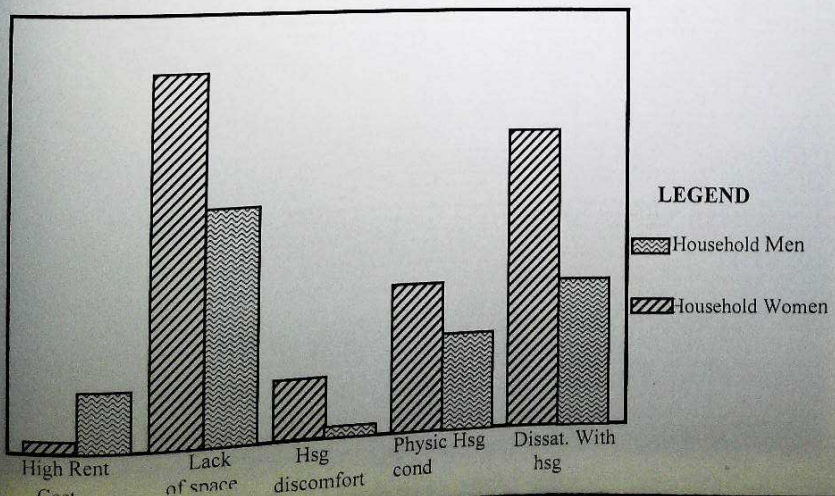
Table 7: Impact of housing stressors on physical well-being of men

Housing Stressors	Physical well-being of men					
Variable	Proportion of Variance (R-square Change)(%)	R	R-Square	Std. Error of the Estimate	F- Change	Sig. Change
High rent/cost	0.6	.078	.006	3.4035	3.509	.062
Lack of space	2.6	.181	.033	3.3638	7.737**	.000
Housing discomfort	0.1	.183	.034	3.3653	.502	.479
Physical condition of housing	0.9	.207	.043	3.3553	2.688	.069
Dissatisfaction with Housing	1.5	.240	.058	3.3316	9.001**	.003

* Significant at p<.05

** Significant at p<.01

Source: Field survey, 2001



Prop. of Impacts

Housing Stressors Variables

Fig. 1: Effect of housing stressors on physical well-being gender-wise

This result may be due to the fact that while responsibility for household housing provision falls more heavily on men, women are the major consumers and users of housing. Women's daily activities are found to be more adversely affected by housing condition than that of men (Table 8 and Fig. II).

Table 8: The percentage figures of women and men that their daily activities are adversely affected by the aspects of housing condition

Aspect of the household housing	Traditional core high density residential area		Non-traditional core high density residential area		Medium density residential area		Low density residential area		All the residential Areas	
	Women (n=384) (%)	Men (n=292) (%)	Women (n=150) (%)	Men (n=114) (%)	Women (n=136) (%)	Men (n=125) (%)	Women (n=51) (%)	Men (n=40) (%)	Women (n=721) (%)	Men (n=571) (%)
Location of the House	25.1	21.6	18.7	22.8	22.1	14.4	13.7	10.0	22.4	19.4
Kitchen	18.0	10.3	17.4	11.4	11.8	8.8	11.8	5.0	16.2	9.8
Power supply	62.5	61.3	66.0	49.1	64.0	66.4	43.1	47.5	62.1	59.0
Water supply	35.2	26.4	35.0	23.7	41.9	35.4	20.6	11.3	35.4	26.8
Neighbour hood road condition	24.0	18.2	36.0	28.9	35.3	34.4	7.8	12.5	27.5	23.5
Space for income Generation	17.7	7.5	18.0	9.6	8.8	8.0	9.8	7.5	15.5	8.1
Living space	19.3	13.0	10.7	10.5	5.9	4.0	2.0	2.5	13.7	9.8

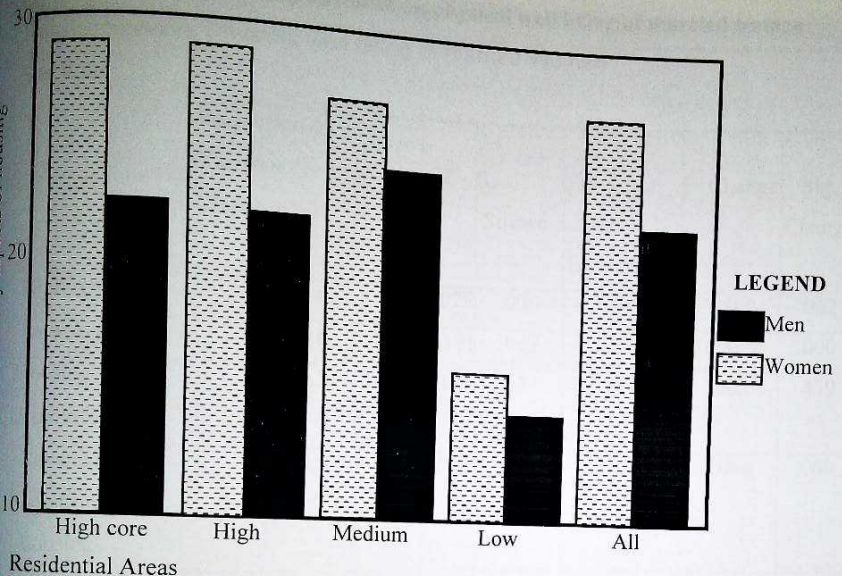


Fig. II: Gender differences in the felt adverse effects of housing condition in Ago-Iwoye

The impact of housing stressors variables as indicated by the proportion of variance explained by each of the housing stressors on the physical well being of women living with their husband and the female headed household is shown in Tables 9 and 10 respectively.

Table 9: Impact of housing stressors on physical well being of married women

Housing Stressors Variable	Physical well being of married Women					
	Proportion of Variance (R-quare Change)(%)	R	R-Square	Std. Error of the Estimate	F- Change	Sig. Change
High rent/cost	0.6	.078	.006	3.4035	3.509	.062
Lack of space	2.6	.181	.033	3.3638	7.737**	.000
Housing discomfort	0.1	.183	.034	3.3653	.502	.479
Physical condition of housing	0.9	.207	.043	3.3553	2.688	.069
Dissatisfaction with Housing	1.5	.240	.058	3.3316	9.001**	.003

* Significant at p<.05

** Significant at p<.01

Source: Field survey, 2001

Table 10: Impact of housing stressors on physical well-being of Female-headed household

Housing Stressors Variable	Physical well-being of Female-headed household					
	Proportion of Variance (R-quare Change)(%)	R	R-Square	Std. Error of the Estimate	F- Change	Sig. Change
High rent/cost	7.1	.266	.071	3.3333	5.268*	.025
Lack of space	5.2	.351	.123	3.2861	1.997	.144
Housing discomfort	2.1	.380	.144	3.2709	1.624	.207
Physical condition of housing	5.8	.450	.202	3.2067	2.334	.105
Dissatisfaction with Housing	11.0	.559	.313	2.9998	10.132**	.002

* Significant at $p<.05$

** Significant at $p<.01$

Source: Field survey, 2001

These results show comparatively that each of the housing stressors has more impacts on the female-headed household than on married women living in the male-headed household (see Fig. 2).

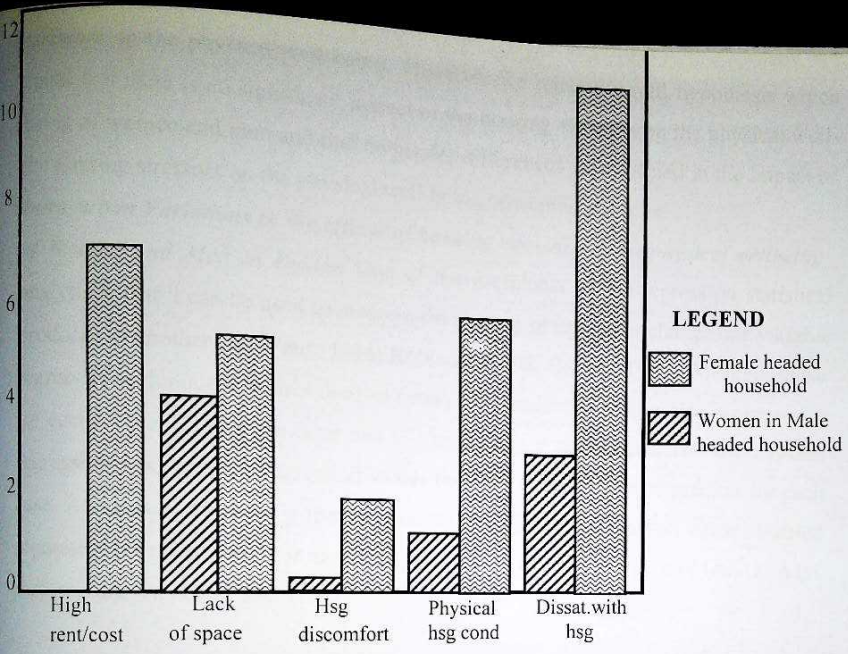


Fig. 2: Effects of housing stressors on the physical well being: Women living with their husband as against Female-headed household

The married women's most significant housing stressors are lack of space ($p<.01$), dissatisfaction with housing ($p<.01$) and physical condition of housing ($p<.05$) while those of the female-headed household are dissatisfaction with housing ($p<.01$) and high rent/cost ($p<.05$).These results show that there is significant impact of the housing stressors on the physical well-being of women and men.

Also gender differences are observed in the result of the impact of the housing

stressors on the physical well-being. Therefore we reject the null hypothesis which states that there is no significant impact of the housing stressors on the physical well-being of women and men and that no gender differences are expected in the impact of the housing stressors on the physical well-being of women and men.

Intra-urban Variations in the effects of housing stressors on the physical wellbeing of Women and Men in Ibadan One of the usefulness of the regression statistical analysis is that it can be used to measure the amount of impact or change one variable produces in another (De Vaus, 1996; Robinson, 1998; Babbie, 1998). Multiple linear regression technique was thus used to obtain the standardized regression scores value for each of the 721 women cases and 571 men cases in the sample. The standardized regression scores are the regression values that the regression model predicts for each case. Analysis of variance is used to analyze the predicted regression value obtained separately for women and for men. The result of the analysis of variance (ANOVA) is shown in the Tables 11 and 12.

Table 11: ANOVA test of women housing experience

		Sum of Squares	df	Mean Square	F	Sig.
Standardized	Between Groups	64.632	3	21.544	23.596**	.000
Predicted	Within Groups	654.643	717	.913		
Value	Total	719.275	720			

{Women}

18.334** .000

** Significant at p<.01

Source: Field survey, 2001

Table 12: ANOVA test of men housing experience

		Sum of Squares	df	Mean Square	F	Sig.
Standardized	Between Groups	50.535	3	16.845	18.334**	.000
Predicted	Within Groups	520.941	567	.919		
Value	Total	571.476	570			

{Men}

18.334** .000

** Significant at p<.01

Source: Field survey, 2001

The analysis of variance (ANOVA) F-value of women is 28.921, and of men is 26.621.

The significance value of both women and men F-value is .000. These analyses of variance (ANOVA) results are significant at p<.01. These results imply that there is a significant intra-urban variation in the effects of housing stressors on the physical well- being of women and men in Ibadan. Therefore we reject the null hypothesis which states that there is no intra-urban variation in the effects of housing stressors on the physical well- being of women and men.

CHAPTER FIVE

5.0 POLICY IMPLICATIONS AND CONCLUSION

The paper examines gender differences and intra-urban variations in the effects of housing stressors on the physical well-being of women and men. The result shows that in

all the housing stressor variables used in the analysis, only the impact of the high rent/ cost is found to be higher for men than for women. In all the other housing stressor variables, the impacts are found to be greater for women than for men. In the case of the women living with their husbands and the female headed households, the result shows comparatively that each of the housing stressors has more impact on the female headed households than on the married women living in the male headed households. The analysis of variance (ANOVA) result shows that there is significant intra urban variation at $p<.01$ in the housing experience of women and men.

This may be due to the fact that the contemporary urban pattern is such that spaces are shaped unequally. There has been the pursuit of fragmenting urban policy. An interesting aspect of this division with respect to residential pattern is the division as expressed through the household income. Byrne (1999) in his article on "Divided Spaces: Social Division in the Post industrial City" notes that with income, the rich are separated from the rest of us and with space; it is the poor who are separated off. The pursuit of fragmenting urban policy, with the resultant increasing separation of spheres of work and home, have implications for the issues of transport and accessibility, coupled with that of local service provision which are critical to women's lives. The increasingly vital role of women in the labour market is not reflected in the planned environment of cities and towns. Access to services and employment in the cities and towns assumes traditional roles. This is evident in the lack of appropriate nursery and public transport provision and in the physical layout of the cities and towns. Low or inadequate service provision and gender blind design

have hitherto hindered women's social as well as physical access. Most studies on quality of residential land use in Nigerian cities have identified three major categories of residential land use qualities, which are distinct in social and physical patterns. These are low, medium and high quality residential land use areas. While the high quality residential land use areas have the common characteristics of being well planned, the opposite is the case with the low quality residential landuse areas. The most distinguishing feature of the low quality residential landuse areas is that they have never been planned in most cases. Consequently, houses have been built without reference to a street network. In some of the modern forms, a significant proportion of the low quality residential landuse districts are planned with a grid pattern and network of roads. Nevertheless, the standard of housing construction is low, and most of cost minimization in the pursuit of shopping, recreation, schooling and urban activities system. In urban planning, it is desirable to decentralize through the ordering of urban activities and services in a hierarchical manner to ensure utilities maximization and distance minimization.

5.1 RECOMMENDATION

Greater attention should be given to the development of neighbourhood parks, shopping centers, corner shops and other lower order services as a matter of deliberate physical planning policy. Also, as a matter of urgency, the master plan of the Ibadan metropolis should be revised, (as it is already outdated)in order to incorporate the suburban development, upgrading of the decaying neighbourhoods and, above all, meet the needs of the dynamic population of the city. Since women are the major and primary consumers and users of shelter and infra- structure, there is the need to increase the enlightenment and raise the consciousness of women, particularly the illiterate ones, on issues relating to sanitation, hygiene, and another public health matters. Of course, policies geared towards improving the number of females going to

school should be pursued. Observation from the literature shows that educated women live a better quality of life than uneducated women. Women enlightenment and education generally on their need to be involved in discussions and activities in housing and urban planning/development are recommended

REFERENCES

ɔola, S.B. 2005. *The Housing Debacle*. Inaugural Lecture Delivered at the Universityof Ibadan, Thursday, August 4, 2005.

ɔola, T. 1998. *The Housing of Nigerians: A Review of Policy Development and Implementation*. Research Report, No. 14, Development Policy Centre, Ibadan, Nigeria.

eni, B. 1979. *Concepts and Techniques in Urban Analysis*, Croom Helm, London.

bbie, E. 1998. *The Practice of Social Research*. Wadsworth, New York.

rvera, M. 1981. "Social support in the adjustment of pregnant adolescents: Assessment issues". In: Gottlieb, B.H. (ed.) *Social Networks and Social Support*, Sage, Beverly Hills Ca. pp 69-96.

rne, D. 1999. Social Exclusion: Issues in Society. Open University Press, Buckingham.

ıppon, D. 1971. "Mental Health in the high rise". *Can. Publ. Hlth.*, 62: 42-431.

ɔhen, P. etal 1982. "Community stressors, mediating conditions and well-being in urban neighbourhoods". *J. Comm. Psych.*, 10:377- 391.

ɐ Vaus, D.A. 1998. *Surveys in Social Research* UCL, London.

ohrenwend, B.P., Shrout, P.E., Egri, G.

., Mendelson, F. S. 1980. "Nonspecific psychological distress and other dimensions of psychopathology". *Archs gen. Psychiat.*37: 1229.

uvall, D., Booth, A. 1978. "The housing environment and women's health" *J. Hlth. Soc. Behav.*, 19: 410-417.

dwards, J.N., Booth A., Edwards, P.R. 1982. "Housing types, stress and family relations". *Social Forces*. 61: 241-257.

gunjobi, L. 2002. "Planning the Nigerian Cities for Better Quality of Life" in Onakomaiya S.O. and Oyesiku O.O. (eds.). *Environment, Physical Planning and Development in Nigeria*, Department of Geography and Regional Planning,

Olabisi Onabanjo University, Ago-Iwoye, Nigeria, pp. 89-107.

Egunjobi, L. 1999. *Our Gasping Cities* An Inaugural Lecture delivered at the University of Ibadan on Thursday, 21st October .

Evans, G.W. (ed.) 1982. *Environmental Stress*, Cambridge University Press, Cambridge

Fanning, D.M. 1967. "Families in Flats" *British Medical Journal*.,18: 382-86.

Filani, M.O. 1999. "Reflections on 50 Years of Geography in Nigeria". *Annals of the Social Science Academy of Nigeria,* 11: 45-64.

Gore, S. 1978. The effect of social support in moderating the health consequences of unemployment". *J. Hlth Soc. Behav*., 19:157 165.

Harries, K. 1997. "Social stress and Tauma: Synthesis and spatial analysis". *Social Science and Medicine,* 45:(8):1251-1264.

Hendershott, A.B. 1989. "Residential mobility, social support and adolescent self concept".*Adolescence,* 93: 217-233.

Hyndman, S.J. 1990. Housing dampness and health amongst British Bengalis in East London. *Social Science and Medicine,* 30: 131.

Kasl, S.V. 1974. "Effects of housing on mental and physical health". *Man-Envt. Syst*., 4: 207-226.

Kasl, S.V., Harburg, E. 1975. "Mental health and the urban environment: Some doubts and second thoughts". *J. Hlth. Soc. Behav*., 16: 266-282.

Kessler, R.C., Esses, M. 1982. "Marital status and depression: the importance of coping resources". *Soc. Forces.*, 61: 484-507.

Kolstee Theo, Bijlmer Joep and Dosterhout

Fon Van (eds.) 1994. *Urban Poverty alleviation* Sectorial Policy Document Cooperation 5 Randstab b.v. Ministry of Foreign Affairs, The Hague Netherlands.

Larocco, M. James, House, S. James,

John, R.P. French, Jr. 1980. "Social Support, Occupational Stress, and Health" *Journal of Health and Social Behavior,* 21: 202-218.

Lazarus, R.S. 1984. "Puzzle in the study of daily hassles". *J. Behav. Med.,* 7: 375-389.

Liem, R., Liem, J. 1978. "Social class and mental illness reconsidered: the role of economic stress and social support". *J. Hlth Soc. Behav.*, 19: 139-156.

Martin, A.E. 1987. "Environment, housing and health". *Urban Studies,* 4: 1-21.

Martin, J. Claudian, Stephen, D. Platt,

Sonja, M. Hunt 1987. "Housing conditions and ill health" *British Medical Journal,* 294(2): 1125-1127.

Mirowsky, J., Ross, C.E. 1989. *Social causes of Psychological Distress.* Aldine, New York.

Mishra, R. 1971. "Some social implications of high density". *Am.Sociol. Rev.*, 36: 18-29.

Neil, C.C. 1991. "Social integration and shared living space: psychiatric impairment among single men". *Housing Studies,* 5: 24-36.

Nuckolls, K.B., Cassel, J., Kaplan, B.H. 1972. "Psychological stress, life crisis and prognosis of pregnancy". *Am. J. Epidem.* 95: 431-441.

Ogunsanya, A. A. 2002. *Makers and Breaker of Cities.* The Fifty-ninth Inaugural Lecture delivered at the University of Ilorin on T hursday, June 27. R. A. ASIYANBOLA