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AN ASSESSMENT OF HOUSING INFRASTRUCTURAL PROVISION IN PUBLIC HOUSING: A CASE STUDY OF BASHORUN HOUSING ESTATE AKOBO, IBADAN OYO STATE, NIGERIA.

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ABSTRACT*: Infrastructure provision forms important ingredients to housing development and formal housing supply, thus adequate provision of infrastructural facilities are regarded as critical components and facilitator for economic development and key to improving the quality of life in any community irrespective of size. While there is a plurality of housing issues, the problem of infrastructure in housing remains prominent especially when mass housing schemes are considered. The failure of some of these housing schemes has revealed that housing provision transcends the mere provision of shelter for needs of man. Hence, the need to approach the situation in a pragmatic way, with a focus on the infrastructural provision – an important aspect of housing that is often left to fate – in most common housing schemes in developing countries – like Nigeria. For this study, a total of two hundred (200) copies of questionnaire were administered on randomly selected residents within Bashorun housing estate and one hundred and sixty six (166) copies were retrieved. The analysis presented below is therefore based on 166 responses which constitute 83% on the average. This paper therefore reviewed existing literatures and the research method is an empirical survey and case study approach involving quantitative analysis of primary data gathered from the selected housing estate thereby evaluating the state of infrastructures of the selected housing estate, Rank Test on the expected and obtained quality of this facilities shows that (Obtained Quality < Expected Quality). Furthermore, the study confirmed a strong positive relationship existing between infrastructural provision and occupants' level of satisfaction, while a moderate, positive relationship exist between service rendered by the management authority and occupants' level of satisfaction, which were attributed to private involvement in housing scheme. The study revealed that for housing development to be sustainable, basic infrastructures had to be put in place. The understanding of these infrastructural provision is thus a necessary prerequisite for developing an effective housing programme. The study underscores the need to consider relevant infrastructures for housing improvement and development in Nigeria with a view to ascertaining the sustainability of the housing environment and from this a conclusion is drawn and recommendations made in generating sustainable solutions to the subject matter.*

KEYWORDS*: Housing, Infrastructural Provision, Infrastructures, Public Housing Estate, Ibadan, Nigeria.*

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INTRODUCTION

Housing infrastructural provision refers to the bringing into existence of the basic amenities and services which must be in place for a particular activity or pursuit. However, no nation can boast of significant development or an enhanced economy without providing the basic infrastructures for the citizens' well-being. Provision of adequate infrastructural facilities is not taken for granted in developed countries; however, it remains a major challenge in developing countries, especially in Sub-Saharan Africa. The problem of housing has become an everyday discussion in all quarters of the public and private services of the developing countries of Africa. It has become increasingly glaring that most of the urban population live in dehumanizing housing environment while those that have access to average housing do so at abnormal cost. Different definitions have been ascribed by several authors to the word infrastructure. Infrastructure is the basic physical and organizational structures needed for the operation of a society like industries, buildings, roads, bridges, health services, governance and so on. It is the enterprise or the products, services and facilities necessary for an economy to function (Sulivan and Sheffrin, 2003).

Infrastructure can be described generally as the set of interconnected structural elements that provide framework supporting an entire structure of development. It is an important term for judging a country, region or state's and individual's developments/status. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, electrical national grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions" (Fulmer, 2009). Amis and Kumar (2000) argued that infrastructure helps individuals cope with the different dimensions of poverty. It follows therefore, that whenever people are deprived of basic infrastructures, the result is impoverishment. It also follows that cities with the greatest number of poor people are those whose citizens lack infrastructure the most. Urban infrastructure and housing provision are interwoven. Without infrastructures, housing cannot be sustainable and hence should be treated integrally (Otegbulu and Adewumi, 2008). An ideal urban neighbourhood should be provided with good roads, drainage networks, electricity and portable water supply, good waste management system and security. The condition of these services in Nigeria urban neighbourhood contradicts the principle of sustainability in urban housing.

Infrastructures play an invaluable role in housing; however things have gone from bad to worse especially in developing countries like Nigeria. Their arises a need thus for a research into the state of infrastructural provisions in mass housing schemes unraveling the present state of decline, its causalities and, the enactment of probable and sustainable solutions in the light of new technologies. One major aspect of urban problem with respect to housing is the poor state of the infrastructures (Ajanlekoko, 2001). A major challenge to providing adequate housing is the lack of primary infrastructure, as roads, water, electricity, social amenities etc, which accounts for about 30 percent of housing costs. In most cases developers have to provide the infrastructures which in most cases falls short of the standards in terms of quality and quantity — as a means of cutting costs. Literature on housing have tend to focus more on issues of policy, finance, and economics of housing provision, issues such as infrastructures are treated en-passant. However as the demand

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for quality housing is on the increase researchers are on the outlook for ways to present housing from a comprehensive perspective. The role of infrastructures in housing provision cannot be overemphasized and should not be treated as a last minute consideration. The study aims at evaluating housing infrastructural provision in a selected housing scheme using Bashorun housing scheme as a case study with a view to provide policy makers and other stake holders the required information needed to evaluate and review the effectiveness of policies and delivery strategies and also provide a framework for enforcing enacted guidelines in view of achieving sustainable developments in the housing sector.

Objectives of the Study

The specific objectives of this study include:

a. To assess of the state of infrastructural provision in the selected public housing estate.

b. To examine the relationship between infrastructural provision and occupant's level of satisfaction.

c. To examine the relationship between management services rendered by the management authority and occupant's level of satisfaction.

Scope and Significance of Study

The study stressed the importance of infrastructure to human and economic development, with the objective of determining the sustainability of urban housing development in the context of neighbourhood infrastructure provision in the study area. It is a fact that a meaningful socio-economic development cannot take place without infrastructural provision. Infrastructure services are therefore regarded as critical components for improving the quality of life in a community.

In terms of infrastructural provision, Infrastructure is looked at from the point of view of facilities provided to make human living complete and comfortable. Examples of such infrastructure which deserve attention in order to creating an enabling environment for economic growth and enhance the quality of life of the residents include drainage, transportation, communication, security, education, health services, water supply, refuse disposal, recreation among others.

LITERATURE REVIEW

Basic Concept of Infrastructure and Infrastructural Provision

According to Fox (1994), as quoted in Yomi (2003) "Infrastructure is seen as including those social services derived from a set of public works traditionally provided by the public sector, to enhance private sector production and to allow for household consumption. They include services like roads, hospitals, schools, water supply, power supply sewage, etc. All these services largely determine how healthy and prosperous an individual would be and how long he will live. The failure of many public and private housing projects in Nigeria has been attributed to the non-consideration of relevant basic infrastructural provisions. Infrastructures are economic and social underpinnings of a community or nation. Donald (1974) defines it as the physical structures and facilities that are developed or acquired by public agencies to enhance governmental functions and provide water, power, waste-disposal, transportation or similar services to facilitate the achievement of common social and economic objectives.

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An important challenge facing the country is the provision of affordable housing and basic infrastructures. As more and more Nigerians make towns and cities their homes, the resulting social, economic, environmental and political challenges need to be urgently addressed (Raji, 2008). According to Fox (1994), infrastructures are those services derived from a set of public works traditionally provided by the public sector to enhance private sector production and to allow for household consumption. Infrastructure plays critical but not independent role in stimulating and sustaining economic growth. Kesside (1993) research on developed countries support the fact that infrastructure capital has a significant and positive effect on economic output. She observed that developing countries need infrastructure, and more importantly the services that stem from their provision, so that they can achieve economic growth.

Basic Infrastructural Provision in Housing

Generally the state of infrastructures in Nigerian housing schemes is deplorable especially in housing schemes that have been 'provided' by the government. The woe of such schemes has been that planning and provision of infrastructure is relegated to the background. Under the milieu of a housing policy that is not so favorable; infrastructure among other issues is bound to suffer. It becomes obvious that the problem of an infrastructural short fall in housing is multifaceted and it would require machinery that has a track record of comprehensiveness, to put any sustainable solution into view. Two approaches are known to be very promising - private participation on one hand and user participation on the other. However, the former only has the capacity to boast the capital investment that would be needed to provide and sustain a thriving infrastructural scheme in housing provisions on a large scale.

For the purpose of this paper, we shall consider infrastructures relating to that which is necessary to support housing schemes. Nubi (2003) also describes infrastructures as the aggregate of all facilities that allow a city to function effectively. It is also seen as a wide range of economic and social facilities crucial to creating an enabling environment for economic growth and enhances quality of life. They include housing, electricity, pipe-borne water, drainage, waste disposal, roads, sewage, health, education, telecommunications and institutional structures like police station, firefighting stations, banks and post office; it is simply the engine needed to drive the city. Irrespective of the forms of definitions offered, the common elements include physical structures, facilities or utilities that are put in place by private or public involvement and expenditure aimed at facilitating the effective functioning of the society. Hence Nigerian cities are largely characterized by the public provision of urban infrastructural services such as electricity, water supply, drainage, sewage, access road and solid waste collection and disposal. The three tiers of government federal, state and local are often involved in one way or the other in the provision of these services in the urban centres (Nubi, 2003). For this study, the following key infrastructures (availability or lack of them) may have a direct impact on the quality of housing schemes in Nigeria:

a. *Road transportation system*
b. *Drainage system*
c. *Electricity supply and distribution*
d. *Water supply*
e. *Sewage treatment plant or alternative disposal system*

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f. *Refuse disposal*
g. *Communication systems*

A Road transportation system

Road transport refers to the conveyance of people, goods and services from one place to the other via roads. In almost all urban centres, the road is the commonest means of transport. For the economic, social and political development of the urban centre or neighborhood, there is need for efficient and effective urban transport network. This consists of system of roadways, parking and walkways used to achieve movement of people and goods by vehicular movement and walking and to provide accessibility to various locations. It is an indispensable aspect of the planning of urban space and it must be inculcated into the planning process at it earliest stages.

B Drainage system

A major problem which confronts many urban centres today in Nigeria is yearly flooding after every down pour. This is caused by drainage canals which have been blocked purposefully by people carrying out unauthorized construction or by share negligence of the urban dwellers to clear the drainages of debris as well as dumping of refuse and sachets of water in the drainages; or total abuse of drainages in the consigned neighbourhood. Drainage is the removal of surface or subsurface water from a given area by natural or artificial means. The essential principle of any type of land drainage is to provide an open, equate, and readily accessible channel through which the surface or subsoil water can flow. For this purpose, open ditches are sometimes used, but these are not always satisfactory because they may become choked with sediment and vegetation. Underground drains are usually an alternative. Of the different types of closed drains, the most efficient is so-called tile drain, which is composed of pipes made of sections of hollow earthenware concrete tiles that are buried at a depth of about 1 to 2 m (about 3 to 6 ft). Excess water in the soil seeps into the pipes through apertures in the tiles.

C Electricity Supply and Distribution

Electricity supply or power infrastructure as the name implies is the provision of electricity to the populace. Nationally, the supply of electricity has been the sole responsibility of the Power Holding Nigeria Limited. Regular supply of electricity is very necessary for the all-round development of any nation. Power plays an important role in domestic life since it is required to power household equipments like television, pressing iron, washing machine, cookers, etc aid to power utilities like street lights, local water supplies etc. Aside domestic uses, commercial and industrial concerns need constant supply of electricity for their businesses. However, our electricity supply is characterized by frequent power cuts; sometimes some communities may remain without electric power supply for hours, weeks and even months (Frank 2003). Owing to the ‘epileptic’ electricity supply, many consumers have resorted to using alternatives such as lantern, kerosene stove, gas lamps, and generators. Also the use of these alternative sources of power supply have sometimes caused explosion resulting in loss of lives and properties. Hence the supply of electricity as infrastructural provision must be efficiently integrated into the general housing layout.

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D Water Supply

The importance of water to mankind is immeasurable. It serves as life support and a source of hygiene which is an important ingredient of well-being. Hence, one of the foremost needs of man for his daily survival is water. Realizing man's need for water, calls for adequate supply of water to the people. Water Supply is the provision of water for domestic, industrial, and irrigation needs, and the engineering installations necessary to treat and pump the water to the consumer. The average daily water consumption rate in populated areas ranges from 380 to 950 litres (100 to 250 gallons) per person per day, and extensive water-treatment plants are essential for providing water safe for human consumption.

E Sewage Disposal

A sewage disposal process commonly used to treat domestic wastes is the septic tank: a concrete, block or metal tank where the solids settle and the floatable materials rise. The partly clarified liquid stream flows from a submerged outlet into subsurface rock-filled trenches or soak away through which the wastewater can flow and percolate into the soil where it is oxidized aerobically. The floating matter and settled solids can be held from six months to several years, during which they are decomposed anaerobically.

F Refuse Disposal

The incessant accumulation of solid waste along the roads in towns and cities in Nigeria is alarming. Waste deposit, especially along streets and even along highways has become an environmental hazard. In some urban centres, there may be no designated spots to deposit the wastes for their onward disposal; therefore, people throw them about indiscriminately, even into the drainage canals, hoping that the flood water will carry the waste away when rain falls. Unfortunately, some of these waste deposits end up clogging the drainage channels and turning the flooding of our roads into permanent scenery in the environment. Disposal of normally solid or semisolid materials, resulting from human and animal activities, that is useless, unwanted, or hazardous. Solid wastes typically may be classified as follows:

i. Garbage: decomposable wastes from food
ii. Rubbish: non-decomposable wastes, either combustible (such as paper, wood, and cloth) or non-combustible (such as metal, glass, and ceramics).
iii. Ashes: residues of the combustion of solid fuels
iv. Large wastes: demolition and construction debris and tree

G Communication Systems

Communication is an act of conveying information, parcels, messages and other documents from one place to another. The availability of communication infrastructure increases the general standard of living. The importance of effective communication in the economy cannot be over emphasized. Individual people, businesses, and governments use many different types of communications systems a means of interaction. Through effective communication, information, messages and ideas are easily conveyed from one place to another. Effective postal and telecommunications systems, including the telephone, telegraph, telex, cellular phones, postal services, and others will reduce the burden on the urban roads as many urban dwellers would be able to transact their businesses through the available communication systems rather than face the congested roads. In such a situation, commercial and industrial lives can operate more efficiently.

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All communications systems are constantly evolving as telecommunications technology improves, for example, high-speed broadband connections used to send multimedia information over the Internet.

EXPLANATORY PROFILE OF THE STUDY AREA: BASHORUN HOUSING ESTATE, AKOBO, IBADAN

Bashorun housing scheme is located on the north-eastern periphery of lbadan city. It is located beside a length of the Lagos- lbadan express road and also bounded by Orita Bashorun road. The site for the housing scheme is an undulating terrain of rising and descending landforms. Much of the natural vegetation has been lost due to physical development in houses and roads. Nevertheless open spaces have been design to inter sparse the general layout of the scheme. The residential housing scheme whose infrastructural facilities were evaluated is one of the foremost housing estates in the city of Ibadan. It boasts of a population of up to four thousand people and consists mainly of people of the middle class income level. The ethnic groups consist basically of the Yoruba people. The residential development is generally characterized by an atmosphere of serenity. The scheme was developed in three phases - I, II, III; the third phase is presently under development, phase I and II consist of 720 developed plots. Bashorun housing scheme was founded in 1979 under Shehu Shagari's new civilian rule. While the new government was eager to provide housing for the populace, it was becoming obvious that the 'provider' position of the government was less than adequate and that private initiatives should be welcomed in the housing delivery process. Thus Bashorun housing scheme was conceived as a site and service scheme where in a large parcel of land was divided into serviced plots was open up for residential development. The Oyo state housing corporation was the government body directly responsible for the scheme. The corporation was responsible for the plot applications, approval of design drawings, maintenance and services and the initial provision of services which included: roads, water supply, market, school, filling station, worship centers (churches and mosques), police station, refuse disposal and other infrastructures. The housing estate is directly managed by the Oyo State housing corporation and the housing corporation is in charge of general sanitation, refuse collection, security and future development coordination.

RESEARCH METHODOLOGY

The study adopted a field survey approach and survey research technique. Data for this study were collected from primary and secondary sources. Primary data was obtained through the use of a well- structured questionnaire containing close-ended questions (for ease of analysis) and also the use of direct observation of the facilities on the field. The questionnaire was designed for the occupants living in the selected residential estate chosen for the study. A total of two hundred (200) copies of the questionnaires were administered on randomly selected residents within the housing estate. To achieve the aim of the study, the questionnaires were administered directly to the occupants, preferably the household head, or any mature member of such household in the absence of the household head. Out of the 200 questionnaires administered, 166 valid copies were filled and retrieved, yielding a response rate of (83%). Data on the socio-demographic characteristics of the respondents and questions on availability and adequacy of the facilities, functionality/condition of the existing infrastructures and improvement in the level of

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infrastructural provision were presented. Secondary data was obtained from documentary source, made up of published and unpublished materials on the subject matter.

RESULTS AND DISCUSSION

Data gathered from the questionnaires administered were analyzed using descriptive and inferential statistics. Result of socio-demographic characteristics of the respondents and assessment of housing infrastructural provision was presented using descriptive statistics (frequency count), while the result on the relationship between infrastructural facilities provided and level of satisfaction of the occupants, and the relationship between management service and occupants level of satisfaction was analyzed using correlation analysis.

Table I: Socio-Demographic Characteristics of Respondents
Source: Authors' field survey and analysis (2014).

Table 1 above presents the socio-demographic characteristics of the respondents; gender, marital status, age, ethnicity, employment type, level of educational, income level and duration of residence. The result reveals that majority (65.7%) of the respondents were males, while the females respondents accounted for (34.3%). This result is in conformity with the Yoruba tradition that bestowed matrimonial financial responsibilities on male (husband). This is also reasonable because men are most times obligated to provide shelter or the household. Table 1 above also reveals that significant proportions (73.5%) of the respondents were married, while the divorced and the single respondents constituted (15.7%) and (10.8) respectively. Simple majority (44.6%) of the total respondents were observed to be in the age group 31-45 years, age group 46-60 years (25.3%), while respondents older than 60 years accounted for (9.6%). The data presented in table above also reveals the predominance of the Yoruba ethic group, accounting (82.5%), Igbo (8.4%) and Hausa (3.1%). This predominance of the Yoruba ethnic group was anticipated owning to the fact that the study area was located in southwest Nigeria. Furthermore, the result also indicates that majority (53.6%) had first degree, (24.1%) has postgraduate education and just (1.8%) had no education. This implies that the respondents possess substantial academic status which could guarantee the understanding level of the questions directed to them and consequently established the originality of the data obtained for the study. Finally, the result reveals that majority (51.2%) of the respondents earned between ₦61,000.00 to ₦105,000.00 monthly. Also, simple majority (49.4%) of the respondents had lived in the estate for a period of 11-20 years, 2-10 years (25.3%) and above 30 years (3.6%).

Empirical analysis and findings

The validation of information in this study yielded a Cronbach's alpha of 0.76. Validation is internal consistency reliability measure via SPSS. This study has three objectives; the first involves a critical assessment of the state of infrastructural provision in Bashorun housing estate. Secondly, examines the relationship between infrastructural facilities provided and occupants' level of satisfaction. Thirdly, it examines the relationship between management service and occupant's level of satisfaction. To achieve the first objective, descriptive analysis of the items under infrastructural provision at the housing estate was undertaken. The infrastructures, as broad spectrum of services, institutions and facilities as identified in the study area includes; water

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Features	Qualification	Frequency	%
Gender	Male	109	65.7
	Female	57	34.3
	Total	166	100.0
Marital Status	Single	18	10.8
	Married	122	73.5
	Divorced	26	15.7
	Total	166	100.0
Age (Years)	15-30 years	30	18.1
	31-45 years	74	44.6
	46-60 years	42	25.3
	Above 60 years	16	9.6
	No response	4	2.4
	Total	166	100.0
Ethnicity	Igbo	14	8.4
	Yoruba	137	82.5
	Hausa	5	3.1
	Others	10	6.0
	Total	166	100.0
Employment Type	Self employed	24	14.5
	Student	8	4.8
	Civil servant	130	78.3
	No response	4	2.4
	Total	166	100.0
Level of Education	No education	3	1.8
	O' Level	11	6.6
	ONN	23	13.9
	HND/B.SC	89	53.6
	Postgraduate	40	24.1
	Total	166	100.0
Level of Income	Less than ₦25,000.00	5	3.0
	₦26,000.00 - ₦60,000.00	39	23.5
	₦61,000.00 - ₦105,000.00	85	51.2
	₦106,000.00 - ₦150,000.00	21	12.7
	Above ₦150,000.00	10	6.0
	No response	6	3.6
	Total	166	100.0
Duration of Residence	Less than a year	14	8.4
	2-10 years	42	25.3
	11-20 years	82	49.4
	21-30 years	22	13.3
	Above 30 years	6	3.6

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Total	166	100.0

supply, electricity supply, refuse disposal, road accessibility, security, health and educational facilities as well as filling station, worship centres etc. The result is presented below:
Empirical Findings made from the study revealed that the main source of water supply is largely through underground well water, some of which have shallow depth. This poses some problems because the water is not treated before use. Only few, about 20.3% enjoy tap water, which is not regular. From this situation, the existing water supply does not guarantee quality water supply in the study area, hence the people are at greater risk of contracting acute water borne diseases. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality

Empirical findings of the study revealed that there was no organized refuse disposal in the estate; and the state of waste disposal in the area is generally absurd in spite of government efforts to curb indiscriminate disposal. Heaps of refuse was always noticed at the collection bin of the refuse chutes in the Estate. Refuse was not collected on time; several times it was collected only once in a month. Over 60% dispose their refuse indiscriminately, some in open spaces (34.8%), some through burning within residential environment thereby causing air pollution (12%) while 15% disposes theirs at road sides and drainages where nobody cares for them. This hampers the free flow of run-off and constitutes comfortable breeding grounds for flies, mosquitoes and other health-infected animals that could contribute to the spreading of diseases. Refuse disposal facility in the study area is generally poor and only 23 percent of the residential properties enjoyed refuse disposal services. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality.

Empirical findings of the study revealed that the main source of electricity supply to the area is through the Power Holding Company of Nigeria (PHCN). Power supply in the estate is from public Mains. The entire estate was connected to one PHCN maximum demand meter which accounts for over 80% of the sampled buildings. About 13% used generating plant as supplements. This is quite impressive except for the erratic nature of light supplied by the PHCN. There are cases of the area been put in total darkness for weeks or sometimes months. Electricity supply to the housing estate was not stable and there was non-availability of a good generator to supply electricity to the housing estate whenever there is public power outage. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality

Empirical findings of the study revealed that Access roads are another important facility in the study area that needs serious attention. From the empirical survey, 53% of the respondents indicate that their dwellings are accessible by road out of which 27% are not tarred while 25% gain access to their dwellings only by footpaths. The area also suffers from good road network. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality. Other facilities investigated in this category include security, school and health facilities. The area does not have security post as indicated by 83% of the respondents. The closest police station is about 3 to 4 kilometres farther away. The effect of this on the study area is the incessant occurrence of burglary as indicated by 72% of the respondents. Educational facilities available are only limited to preliminary level of nursery and primary education of which majority are privately owned by some individuals at exorbitant cost for the poor people to benefit. The few public schools available

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cannot support the teeming population of the school age children in the area. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality
Empirical findings of the study revealed that the state of health facilities is far below satisfaction. A large number of the respondents are having the facilities either farther away from their dwellings or completely absent within their neighbourhoods. About 67% indicate non-availability of health facilities while only 16% is accessible to health facilities, either ordinary chemist store or mini health centre within their neighbourhood. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality. Beside these, household facilities were investigated to determine the level of individual satisfaction and comfort derived from their dwellings. From the survey, 45% indicates inadequacy of household facilities, taking into consideration the density ratio of the users. About 24% indicates fairly adequate while only 10% indicates satisfactorily with the level of household facilities provided. Drainage facility was equally examined. The survey reveals the absence of this facility in some parts of the area while they are being misused where they are provided through incessant dumping of refuse and human defecation without regular removal. The inadequacy or lack of basic facilities in the area of study has its numerous attendant problems on the general environment, socio-economic lifestyle, and the health of residents. The larger parts of the housing environment has been rendered unattractive for lack of essential services like water, access roads, regular supply of light, school, and health facilities making the study area deplorable conditions. About 56.7% attested to outbreak of communicable diseases and other environmental related problems like malaria fever (20.7%), typhoid fever (13.5%), and flooding (22.8%). About 15.6% complain of diarrhea while 6.2% indicate cholera. Suggested causative factors include poor water supply (30.8%), dirty environment (44.9%), overcrowding (16.3%), and poor drainage (2%). Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality.

Furthermore, Empirical findings of the study revealed that one major infrastructure that stands out, as being efficiently managed is telecommunication services, voted very good by 93.1% of the total respondents. This result can be ascribed to the introduction of GSM telephone service by private operators in Nigeria. Other facilities assessed as being very good are market / shopping centres (44.14%) and education 35.6%. The reason for these may not be unconnected with the provision and management of the two facilities largely by the private sectors. The number of private nursery / primary and secondary schools in the local government area is more than that provided by the governments. Rank Test on the Expected and Obtained Quality of this facility shows that Obtained Quality < Expected Quality.

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To achieve the second objective, correlation analysis was used to test the extent of relationship between infrastructural provision and occupants' level of satisfaction. Table II below presents the result of the correlation analysis.

Table II: Relationship between infrastructural provision and level of satisfaction

Correlation		**Infrastructural provision**	**Level of satisfaction**
Infrastructural provision	Spearman's rho	1	.651
	Sig. (2-tailed)		.002
	N	166	166
Level of satisfaction	Spearman's rho	.651	1
	Sig.(2-tailed)	.002	
	N	166	166

Source: Authors' field survey and analysis (2014)

Table II above reveals the degree of relationship between housing infrastructural provision and occupant's level of satisfaction. From the table, it can be observed that a strong, positive relationship exist between infrastructural provision and occupants level of satisfaction (rho=0.651, n=166, $p<0.05$), indicating that occupants' high level of satisfaction was attributed to the level of housing infrastructure provided. However, occupants' level of satisfaction was linked to private involvement in the housing scheme.

To achieve the third objective, which seek to examine the relationship between management service rendered by the management authority and occupants' level of satisfaction, correlation analysis was also adopted to check for the extent of relationship. The result is presented in table III below.

Table III: Relationship between Management service and occupants' level of satisfaction

Correlation		Management service	Level of satisfaction
Management service	Spearman's rho	1	.421
	Sig. (2-tailed)		.001
	N	166	166
Level of satisfaction	Spearman's rho	.421	1
	Sig.(2-tailed)	.001	
	N	166	166

Source: Authors' field survey and analysis (2014).

Table III above shows the degree of relationship between management services in the selected housing estate and occupant's level of satisfaction. From the table, it can be observed that a moderate, positive relationship exist between management service and occupants level of satisfaction (rho=0.421, n=166, $p<0.05$). This is an indication that occupants at the selected housing estate were fairly satisfied with the general management services provided. Their

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satisfaction level was influenced by the involvement of the private sector since the totality of the management services is jointly provided by public and private corporation, with the former playing the regulatory role.

SUMMARY OF FINDINGS

The analysis of the study revealed some important outcomes. Firstly, Infrastructural services which were publicly provided are no longer operating optimally. Most of such facilities (electric power supply, water supply for example) have become erratic in nature while residents have resolved to private alternatives. For example, the study reveals that the main source of water supply is largely through underground well water, some of which have shallow depth. This poses some problems because the water is not treated before use. Hence, the people are at greater risk of contracting acute water borne diseases. Electricity supply to the housing estate was not stable and there was non-availability of a good generator to supply electricity to the housing estate whenever there is public power supply.

Findings of the study also revealed that Access roads are another important facility in the study area that needs serious attention. From the empirical survey, 53% of the respondents indicate that their dwellings are accessible by road out of which 27% are not tarred while 25% gain access to their dwellings only by footpaths. The study further revealed that there was no organized refuse disposal in the estate as over 60% of the occupants in the housing estate disposes their refuse indiscriminately. This hampers the free flow of run-off and constitutes comfortable breeding grounds for flies, mosquitoes and other health-infected animals that could contribute to the spreading of diseases. Other facilities investigated include security, school and health facilities. The area does not have security post as indicated by 83% of the respondents. The closest police station is about 3 to 4 kilometres away. The effect of this on the study area is the incessant occurrence of burglary as indicated by 72% of the respondents. Educational facilities available are only limited to preliminary level of nursery and primary education of which majority are privately owned by some individuals at exorbitant cost for the poor people to benefit. The few public schools available cannot support the teeming population of the school age children in the area.

In addition, findings of the study revealed that the state of health facilities is far below satisfaction. About 67% indicate non-availability of health facilities while only 16% is accessible to health facilities, either ordinary chemist store or mini health centre within their neighbourhood.The study also reveals a strong, positive relationship exist between infrastructural provision and occupants level of satisfaction ($rho=0.651$, $n=166$, $p<0.05$), indicating that occupants' high level of satisfaction was correlated to the level of housing infrastructure provided (see table II). However, occupants' level of satisfaction was attributed to private involvement in the housing scheme.

Also, a moderate, positive relationship exist between management services and occupants level of satisfaction ($rho=0.421$, $n=166$, $p<0.05$). This is an indication that occupants at the selected housing estate were fairly satisfied with the general management services provided. Their satisfaction level was also influenced by the involvement of the private sector since the totality of the management services was jointly provided by public and private corporation, with the former playing the regulatory role.

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Finally, the study reveals that the estate management is constituted directly by the Oyo State housing corporation, Ibadan. Although, the Oyo State Housing Corporation plays a regulatory role that tends to be restrictive in nature. While most of the amenities are privately owned they are however conditioned by the corporation. The totality of infrastructure is managed by a cooperation of both the public and private, with the former playing the regulatory role with a good deal of the residents satisfied with this arrangement. However, the residents are to a large extent unsatisfied with the state of infrastructural provision in the housing scheme. They attribute their satisfaction to role that private involvement is playing in the housing scheme. It becomes obvious that an efficient state of infrastructural provision and development can be envisaged in a housing system where both public and private initiatives are allowed to coexist and function interdependently. Nevertheless, Bashorun housing scheme cannot be rated as a thriving site and service scheme especially in the aspect of infrastructures.

CONCLUSION AND RECOMMENDATIONS

This study assessed housing infrastructural provision in Bashorun Housing Estate Akobo, Ibadan Oyo State, Nigeria. It reported findings from respondents' assessment of available infrastructures in the selected estate. Bashorun housing estate, the housing scheme under the microscope, is a typical example of a unique government initiative called a site and service scheme. The study also revealed that a good number of the residents were not satisfied with the state of infrastructures in the estate. The state of infrastructures is at a rather unsatisfactory level due to lack of cooperation from both public and private participants. While the former provide the enabling environment, the latter is directly responsible for infrastructural provision. The study reveals the degree of relationship between housing infrastructural provision and occupant's level of satisfaction, thus indicating that occupants' high level of satisfaction was attributed to the level of housing infrastructures provided. The study also reveals a moderate, positive relationship that exist between management services and However, occupants' level of satisfaction was attributed to private involvement in the housing scheme occupants level of satisfaction, thus indicating that occupants at the selected housing estate were fairly satisfied with the general management services provided. Their satisfaction level was also influenced by the involvement of the private sector since the totality of the management services was jointly provided by public and private corporation, with the former playing the regulatory role. It is worth reiterating that progressive and sustainable development in housing infrastructures needs the cooperation of both the public and private sectors; while a private sector oriented approach should be sort in the aspect of infrastructural provision in housing in the Nigerian housing sector. The policy implications of this study's finding suggest that while public housing dwellers should have access to suitable house types that fulfills their housing needs and aspirations, the quality of urban housing, the quality of life for urban residents, can be enhanced if urgent attention is paid by government to the provision of basic social amenities and infrastructural facilities. It thus provides information that will assist policy makers in effective public housing delivery. Arising from these findings, this study underscores the need to consider relevant infrastructures for the overall housing improvement and sustainable housing development in Nigeria.

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RECOMMENDATIONS

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Based on the analyses of results and major findings of this empirical survey, it is imperative at this stage to make some policy recommendations that will address the issue of developing the aspect of infrastructural provisions in housing. In views of the foregoing, the following recommendations are hereby put forward as policy guidelines toward a sustainable management of the area of study:

1. Policies should be enacted that account for proper development in housing infrastructure.
2. The different tiers of government should stimulate private sector provision of housing infrastructures by incentives such as loans, tax relief, etc.
3. Verile institutions should be enacted to regulate the activities of the private sector in the provision of housing infrastructures.
4. The government should sponsor informed research into the particular issue of infrastructures in housing so that policy formulation can be better informed.
5. The system of approval processes for private sector participation should be reviewed to minimize cost and time.
6. Professionals in the different types of infrastructures should be part of the planning process of housing development right from its earliest stages.
7. Housing layouts should be designed to have necessary infrastructure for effective social interactions within and beyond the housing estates. Adequate physical infrastructure will enhance the value of the housing scheme, while also providing a sense of dignity to the residents.

REFERENCES

Ajanlekoko, J. S. (2001). Sustainable Housing Development in Nigeria – The Financial and Infrastructural Implication. *International Conference on Spatial Information for Sustainable Development Nairobi, Kenya.*

Amis, D. and Kumar (2000). Urban economic growth, infrastructure, and poverty in India: Lessons from Visakhapatnam, *Environment and Urbanization. Vol. 12 (1).*

Donald, C. S. (1974). Professional Education in Public Works / Environmental Engineering Administration 5th ed. Chicago. American Public works and Association. (July/August): 30–32.

Fox, W. F. (1994). "Strategic Options for Urban Infrastructure Management". *Urban Management Programme (UMP) Paper 17. The World Bank pp7.*

Frank, I. (2003). The state of Urban Infrastructures in Nigeria. *Atlantis Books, Ibadan. Nigeria*

Sullivan, A. and Sheffrin, M. S. (2003). Economics: Principles in action. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall.

Nubi, T.O (2003). 'Procuring, Managing and Financing Urban Infrastructure: Towards an Integrated Approach Land Management and Property Tax Reform in Nigeria, in `Omirin et al(ed.) Department of Estate Management, University of Lagos, Akoka.

Otegbulu, A and Adewumi, Y. (2008). "Evaluating the Sustainability of Urban Housing in Nigeria through Innovative Infrastructural Management*", International Journal of Housing Markets and Analysis, Vol. 2, No. 4, Pp. 334-346.*

Fulmer, Jeffrey (2009). What in the world is infrastructure? *PEI Infrastructure Investor* (July/August): 30–32.

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Yomi, F. (2003). Urban Finance and Infrastructure Development in Nigeria. *Atlantis Books, Ibadan. Nigeria.*

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