

**EFFECT OF BUILDING OBSOLESCENCE ON ADJOINING  
RESIDENTIAL PROPERTY VALUES IN ABUJA, NIGERIA**

**BY**

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**DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION  
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**

**MAY, 2023**

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## **ABSTRACT**

Obsolescence has been a persistent problem affecting residential property in recent years due to factors including changes that occur to the buildings, natural wear and tear, technological issues or change in taste of users. This thesis examines the effect of building obsolescence on adjoining residential properties value in Abuja. The research work used self-administered questionnaire to 116 respondents out of 171 registered estate surveyors and valuers' firms in Abuja according to Nigeria Institution of Estate Surveyor and Valuer directory of 2021. Out of the 116 questionnaire given out 93 was dully filled and returned. Also, an interview was conducted with a complete census of 89 buildings within 150m radius of the 11 building adjoining obsolete property. The data obtained were analyzed using relative importance index (RII) and weighted Average. This study shows that the causes of building obsolescence in Abuja are poor standard maintenance, natural detoriation, construction faults, age of building, poor accessibility and environmental pollution. It is then recommended that special attention should be paid to standard of building maintenance because it contributes predominantly to the longevity of buildings. Meanwhile these buildings affected with obsolescence hardly have any significant effect on adjoining residential property.

## TABLE OF CONTENT

Title	i
Declaration	ii
Certification	iii
Acknowledgement	iv
Dedication	v
Abstract	vi
Table of Contents	vii
List of Figures	x
List of Tables	xi
List of Plates	xii
<b>CHAPTER ONE</b>	
1.0 INTRODUCTION	1
1.1 Background of the Study	1
1.2 Statement of Research Problem	3
1.3 Research Questions	3
1.4 Aim and Objectives	3
1.4.1 Aim	3
1.4.2 Objectives	4
1.5 Scope of Study	4
1.6 Significant of the Study	4
1.7 Justification of the Study	5
1.8 Study Area	5
1.9 Definition of Terms	7

## **CHAPTER TWO**

<b>2.0</b>	<b>LITERATURE REVIEW</b>	<b>8</b>
2.1	The Concept of Building Obsolescence	8
2.2	Categorization of Building Obsolescence	10
2.3	Defining Adjoining Properties	12
2.3.1	Types of Residential Properties	12
2.4	Impact of Existing Buildings on Adjoining Property Values	13
2.5	Impact of Obsolescence on Property Values	14
2.6	Summary Review of Various Literature on Effect of Obsolescence on Property Value	16

## **CHAPTER THREE**

<b>3.0</b>	<b>MATERIALS AND METHOD</b>	<b>18</b>
3.1	Types of Data	18
3.2	Sampling Technique	19
3.3	Study Population	19
3.4	Sample Size	20
3.5	Instruments for Data Collection	20
3.5.1	Questionnaires	20
3.5.2	Interview	21
3.6	Method of Data Collection	21
3.7	Method of Data Analysis	21

## **CHAPTER FOUR**

<b>4.1</b>	<b>RESULTS AND DISCUSSIONS</b>	<b>24</b>
4.2	Socio-economic Characteristics of Respondents	24
4.3	The Causes of Obsolescence on the Properties in the Study Area	26

4.4	Prevailing Property Values of Residential Properties in the Study Area	31
4.5	The Effect of Obsolete Property on the Values of Adjoining Residential Property	37
4.6	Summary of Findings	45
<b>CHAPTER FIVE</b>		
5.0	<b>CONCLUSION AND RECOMMENDATIONS</b>	48
5.1	Conclusion	48
5.2	Recommendations	48
5.3	Contribution to Knowledge	49
<b>REFERENCES</b>		

## **LIST OF FIGURES**

Figure	Page
1.1: Location of Abuja	6
2.1: Conceptual Model of Obsolescence	11
4.1 Types of Residential Properties	27
4.2 Value of Bungalow Residential Properties in the Study Area	34
4.3 Value of Bungalow Semidetached Residential Properties in the Study Area	35
4.4 Value of Duplex Residential Properties in the Study Area	36
4.5 Value of Semidetached Duplex Residential Property in the Study Area	37
4.6 Presence of Obsolete Properties Adjoining Residential property	38
4.7 Obsolete Property does not affect the Value of Adjoining Residential Property	40

## LIST OF TABLES

Table	Page
4.1 Respondent's Designation	25
4.2 Respondent's Years of Experience	26
4.3 Calculating Relative Important Index (RII) of the Types of Residential Properties	29
4.4 Causes of Obsolescence in The Residential Properties in the Study Area	30
4.5 Bungalow Annual Rental Values	31
4.6 Bungalow Semidetached Annual Rental Values	32
4.7 Duplex Annual Rental Value s	33
4.8 Duplex Semidetached Annual Rental Value s	33
4.9 Obsolete Property has an impact on the value of Adjoining Residential Property	39
4.10 How Factors that Cause Obsolescence of Residential Properties Impact Residential Property Values	44
4.11 How Factors that Cause Obsolescence of Residential Properties Impact Residential Property Values	45



## LIST OF PLATES

Plate		Page
I:	Image of Building Affected by Obsolescence in Garki Abuja.	41
II:	Image of Building Affected by Obsolescence and Adjoining Properties in Garki Abuja.	41
III:	Image of Building Affected by Obsolescence and Adjoining another residential building in Wuse Abuja.	42

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background to the Study

The significance of residential real estate properties to the economy of Nigeria and the various stakeholders cannot be over-emphasised. This class of asset contributes to the gross domestic product of a country, whereas some stakeholders (individuals and corporate) store their wealth in real estate, making the value of real estate properties to be of great importance to its holders (Abidoeye and Chan, 2016). But despite all these benefits enjoyed by various stakeholders, it does not last forever because, often times in history, buildings reach a certain stage where it can no longer perform its required use thereby becoming either out of taste or outright useless to the owner. This phenomenon can be attributed to changes that occur to the buildings, either by natural wear and tear or a case of change in taste of user overtime and can be termed obsolescence (Zivkovic, *et al.*, 2016). Obsolescence is commonly regarded as the beginning of the end-of-life phase of buildings (Thomsen and Flier, 2011).

Obsolescence is a serious threat for built properties. Given its immobile, long lasting and capital-intensive character and its societal and cultural significance on the one hand and the high uncertainty about their future lives on the other. According to Thomsen and Flier (2011) minimizing obsolescence is indispensable for the upkeep of the physical, economical and societal investments involved. This implies that any obsolete building seen as faced out, dilapidated, outdated or no longer in use, if not addressed will cause resultant defacing to the built environment.

Abuja being the capital city of Nigeria is one of the fastest growing cities in Africa and the world at large. This development has encouraged investors to massively invest in real

estate development in Abuja the Federal Capital Territory. Knowing fully well that real estate is one of the popular and profitable investments with a lot of potential for success. However, investors are becoming worried with the fast rate of technological advancement in building industry which usually limit the lifespan of buildings and its component due to change in taste and fashion and end up affecting the value of the properties. Building obsolescence is an important issue for building owners and occupiers, as many properties have been refurbished or redeveloped long before reaching the end of their physical life because of the impact of building obsolescence (Buitelaar *et al.*, 2021).

Many building types are increasingly prone to obsolescence because of the functional, economic and social requirement being placed on them by economic shifts, revolutionary technologies and emerging cultures (Rincón *et al.*, 2013) from the moment of construction buildings are subjected to the process of physical deterioration and capital invested in them undergoes gradual process of devaluation; as building age and decay they suffer from diminished utility and require a constant stream of capital investment (Thomsen *et al.*, 2015).

According to Olajide and Ijagbemi, (2019), previous researches that have written about obsolescence focused more on how air pollution, noise pollution, traffic congestion and waste usually affect the value of adjoining residential properties while neglecting the physical obsolescence which usually have direct relationship with property value. Meanwhile, Leguizamen (2010) was able to find out how newly constructed buildings can increase the value of adjoining residential property. But it is scarcely discussed if building obsolescence can affect the value of adjoining residential property. This study is set to carryout research on the Impact of building obsolescence on adjoining residential property value in Abuja, Nigeria.

## 1.2 **Statement of Research Problem**

Real estate business is a major contributor to National economy of any country, and there are factors that affects its value which may cause a fall or a rise in prices (Leguizamon, 2010). A significant factor that contributes to property value is building obsolescence which can be positive or negative, but usually indirect (Smith, 2004).

Past researches have shown that there is a relationship between obsolescence and residential property (Smith, 2004; Ihlanfeldt, 2007; Mansfied and Pinder, 2008; Olajide and Ijabgemi, 2019,). These previous studies, however, did not assess the effect of building obsolescence on adjoining residential property value, rather, the studies dwell on the causes of obsolescence and its impact on the particular property value. And in another finding made by leguizamon, (2010), which confirmed the fact that property of higher value most especially the newly constructed ones can affect the value of adjoining property. This condition has therefore set a need for research that can address the effect of building obsolescence on adjoining residential property value.

## 1.3 **Research Questions**

- i. What are the causes of obsolescence on residential properties in the study area?
- ii. What is the prevailing property value of residential properties in study area?
- iii. How does obsolete property affect the value of adjoining residential properties?

## 1.4 **Aim and Objectives**

### 1.4.1 **Aim**

The aim of this study is to assess the effect of building obsolescence on adjoining residential properties value.

### **1.4.2 Objectives**

In order to achieve the aim of this study, the following objectives shall be pursued.

- i. Evaluate the causes of obsolescence on the properties in the study area;
- ii. Assess the prevailing property value of residential properties in the study area;  
and
- iii. Assess the effect of obsolete property on the value of adjoining residential property.

### **1.5 Scope of Study**

The scope of this study does not span beyond two districts which includes: Garki district and Wuse district, within the Federal Capital City (FCC) phase 1, in Abuja Municipal Area Council (AMAC). These two districts were selected because they have the largest land mass and population within the FCC phase 1. The other districts are: Central Area, Asokoro and Maitama. Based on its contents, it deals with residential property types in the study area, the causes of obsolescence in adjoining residential properties, the property value of adjoining residential properties and how obsolescence of adjoining properties affects the value of residential properties in the study area.

### **1.6 Significance of the Study**

The significance of this study is based on the expectation to contribute to academic knowledge of real estate studies and in policy and decision-making process of real estate experts.

This study will educate the experts, general public, stakeholders in real estate business when making decision towards buying or selling residential property that is adjoining building obsolescence.

It will also assist building professionals when determining the value of residential property that is adjoining obsolete building.

Finally, this study will be of immense benefit to other researchers that wishes to carry out similar research on the above topic and also contribute to the body of the existing literature on the impact of building obsolescence on adjoining residential property value.

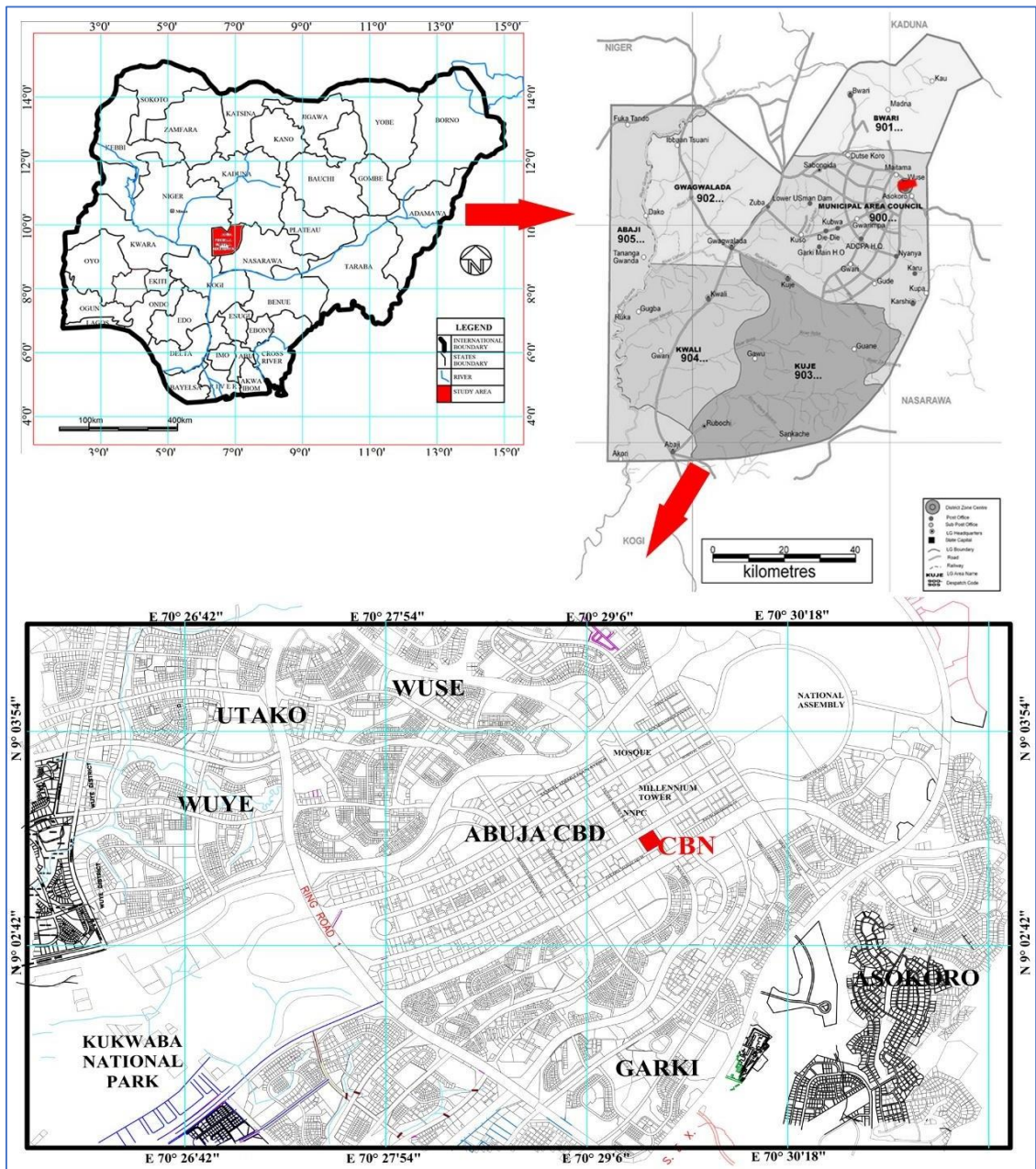
### **1.7 Justification of the Study**

The importance attached to real estate property by different stakeholders has necessitated a series of studies conducted in different economies of the world to investigate the attributes that influence property values. Meanwhile, the focus of previous researches has been on how environmental factors such as: air pollution, noise pollution, traffic congestion and wastes have affected the value of adjoining residential property (Olajide and Ijagbemi, 2019). Issues regarding the actual physical obsolescence with direct relationship with property value have not been well researched. This study therefore contributes to knowledge particularly on how obsolescence of a property affects adjoining property value.

### **1.8 Study Area**

Abuja otherwise referred to as the Federal Capital Territory is the Capital of the Federal Republic (FCT) of Nigeria. The city is Located at Latitude  $9.0765^{\circ}$  N, and Longitude  $7.3986^{\circ}$  E. (Figure 1.1). The territory is located north of the confluence of the Niger and Benue rivers. It is bordered by the states of Niger to the west and northwest, Kaduna to the north east, Nasarawa to the east and south, and Kogi to the south west. FCT consist of six Local Area Councils: Abaji, Abuja Municipal (AMAC), Bwari, Gwagwalada, Kuje, Kwali, whereby AMAC is the Central area council referred to as Abuja. Abuja is a planned capital city, which was built in the 1980s and officially

became Nigeria's capital on 12 December 1991, replacing Lagos though the latter remains the country's most populous city. Abuja's geography is defined by Aso Rock, a 400-metre monolith left by water erosion (Abubakar, 2014).



**Figure 1.1: Location of Abuja**

Source: Abuja Municipal Area Council (2019).

## 1.9 Definition of Terms

- i. **Building Obsolescence:** The diminishing usefulness and/or attractiveness of a building and/or allocation with respect to the function for which the building was designed or used for a long time (Garnet, 2006).
- ii. **Obsolete Building:** A building that is physically unfit for its current purpose (Garnet, 2006).
- iii. **Adjoining Property:** Landed property or building that shares boundary (Stimmel *et al.*, 2020).



## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 The Concept of Building Obsolescence

Obsolescence is a concept that can be said to be ambiguous as the meaning tends towards the type one is describing at a particular point in time (Mansfield and Pinder, 2008). The Oxford English Dictionary (2010) defines the adjective 'Obsolete' 'no longer used or practised; outmoded, out of date', or 'worn away, effaced, eroded; worn out, dilapidated; atrophied', and the noun obsolescence as 'the process or fact of becoming obsolete or outdated, or of falling into disuse', or more specific 'the process whereby or state at which machinery, consumer goods, etc., become obsolete as a result of technological advances or changes in demand. A building asset is described obsolete when it is judged to be completely and irredeemably unfit for its current purpose (Garnet, 2006). In this extreme case, the rational response would be to clear and redevelop the site or to sell up and relocate. Obsolescence, however, is process of becoming obsolete. Obsolescence occurs when a building is judged to be becoming less fit for its purpose. Obsolescence may need to be counteracted, this brings about the need to make decisions: change the condition; change the form; keep the form/condition and change the use; keep the form/condition and use and change the rent; dispose of the building and move to new one (Garnet, 2006).

One basic fact about the concept of obsolescence is that its appearance or manifestation in buildings; be it social, physical, functional or economic has the tendency of negatively impacting on the values of such property especially where inefficiency is incorporated into its management (Olajide and Ijagbemi, 2019). Bearing in mind the key objective of property development and management to obtain optimum return any negative impact on the building may definitely jeopardize this objective (Thorncroft, 1965). Building

obsolescence can therefore be defined as the diminishing usefulness and/or attractiveness of a building and/or a location with respect to the function for which the building was designed or used for a long time.

The theory of value serves as an introduction to a treatment of that phenomenon of building deterioration which is called obsolescence. Obsolescence and depreciation enact similar roles in the breaking down of value; their effect is to reduce the quality of the demand for the services of buildings. (Thomsen *et al.*, 2015). From the moment of construction buildings are subject to the process of physical deterioration and capital invested in them undergoes a gradual process of devaluation; as buildings age and decay they suffer from diminished utility and require a constant stream of capital investment (Rincón *et al.*, 2013). Obsolescence in building emanates from the concept of estate life cycle which establish the fact that a building is capable of being given birth to, grow, become old and capable of dying (Rincón *et al.*, 2013).

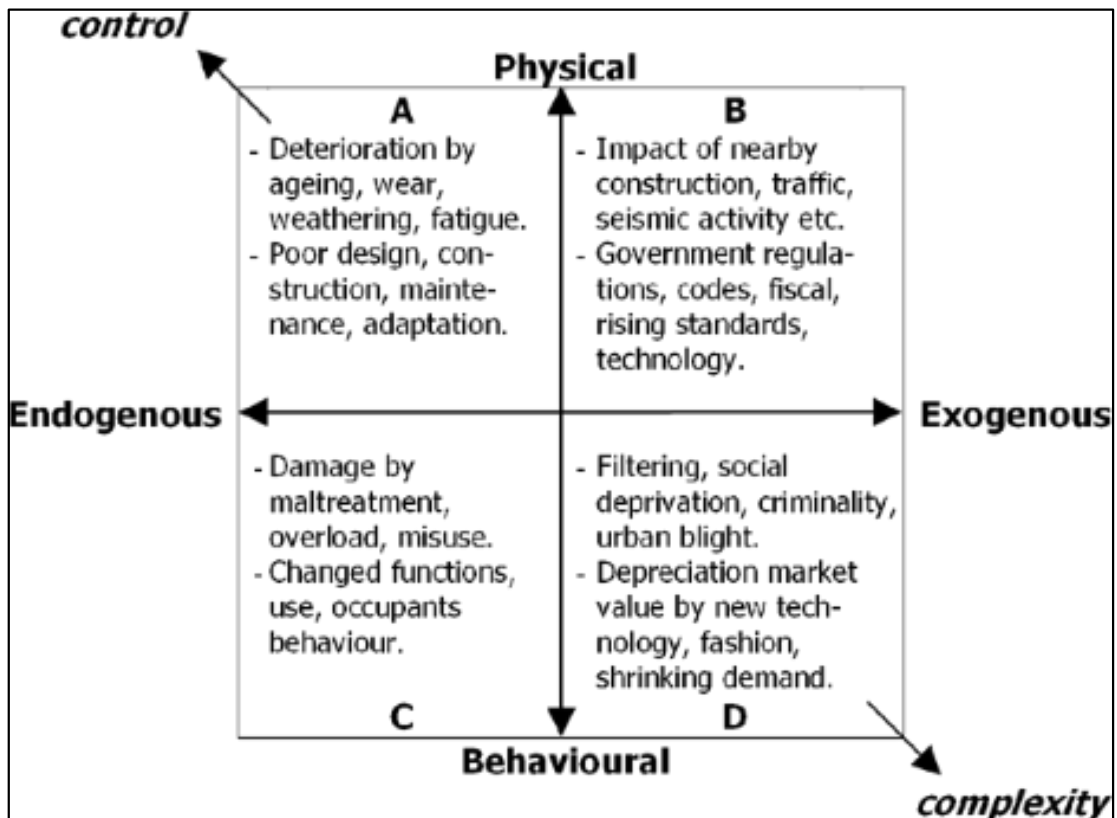
Obsolescence in building occurs in five stages which include: predevelopment stage, newly developed stage, middle age, old age and total obsolescence stage. The period of acquisition of land or site for development, design, financing arrangement and other jobs needed to be carried out to the completion of the building construction is referred to as the predevelopment stage. The newly developed stage refers to the initial stage of development which is generally not affected by obsolescence as long as maintenance is adequate. The middle age is the stage where the advantage of being new disappears and the building settles down to its long-term level of utility and value during the period. Old age represents the stage when the building continues to sink rapidly in status. At this stage, building shows the sign of obsolescence, physical deterioration adaptation to poorer type of the use than that for which it has initially designed out of date fitting and finishing.

Total obsolescence which represents the final stage of the estate life cycle is the stage when the estate has little or no value as it stands (Rincón *et al.*, 2013).

## **2.2 Categorization of Building Obsolescence**

Building obsolescence can be categorized into major obsolescence and minor obsolescence (Smith, 2004; Mansfield and Pinder, 2008; Olajide, 2017). There are basically five major obsolescence which are: physical, functional, economic, social and environmental. Whereas the minor category of obsolescence is unexhausted. Physical obsolescence is the loss in the usefulness of a property or assets as a result of wear and tear. Economic obsolescence is due to inability of a property to bring forth or generate the expected income as a result of an internal or external defect. Functional obsolescence is the inability of a building to perform its expected function efficiently as a result of defect or loss of value in architectural design, building style, size, outdated amenities. Social, otherwise known as Legal obsolescence occurs where a building fails to meet current legislation requirement and the costs involved in bringing the building up to the required standard are prohibitive. Environmental obsolescence of a whole neighbourhood may occur when the conditions in a neighbourhood render it increasingly unfit for its current use due to changes in the character of an area which may make a building unsuitable for its original intended use (Olajide and Ijabgemi, 2019).

Another categorisation of obsolescence distinguishes on the one hand internal and external factors, on the other hand physical and behavioural factors. This is assembled in a quadrant matrix, similar to the one used for building evaluations (Leaman *et al.*, 2010) in Figure 2.1.



**Figure 2.1: Conceptual model of Obsolescence**

Source: (Leaman *et al.*, 2010)

Internal or endogenous factors are related to processes typical for the building itself. The processes can be physical, like degradation and deterioration over time, caused by ageing, wear and weathering or fatigue of materials and structures, or by poor design, construction, lacking maintenance and adaptations. External or exogenous factors are related to influences from outside. They can have physical effects, like the impact of changing conditions in the environment by nearby constructions, traffic, pollution, noise, and seismic activity, or by changes in government regulations, building codes and fiscal conditions, rising standards and functional requirements and new technologies (Leaman *et al.*, 2010).

## 2.3 Defining Adjoining Properties

For a clear understanding of this study, it is important to properly define what an adjoining property is and what constitutes an adjoining property. Let's start by defining the word "adjoining". The word adjoining means touching or bounding at a point or line (Merriam-webster, 2020). This simply indicates that there must be a contact either at a point or line. According to a definition by Designing-buildings (2019), Adjoining buildings are those in direct physical contact with another building. Based on Stimmel *et al.*, (2020) definition, adjoining landowners are those persons, such as next-door neighbours, who own land that share common boundaries and thus have mutual rights, duties, and liabilities. Adjoining Premises means any premises or building adjoining or in close proximity to a Project Site (Law insider, 2020). Connecting these definitions, we can therefore define adjoining buildings or properties as buildings or properties that share a boundary.

### 2.3.1 Types of Residential Properties

According to Home stratosphere (2021) in an extensive article explained the different types of houses (residential building) which was also classified into the following types:

- i. **Bungalow:** A bungalow is a small, square, single-story home with front porch. The single floor is raised up with front steps leading up to the porch. It can be a single detached building or semi-detached building.
- ii. **Condominium:** This refers to a home among many within one building or series of buildings are on a piece of land. It is further divided into duplex and triplex. A duplex refers to a two-story condominium unit, often the result of joining two separate units into one larger unit or built that way from the start. A Triplex is same as duplex condominium but three levels. A duplex or triplex can be fully detached and semidetached.

- iii. **Apartment:** this is a group of housing units in one building all owned by one entity, where the units are then rented out to tenants.
- iv. **Terrace:** is like a row of residential home sharing one or two walls. They are usually 2 or 3 stories tall while some rise even higher.
- v. **Cottage:** This refers to a small vacation home; historically it's a small home with a high thatched roof, thick walls and a single room.
- vi. **Mobile home:** A mobile home is a mobile structure that can be towed, but isn't designed for frequent towing like a recreational vehicle.
- vii. **Mansion:** A mansion is a large, imposing residence occupying about 7,000 sq. ft.
- viii. **Castle:** This refers to a large building, typically of the medieval period, fortified against attack with thick walls, battlements, towers, and often a moat'.
- ix. **Palace:** While the term palace is often used in place of castle, a palace differs from castles in that a palace's primary function is as a residence only for Royal family.
- x. **Villa:** Villa is a private palace. It's a luxurious mansion but doesn't serve any state purpose.
- xi. **Container Home:** A recent development in home construction and design is to use existing containers as the main structure of the home.

#### **2.4 Impact of Existing Buildings on Adjoining Property Values**

New construction is generally expected to create positive externalities. Leguizamon (2010) finds that average size houses within 0.25 mile of larger houses sell for less than houses surrounded by others with the same or less floor space in Columbus, Ohio. However, houses located between 0.25 and 0.6 miles from a larger house sell for more than houses that are surrounded by similar size or smaller houses. Ellen *et al.* (2001) employs a difference-in-difference approach to compare average prices of residential properties (apartment buildings, condominiums, and single-family houses) in rings near

newly constructed one- to four-family subsidized owner-occupied housing developments in distressed New York City neighbourhoods with prices of comparable properties outside the ring. They also find positive price effects are largest and most immediate on properties within 500 feet of the new units and are related to the scale of the development.

Meanwhile, according to Zahirovich-herbert and Gibler (2014). it uses a hedonic model to estimate the best price paid for new houses as well as the influence of new residential construction on the selling prices of existing houses considering the number and relative size of the newly constructed houses in the area. The results indicate even a typically large new houses command a premium. Construction of houses of average size relative to the reference group has little effect on existing house prices except to create some competition for houses that were achieving relatively high prices considering their attributes. Meanwhile, construction of a concentration of larger than average size houses exert a small positive effect on existing house prices, especially for those houses that are selling for a relatively low price. The effect is the strongest when the new construction is located within one- quarter mile.

## **2.5 Impact of Obsolescence on Property Values**

As discussed earlier, obsolescence can be in different forms such as physical, economic, social or legal, functional and environmental, which are caused by various factors. This section presents various empirical studies on obsolescence and how it affects property values in various study areas. Nwanekezie and Nwanguma, (2020) investigated the effect of building obsolescence on rental values of property in Uyo Metropolis, using 36 estate surveying firms in Uyo for the data collection. Relative Importance Index (RII) and linear regression analysis were used to analyze the data which showed that the age of buildings, construction faults, level of deterioration, poor level and standard of services, poor accessibility and over-supplied market significantly impacted on the level of building

obsolescence. The study however concluded that rental value is directly affected by the degree of obsolescence.

The study of Brasington and Hite (2005) proved that social and economic impact of air pollution could be colossal, diverse, and long lasting. Part of the literature shed more light on the effect of air pollution on property values with the use of hedonic price technique. This is also true in the study of Gomez and Hurra (2021), which presented that residential property rent is inversely proportional to air pollution dosages in Chile. Results of their findings proved that an average Chilean household will be willing to pay extra increase in rent for a one-unit reduction in air pollution.

A study presented another perspective of obsolescence by examining the effect of road traffic on residential property values (Bateman, *et al.*, 2001). This study concluded that road traffic has negative effect on residential neighbourhoods and their property value. This is also similar to the study of MC Millen (2004) which was based on effects of aircraft noise on property value. The study concluded that Residential property under or nearby the flight corridors of airport experiences diminution in market value. Furthermore, Lim and Missios (2003), presented that landfill have significant effect on residential property value. Although it was clearly stated that the effect varies according to the proximity of the property to the landfill site.

The study of Ihlanfeldt (2007) investigated how land use regulation affects property values and presented that land use regulation affects property values as such; new developments are higher where land use restrictiveness is high. Land use regulation increases property value as the study of Katz and Rosen (1987) shows a high relationship between regulatory stringency and property value. Relating age of property value, the submission of Smith (2004) is that the value of real estate properties will decrease with



age if all things are equal because of obsolescence. The study conducted by Mansfield and Pinder (2008) which dwelled on the characteristics and impacts of economic and functional obsolescence on valuation practice posited that viewing obsolescence in all its forms, is one of the key negative drivers of property depreciation and has the potential to have a significant and immediate impact upon the investment value of property in all operating sectors.

## **2.6 Summary Review of Various Literature on Effect of Obsolescence on Property Value**

In considering the above literature review, obsolescence does affect property value. Its appearance or manifestation in buildings; be it social, physical, functional or economic has the tendency of negatively impacting on the values of such property. Similarly, the above studies have shown that obsolescence, be it physical, economic, social or legal, are caused by various factors. These factors may include age of buildings, construction faults, level of deterioration, poor level and standard of services, poor accessibility and over-supplied market, air pollution, road traffic, aircraft noise and landfills. These factors therefore should be taken into cognisance for building construction and essentially, building maintenance. Studies have also shown that building obsolescence affects the value of the building by reducing it (Thomsen and Flier, 2011). The existing literature pays much attention on how environmental factors such as: air pollution, noise pollution, traffic congestion and wastes have affected the value of adjoining residential property. Issues regarding the actual physical obsolescence with direct relationship with property value have not been well researched. However, there is a scarcity of studies that shows how building obsolescence affect the value of adjoining buildings which this study is set to achieve.

## CHAPTER THREE

### 3.0 MATERIALS AND METHODS

#### 3.1 Types of Data

Various data are required to provide adequate answers to the research questions and these data required are discussed in this session. The types of data required for this study are both primary and secondary data. Primary data was sourced directly from the field using data collection instrument such as the use of questionnaire, interview and field observation. Secondary data are sourced from already published materials. Taking proper cognisance of the objectives of this study derived from the research questions, the data required include the following:

- i. A data required is to evaluate the causes of obsolescence on the properties in the study area. This can be identified using factors presented by various researchers such as: construction faults, wear and tear (deterioration), pollution (air, water and land pollution), road congestion, urban decay (slums), crime rate (incessant crime occurrences).
- ii. Prevailing property value of residential properties in the study area. This data is required because it will give an insight into the usual value of properties in the region which can be compared to the value of properties in the study area to analyse if there are changes of value.
- iii. Another very important data required for this study is subjective perception of real estate professionals, building occupants and landlords on the impact of obsolete property on the value of adjoining residential properties.

### **3.2 Sample Technique**

The sampling technique adopted for this study is the purposive sampling technique, because the technique enables the researcher to collect useful data directly from an audience particularly knowledgeable about the subject matter. Real Estate Surveyors and Valuers are the most appropriate professionals that can adequately provide a technical and professional opinion on issue such as property values which is the major anchor and the dependent variable of this study. This is because; they are trained in the management of real estate property. In addition to real estate surveyors and valuers, property custodians are also engaged for this study to analyze the effect of obsolete properties on adjoining property value. The property custodians whose property are adjoined to obsolete property when identified using snowballing technique where questions were asked to random people and real-estate surveyors where such properties can be found and the researcher was directed.

### **3.3 Study Population**

According to the record of Nigerian Estate Surveyors and Valuers Abuja Branch, there are 171 registered firms of Estate Surveyors and Valuers practicing in Wuse and Garki district of Abuja, Nigeria, which gives the total population of the study otherwise referred to as the sample frame in this study. In addition to that, by virtue of snowballing technique, about 11 properties were found adjoining to obsolete properties in the study area. Properties within 150m radius around each building were therefore selected to give a robust data size giving another study population of 89 properties.

### **3.4 Sampling Size**

The sample size of this study is taken from Bartlett, Kotrlik and Higgins (2001), table for determining minimum returned sample size for a given population size for continuous and categorical data. Using a margin error of 0.05, the sample size of a population between 100 and 200 is 116. Since our sample population is 171, we therefore adopt 116 as our sample size. In selecting the sample size however, the criteria that is considered is the number of years of experience in the professional services of real estate management and valuation. The benchmark of these criteria has however been set to be not less than two years of experience. The essence of these criteria is for data validity and robustness. Another criterion is that, the real estate firm must be located in Abuja and professionally engaged in properties management and valuation as their core competence. Additionally, complete census of 89 buildings within 150m radius of the 11 buildings adjoining obsolete properties was adopted to analyse the effects of obsolete properties on adjoining property value.

### **3.5 Instruments for Data Collection**

The instruments used for data collection in this study includes structured questionnaire and interview.

#### **3.5.1 Questionnaires**

Questionnaires are set of written questions with a choice of answers, designed for the purpose of survey. These set of questions in this study are measurable and easily understandable by the respondents. Various professionals who are the respondents were approached in their offices where they were issued the questionnaires and returned. Questionnaires were also issued to real estate professionals during their meeting in Abuja.

In all, 116 questionnaires were issued, while 93 which accounts for 80.17% of the issued questionnaire were returned. Responses to these 93 questionnaires were subjected to statistical analysis for further decision making in the study.

### **3.5.2 Interview**

A structured interview was arranged with the representatives of each real estate firms whereby questions regarding the problem in the research was responded to, such as factors that causes building obsolescence and if obsolete property affects the value of adjoining property. This interview was conducted having in mind issues regarding obsolescence and how it affects adjoining property value with the property custodians.

### **3.6 Method of Data Collection**

Questionnaires were administered to respondents from real estate firms to ascertain the causes of obsolescence in the residential properties they have managed. Their expertise and experience over the years played a huge role in this aspect. The prevailing property value of residential properties in the study area was determined from responses given by the real estate professionals who are the most knowledgeable about market prices and values of properties in the study area. The values presented for each type of residential properties determined the average value of the type of properties in the study area. Data regarding the impact of building obsolescence on the value of adjoining residential property was also derived from the questionnaires administered to custodians of the properties in addition to real estate surveyors, with accurate responses.

### **3.7 Method of Data Analysis**

The relative importance index (RII) which was used in this research study, is a method of analyzing the most influential factors in the object of research. Also, this analysis method

is also processed by statistical calculation with the result of the questionnaire as input which will later be processed into influencing factors. RII determines the most influential factors with a ranking system based on the weight of the scores given from respondents after filling out the questionnaire. To find the most influential factors for the causes of obsolescence and its effect on adjoining residential property value, the RII tool is used. The study was conducted to understand and study the effect of building obsolescence on adjoining residential property value.

For the first objective which is identifying the causes of obsolescence in the study area, data was analysed using Relative Importance Index (RII), and Weighted Average (*W*).

Relative Importance Index (RII) is given by the formula:

$$RII = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{A * N} \quad \text{----- (I)}$$

Where:

$n_5$  = Number of respondents for Strongly Agree

$n_4$  = Number of respondents for Agree

$n_3$  = Number of respondents for Neutral

$n_2$  = Number of respondents for Disagree

$n_1$  = Number of respondents for Strongly Disagree

A (Highest Weight) = 5

N (Total number of respondents) = 93

Descriptive statistical methods were used to analyse the prevailing property values in the study area. Descriptive statistics was used because it gives brief informational coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population. Descriptive statistics are broken down into measures of central tendency and measures of variability (spread). Measures of central tendency include the mean, median, and mode, while measures of variability include standard deviation, variance, minimum and maximum variables.

The most recognized types of descriptive statistics are measures of center: the mean, median and mode which are used at almost all levels of math and statistics. The mean, or the average, is calculated by adding all the figures within the data set and then dividing by the number of figures within the set.

While the third objective weighted average was adopted using Likert scale to analyse if obsolete properties have any effect on adjoining property value. This was used because it helps the user gather a more accurate look at a set of data than the normal average alone. The accuracy of the numbers you arrive at with this method is determined by the weight you give specific variables in the data set.

Weighted Average( $W$ ) derived using the following formula:

$$W = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i} \quad \text{----- (II)}$$

$W$  = Weighted Average

$n$  = number of terms to be averaged

$w_i$  = weights applied to  $x$  values

$X_i$  = data values to be averaged

## **CHAPTER FOUR**

### **4.0 RESULTS AND DISCUSSION**

#### **4.1 Results and Discussions**

Data collected from field survey are raw in form and must be analysed to enable interpretation. Without the data analyses, it means field data cannot be easily understood, especially by individuals who are not scientific researchers. This section presents results and discussions of analysed data collected from field survey, so as to give readers exclusive understanding of the achievement of the research aim and objectives. As a result, each sub-section is arranged according to the sections of questionnaires administered which is in line with, and addresses each objective of the research. The first section discusses the socio-economic characteristics of the respondents from which the data were collected. The second section addresses the first objective of the study which is the causes of obsolescence in the residential properties in the study area. This is followed by the section discussing prevailing property value of residential properties in the study area. Then the last objective which is the impact of obsolete property on the value of adjoining residential property. The last section of this chapter is the summary of findings, which summarises each result discussed in a concise form.

#### **4.2 Socio-economic Characteristics of Respondents**

The socio-economic characteristics of respondents in this study presents the gender, office designation, year of experience, and years of establishment. This is essential to give a background understanding of respondents to judge the kind of data they imputed into the study. For instance, year of experience is essential for this study since matter of



obsolescence is time related, and gender helps in understanding the involvement of male and female in the real estate management profession.

Table 4.1 presents the designation of respondents in their real estate firms. The result shows that about 31.2% of the respondents are chief executive officers (CEO) of the firms, about 33.35 are managers, then 15.1% are field professionals, while 10.8% are public relation officers and 9.7% are research officers. The respondents are however of adequate designations whereby, data collected can be adjudged rich and perceptions are definitely accurate due to their official levels.

Another result of the socio-economic characteristics of respondents is their years of work experience. This result shows that the highest percentage (54.8%) of the respondents have about 1-10 years works experience in the field of real estate surveying and valuation as professionals. About 30.1% have 10-20 years' experience, while 12.9% 20-30 years' experience, and 2.2% have 30-40 years' experience.

**Table 4.1 Respondent's Designation**

<b>Designation</b>	<b>Frequency</b>	<b>Percent</b>
CEO	29	31.2
Managerial	31	33.3
Field Professional	14	15.1
Public Relations	10	10.8
Research	9	9.7
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021)

Table 4.2 presents the respondents years of experience. As a result, these numbers of years' experience are adequate for a reliable data. Again, this result also supports the years of professional experience that enhance the dependency and reliability of data collected during the field survey. The next section deals with the first objective of the study which analyses the types of residential properties in the study area.

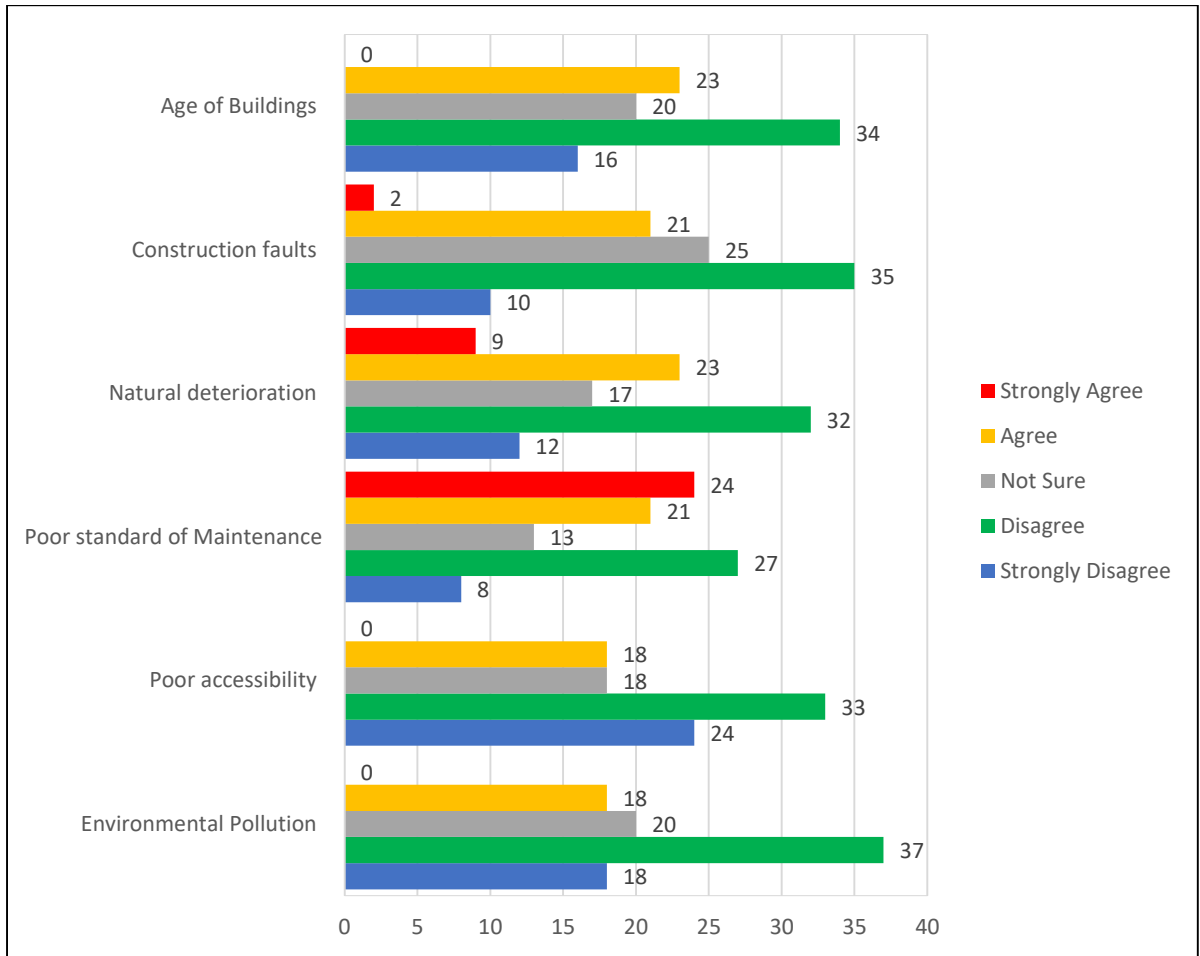
**Table 4.2 Respondent's Years of Experience**

<b>Years</b>	<b>Frequency</b>	<b>Percent</b>
1-10 years	51	54.8
10-20 years	28	30.1
20-30years	12	12.9
30-40 years	2	2.2
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021)

#### **4.3 The Causes of Obsolescence on the Properties in the Study Area**

In satisfying the provision of the second objective of this study, which is analysing the factors that causes residential properties obsolescence in the study area, the major factors that causes obsolescence in properties were identified from literature review and question was posed to respondents to ascertain which factor has more impact.



**Figure 4.1 Factors that Cause Obsolescence of Residential Properties**

Source: Field Survey (2021).

Result from the field survey as shown in Figure 4.1 presented that 34% disagree that age of building is the major factor that contributes to building obsolescence, whereas, 23% agree that it does. In other responses, 20% are not sure, while 16% strongly disagree that age of building is the major factor of building obsolescence. For construction faults, 2% of the respondents strongly agree that it is a major cause of building obsolescence, 21% agree, 25% are not sure, 35% disagree while 10% strongly disagree. About 9% strongly agree that natural deterioration is a major factor of building obsolescence. About 23% also agree to this claim, but 17% are not sure, 32% disagree and 22% strongly disagree.

For poor standard of maintenance, 24% strongly agree that it is the major contributing factor of building obsolescence, and this is the highest percentage where respondent strongly agree. This could mean it is actually the highest contributing factor of building obsolescence in the study area. About 21% agree to this claim, 13% are not sure, whereas, 27% disagree, and 8% strongly disagree. About 0% percent strongly agreed that poor accessibility is a major factor of building obsolescence, 18% agreed, 20% are not sure, 37% disagree and 18% strongly disagree. Data also show environmental pollution as a major factor of building obsolescence, where 05 strongly agree, 18% agree, 20% are not sure, 37% disagree and 18% strongly disagree. Although this data is pointing to poor standard of maintenance as the major factor of obsolescence because it has the highest percentage of “strongly agree”, RII calculation in the next section clarifies which factor is predominant.

Table 4.3 Result of the RII of the causes of obsolescence in residential properties in the study area shows that building age scored 0.507526882, construction faults scored 0.535483871, Natural deterioration scored 0.567741935, poor standard of maintenance scored 0.655913978, poor accessibility scored 0.464516129, while environmental pollution scored 0.361290323.

**Table 4.3 Calculating Relative Important Index (RII) of the Causes of Obsolescence in Residential Properties in the Study Area**

<b>Factors</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Not Sure (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>	<b>A (Total)</b>	<b>N</b>	<b>A*N</b>	<b>RII</b>
Age of Buildings	16	68	60	92	0	236	93	465	0.507526882
Construction faults	10	70	75	84	10	249	93	465	0.535483871
Natural deterioration	12	64	51	92	45	264	93	465	0.567741935
Poor standard of Maintenance	8	54	39	84	120	305	93	465	0.655913978
Poor accessibility	24	66	54	72	0	216	93	465	0.464516129
Environmental Pollution	18	74	40	36	0	168	93	465	0.361290323

Source: Field Survey (2021).

Table 4.4 Ranking the RII of the causes of obsolescence in the residential properties in the study area shows that; poor standard of maintenance ranked number 1, natural deterioration ranked number 2, construction faults ranked 3, age of buildings ranked 4, poor accessibility ranked 5 and environmental pollution ranked 6. From the result it is therefore concluded that poor standard of maintenance is the major cause of building obsolescence in the study area, whereas, environmental pollution is the least factor of building obsolescence in the study area.

**Table 4.4 Causes of Obsolescence in The Residential Properties in the Study Area**

<b>Factor</b>	<b>Relative Important Index</b>	<b>Predominance</b>
Age of Buildings	0.507526882	4
Construction faults	0.535483871	3
Natural deterioration	0.567741935	2
Poor standard of Maintenance	0.655913978	1
Poor accessibility	0.464516129	5
Environmental Pollution	0.361290323	6

Source: Field Survey (2021).

#### 4.4 Prevailing Property Value of Residential Properties in the Study Area

The third of this study is to access the prevailing residential properties value in the study area. This was done by identifying various types of residential properties in the study area in the previous section where; bungalow, bungalow semidetached, duplex and duplex semidetached are the most predominant. Data collected was classified into rental value and outright value of the residential properties. This classification is to give a detailed idea of cost if properties in terms of rent and purchase.

Table 4.5 Result from filed survey shows that majority of respondents (40.9) agreed that the annual rental cost of bungalows is between ₦1,000,001 - ₦2,000,000. However, 30.1% agreed it is ₦2,000,001 - ₦3,000,000, about 18.3% is ₦100,000 - ₦1,000,000, while 6.5% responded that it is between ₦3,000,001 - ₦4,000,000 and 4.3% said it is above ₦4,000,000. This shows that the rental value for a bungalow residential building in the study area is between ₦100,000 - ₦4,000,000, and on the average, it is ₦1,500,000 being the mean of the cost with the highest percentage.

**Table 4.5 Bungalow Annual Rental Value**

<b>Property Annual Rental Value</b>	<b>Frequency</b>	<b>Percent</b>
₦100,000 - ₦1,000,000	17	18.3
₦1,000,001 - ₦2,000,000	38	40.9
₦2,000,001 - ₦3,000,000	28	30.1
₦3,000,001 - ₦4,000,000	6	6.5
Above ₦4,000,000	4	4.3
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021).

Table 4.6 which was similar to bungalow, result for bungalow semi-detached shows that the rental value in the study area ranges from ₦100,000 to ₦4,000,000. Although in this case, two categories which are ₦100,000 - ₦1,000,000 and ₦1,000,001 - ₦2,000,000 shares the highest percentage which is 36.6%. about 18.3% however, agreed that the rental value of bungalow semidetached is ₦2,000,001 - ₦3,000,000, while 8.6% said it is ₦3,000,001 - ₦4,000,000.

**Table 4.6 Annual Rental Value of Semidetached Bungalow**

<b>Property Annual Rental Value</b>	<b>Frequency</b>	<b>Percent</b>
₦100,000 - ₦1,000,000	34	36.6
₦1,000,001 - ₦2,000,000	34	36.6
₦2,000,001 - ₦3,000,000	17	18.3
₦3,000,001 - ₦4,000,000	8	8.6
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021).

Table 4.7 shows that the cost of renting a fully detached duplex building in the study area based on field survey result is predominantly above ₦5,000,000 as 60.2% attested to this claim. However, 26.9% of the respondents stated that one can get a duplex to rent for between ₦4,000,001 - ₦5,000,000, while 6.5% agreed that it is between ₦3,000,001 - ₦4,000,000 and another 6.5% agreed that it is ₦2,000,001 - ₦3,000,000 in some areas. This result has revealed that the rental value of a duplex residential property is averagely above ₦5,000,000.



**Table 4.7 Duplex Annual Rental Value**

<b>Property Annual Rental Value</b>	<b>Frequency</b>	<b>Percent</b>
₦2,000,001 - ₦3,000,000	6	6.5
₦3,000,001 - ₦4,000,000	6	6.5
₦4,000,001 - ₦5,000,000	25	26.9
Above ₦5,000,000	56	60.2
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021).

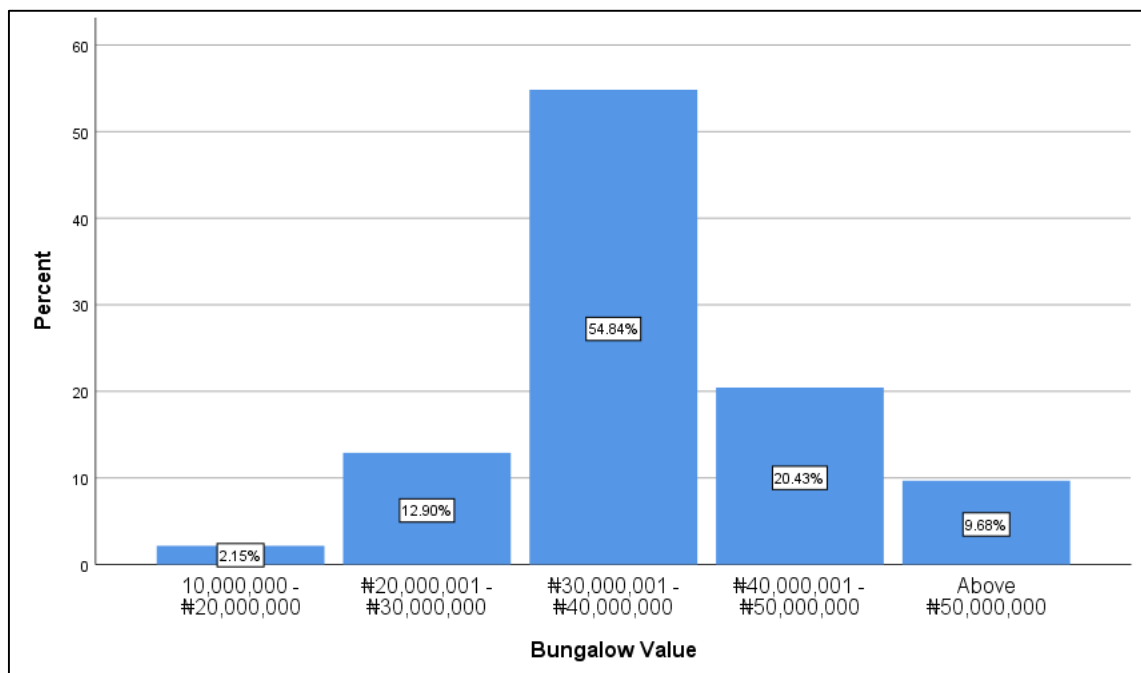
Table 4.8 In similar vein, the majority of respondents (48.4%) agreed that the cost of renting a semidetached duplex residential building is Above ₦5,000,000. However, in this case, more people (22.6%) than in the case of a duplex, accepted that it is ₦4,000,001 - ₦5,000,000. Whereby, 16.1% agreed it is ₦3,000,001 - ₦4,000,000 and for the rest 12.9%, it is between ₦2,000,001 - ₦3,000,000.

**Table 4.8 Duplex Semidetached Annual Rental Value**

<b>Property Annual Rental Value</b>	<b>Frequency</b>	<b>Percent</b>
₦2,000,001 - ₦3,000,000	12	12.9
₦3,000,001 - ₦4,000,000	15	16.1
₦4,000,001 - ₦5,000,000	21	22.6
Above ₦5,000,000	45	48.4
<b>Total</b>	<b>93</b>	<b>100.0</b>

Source: Field Survey (2021).

In similar vein, the majority of respondents (48.4%) agreed that the cost of renting a semidetached duplex residential building is Above ₦5,000,000. However, in this case, more people (22.6%) than in the case of a duplex, accepted that it is ₦4,000,001 - ₦5,000,000. Whereby, 16.1% agreed it is ₦3,000,001 - ₦4,000,000 and for the rest 12.9%, it is between ₦2,000,001 - ₦3,000,000. Results from filed survey as regards the prevailing property value of residential properties in the study area shows that, on the average, the prevailing property value of a fully detached bungalow is between ₦30,000,001 to ₦40,000,000 in the study area. This is justified based on the analysis made from data of filed survey where 54.84% agreed to this price range.

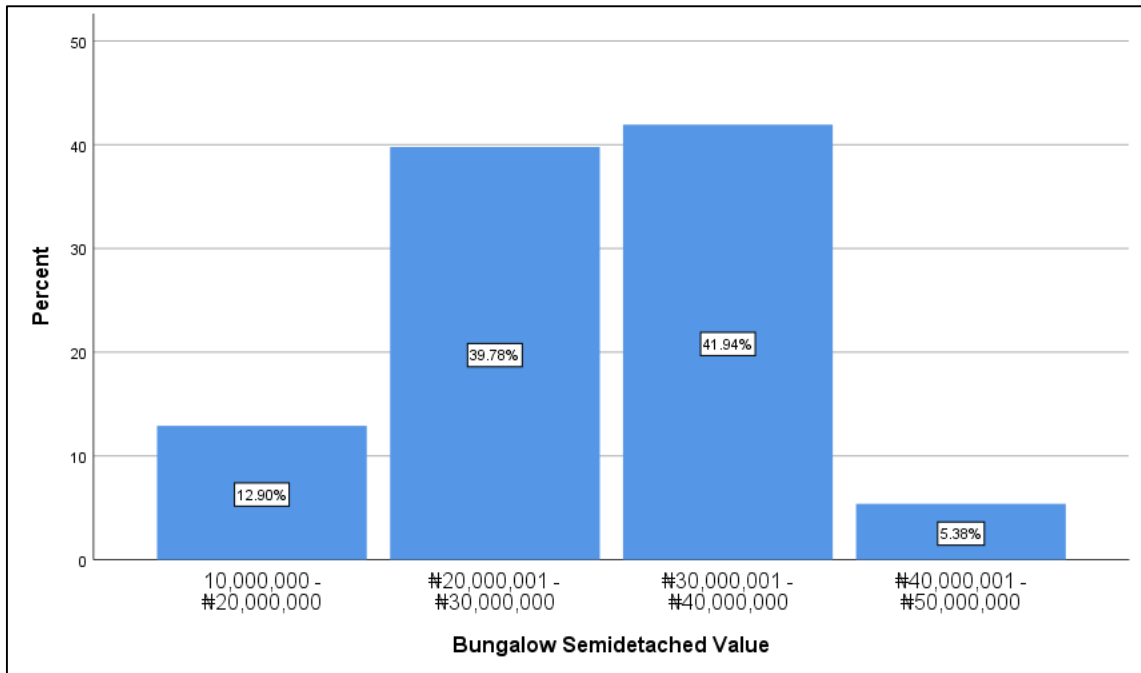


**Figure 4.2 Value of Bungalow Residential Property in the Study Area**

Source: Field Survey (2021).

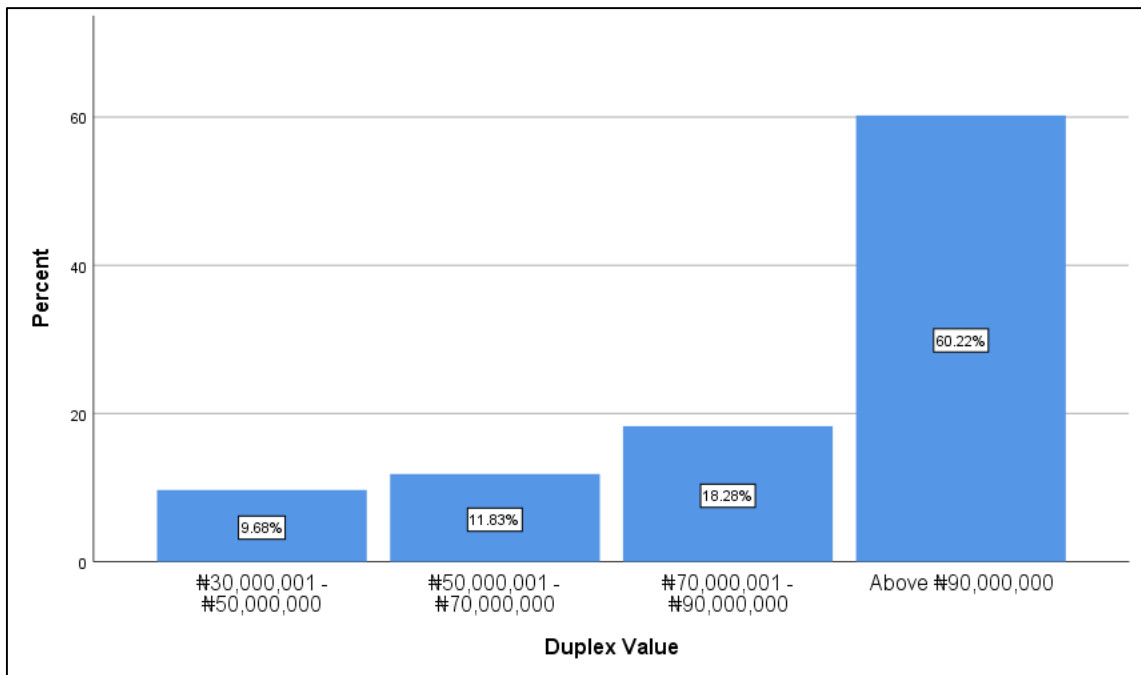
The other higher percentage of respondents (20.43%) however agreed that it is more than that value where their option is between ₦40,000,001 to ₦50,000,000. Another group of respondents (9.68%) agreed that the value of a bungalow residential property in the study area is over ₦50,000,000. From this result of field survey, we can therefore say the value

of a bungalow residential property in the study area ranges from ₦10,000,001 to over ₦50,000,000. This is however, highly determined by the location of the residential property, as properties within the city centres and planned residential neighbourhoods tend to be more expensive than properties in the sub-urban areas and unplanned settlements.



**Figure 4.3 Value of Bungalow Semidetached Residential Property in the Study Area**  
Source: Field Survey (2021).

In the case of semidetached bungalow residential buildings, the predominant value is in between ₦20,000,001 and ₦40,000,000 which can be said to be averagely ₦30,000,00. This result is based on the analysis that 39.78% of the respondents answered that the property value of a semidetached residential bungalow ranges from ₦20,000,001 to ₦30,000,000, and a close percentage of the respondent (41.94%) but a little bit higher, responded that it is from ₦30,000,001 to ₦40,000,000. Only 12.90% of the respondents agreed that the value of such property is between ₦10,000,001 and ₦20,000,000, while the least percentage stated that it is between ₦40,000,001 and ₦50,000,000.



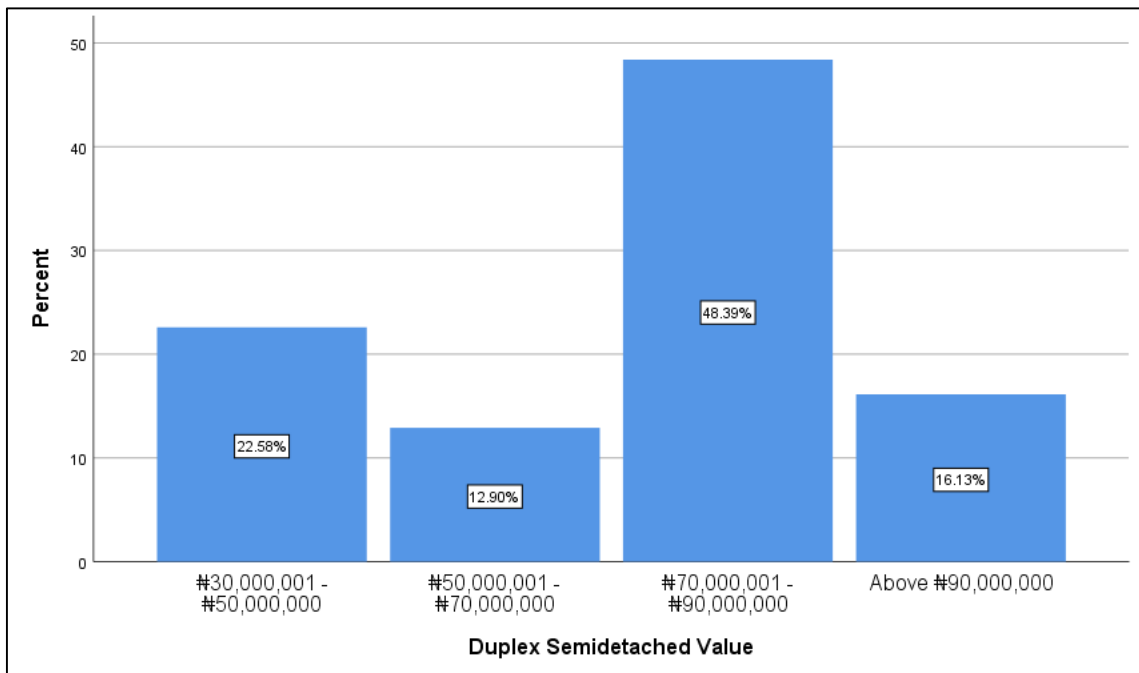
**Figure 4.4 Value of Duplex Residential Property in the Study Area**

Source: Field Survey (2021).

Based on field survey, another category of residential property analysed, which is fully detached duplex result shows that, the value is predominantly any other cost above ₦90,000,000 as majority of respondents (60.22%) attested to the fact. About 18.28% of the respondents however responded that the cost is in the range of ₦70,000,001 and ₦90,000,000., while 11.83% agreed it is between ₦50,000,001 and ₦70,000,000. Whereas, another set of respondents said the value of a duplex is between ₦30,000,001 and ₦50,000,000.

For semidetached duplex residential building, results from field survey shows that 48.39%, which is the highest percentage of the respondents claimed that its value is ranging from ₦70,000,001 and ₦90,000,000. The next highest percentage (22.58%) however, are on the lower end of the value which is ₦30,000,001 and ₦50,000,000. About 16.13% which is the next high percentage however responded that the value of

such property is above ₦90,000,000. And the least percentage of respondents 12.90% are of the opinion that the value is from ₦50,000,001 and ₦70,000,000.



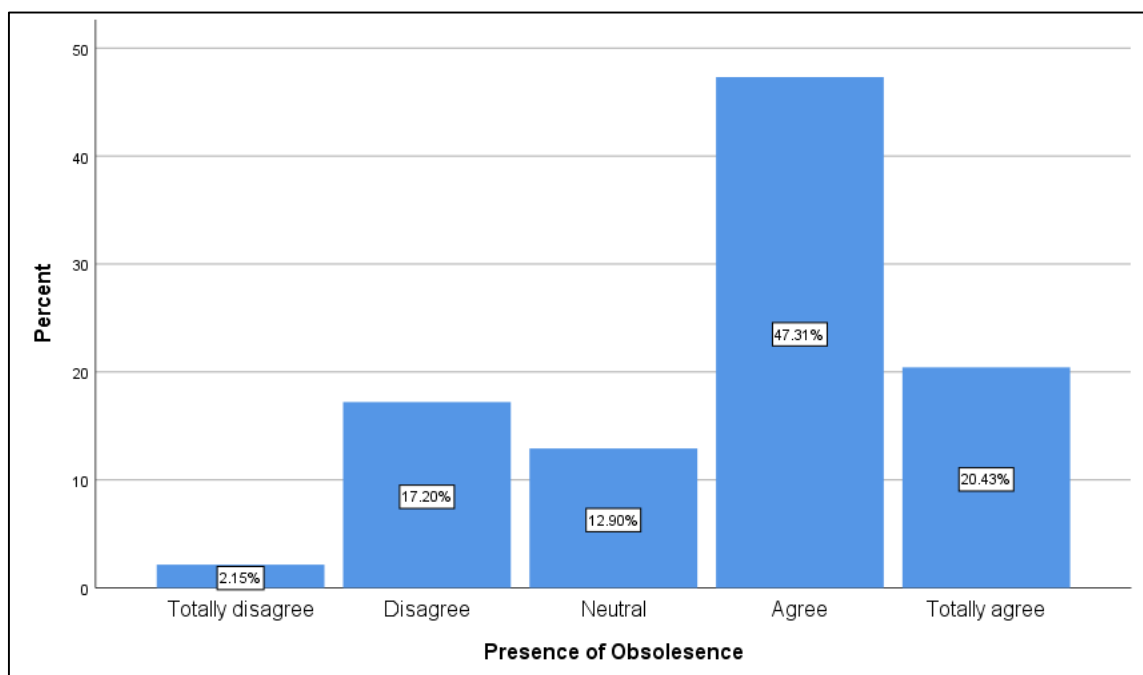
**Figure 4.5 Value of Semidetached Duplex Residential Property in the Study Area**  
Source: Field Survey (2021).

This result disparity among the two predominant kinds of duplex shows that the value for a semidetached duplex is usually lower than that of a fully detached duplex, considering conditions such as land value, cost of construction, furnishing and privacy. This aspect of the study have shown a high rate of residential property value in the study area for both rental and outright purchases.

#### **4.5 The Effect of Obsolete Property on the Value of Adjoining Residential Property**

This study is based on the assumption that an obsolete property has effect on the value of adjoining residential property. In order to determine if the statement is true, data were collected from two category of respondents which are the custodians of residential

properties adjoining the obsolete properties and real estate professionals practicing in the study area. However, it is also important to get the opinion of respondents as regards the idea that there are presence of obsolete properties adjoining other residential properties in the study area. The result from the field survey as presented on Figure 4.6 shows that the highest percentage (47.31%) of the respondents agree that they have had an obsolete property adjoining a residential property before in their experience. About 20% totally agree, while 12.905 are not sure, then 17.20% disagree and 1.15 totally disagree.



**Figure 4.6 Presence of Obsolete Property Adjoining Residential property**

Source: Field Survey (2021).

Using the Likert scale Likert scale, where; strongly agree has a weighted value of 5, agree is weighted 4, not sure weighted 3, disagree 2, and strongly disagree is weighted 1, Mean Weighted Value ( $W$ ) otherwise referred to as weighted average was used to analyse the data from field survey in determining if obsolete property has an effect on the value of adjoining residential building.

Weighted Average( $W$ )is derived using the following formula:

$$W = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i}$$

$W$  = Weighted Average

$n$  = number of terms to be averaged

$w_i$  = weights applied to  $x$  values

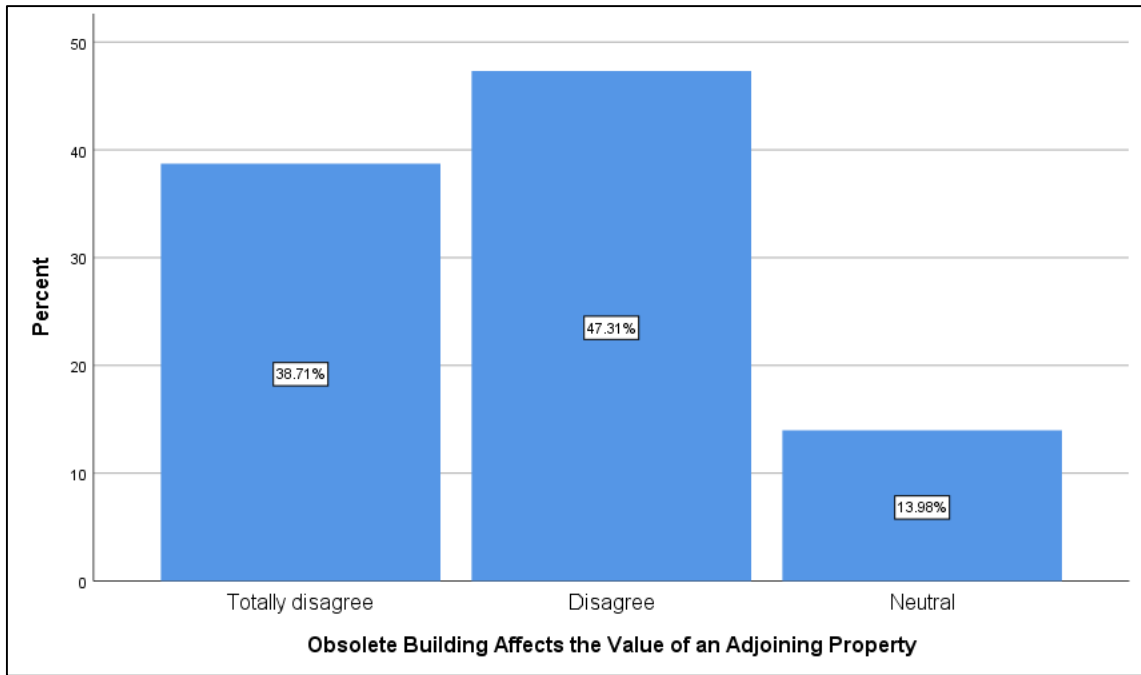
$X_i$  = data values to be averaged

Table 4.9 Results of data collected from the custodians of residential properties adjoining obsolete properties presented shows that the calculated weighted average is 2.03 which is ranked as 2, meaning the respondents disagree that obsolescence has the ability to impact the value of adjoining residential properties.

**Table 4.9      Obsolete Property Has an Impact on The Value of Adjoining Residential Property**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Totally disagree	32	20.51
Disagree	35	48.72
Not sure	12	15.38
Agree	7	12.82
Totally Agree	3	2.56
<b>Total</b>	<b>89</b>	<b>100.0</b>
<b>Weighted Average</b>		2.03

Source: Field Survey (2021).



**Figure 4.7** Obsolete Property does not affect the Value of Adjoining Residential Property

Source: Field Survey (2021).

Additionally, a question was asked to the respondents who are real estate professionals on their opinion on the matter that obsolete property has an effect on the value of adjoining residential property. The result from the survey presented in Figure 4.7 shows that majority of respondents do not agree that obsolete property has an effect on the value of adjoining residential property, whereby 47.31% disagree, while 38.71% totally disagree and 13.98% are not sure about that.





**Plate I: Image of Building Affected by Obsolescence in Garki Abuja.**

Source: Field Survey (2021).

Plate I show an image of a duplex in Garki Abuja where this study was carried out which has been affected by obsolescence. This is obvious in the outlook of the building. Further questions answered by the residents in the building shows that the building is suffering serious wear and tear, electrical faults, mechanical faults especially in wastewater management, and roof leakages amongst other. This condition has put the building unfit for human habitation.



**Plate II: Image of Building Affected by Obsolescence and Adjoining Properties in Garki Abuja.**

Source: Field Survey (2021).

Plate II shows a building undergoing serious obsolescence and a adjoining property in good condition. This result of field survey exemplifies how obsolescence of one property affects adjoining property value. the rental value of the property affected by obsolescence is ₦3,200,000 annually, while the value of the adjoining buildings in good conditions are ₦3,500,000 to ₦4,000,000. This is however similar to the average rental value range of properties of this category in the study area which is ₦3,000,000 to ₦5,000,000 annually. This result shows that building obsolescence of a property does not affect the value of an adjoining property in the study area.



**Plate III: Image of Building Affected by Obsolescence and Adjoining another residential building in Wuse Abuja.**

Source: Field Survey (2021).

Furthermore, data collected according to the factors of building obsolescence using the Likert scale, where; strongly agree has a weighted value of 5, agree is weighted 4, not sure weighted 3, disagree 2, and strongly disagree is weighted 1, was analysed using Mean Weighted Value ( $W$ ) otherwise referred to as weighted average.

Weighted Average( $W$ )is derived using the following formula:

$$W = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i}$$

$W$  = Weighted Average

$n$  = number of terms to be averaged

$w_i$  = weights applied to  $x$  values

$X_i$ = data values to be averaged

Data collected from field survey presented on Table 4.10, shows that majority of the respondents strongly disagree that obsolescence has the ability to impact the value of adjoining residential properties, looking deeper in each factor of obsolescence.

**Table 4.10 How Factors that Cause Obsolescence of Residential Properties Impact Residential Property Value**

<b>Factors</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Not Sure</b>	<b>Agree</b>	<b>Strongly Agree</b>
Age of Buildings	47	34	9	3	0
Construction faults	34	35	12	12	0
Natural deterioration	51	34	5	3	0
Poor standard of Maintenance	47	30	9	3	4
Poor accessibility	28	33	12	10	10
Environmental Pollution	47	34	9	3	0

Source: Field Survey (2021).

Table 4.11 The result of the Weighted average ( $W$ ) for each factor shows that: Age of Buildings rated 1.66 ranked as “2” which is equivalent to disagree. The other factors which are: construction faults (2.02), natural deterioration (1.57), poor standard of maintenance (1.66), poor accessibility (1.94), and environmental pollution (1.66) all fall into the category of disagree, ranked as “2”. The total mean weight value of the factors analysed is 1.75, which still fall in the rank of 2 connoting disagree.

The result of this analysis therefore disapproves the initial assumption that obsolete property affects the value of adjoining residential property. It can however be stated that building obsolescence does not have a significant impact on an adjoining residential property.

**Table 4.11 How Factors that Cause Obsolescence of Residential Properties Impact Residential Property Value**

<b>Factors</b>	<b><i>W</i></b>	<b>RANK</b>	<b>Level</b>
Age of Buildings	1.66	2	Disagree
Construction faults	2.02	2	Disagree
Natural deterioration	1.57	2	Disagree
Poor standard of Maintenance	1.66	2	Disagree
Poor accessibility	1.94	2	Disagree
Environmental Pollution	1.66	2	Disagree
<b>Total Mean Weight Value</b>	<b>1.75</b>	<b>2</b>	<b>Disagree</b>

Source: Field Survey (2021).

#### **4.6 Summary of Findings**

This section provides the summary of the results of findings of this study. The study aims at assessing the impact of properties obsolescence on adjoining residential properties value, with the objectives to: identify the types of residential properties in the study area; identify the causes of obsolescence in the residential properties within the study area; access the prevailing property value of residential properties in the study area; and determine the impact of obsolete property on the value of adjoining residential property. The summaries are presented according to the study objectives.

The socioeconomic characteristics of respondents shows that Majority (64.5%) of the respondents are male while the rest are female consisting of 35.5%. Based on designations, about 31.2% of the respondents are chief executive officers (CEO) of the firms, where 33.35 are managers, then 15.1% are field professionals, while 10.8% are public relation officers and 9.7% are research officers. The highest percentage (54.8%) of the respondents have about 1-10 years works experience in the field of real estate surveying and valuation as professionals. About 30.1% have 10-20 years' experience, while 12.9% 20-30 years' experience, and 2.2% have 30-40 years' experience. About 27.4% of the respondents' firms have been established between 1-5 years. Also 36.5% firms have been established for 5-10 years, where 26.5% have been existing for 10-15years, then 7.5% have 15-20 years of establishment and 2.2% have been existing for above 20 years.

The causes of building obsolescence in the study area are: poor standard of maintenance which was ranked as 1, natural deterioration ranked 2, construction faults ranked 3, age of buildings ranked 4, poor accessibility ranked 5 and environmental pollution ranked 6. The study therefore concluded that poor standard of maintenance is the major cause of

building obsolescence of residential properties in the study area, whereas, environmental pollution is the least factor of building obsolescence in the study area.

This shows that the rental value for a bungalow residential building in the study area is between ₦100,000 - ₦4,000,000, and on the average, it is ₦1,500,000 being the mean of the cost with the highest percentage. Result for bungalow semi-detached shows that the rental value in the study area ranges from ₦100,000 to ₦4,000,000. Although in this case, two categories which are ₦100,000 - ₦1,000,000 and ₦1,000,001 - ₦2,000,000 shares the highest percentage which is 36.6%. The cost of renting a fully detached duplex building in the study area based on field survey result is predominantly above ₦5,000,000 as 60.2% attested to this claim. In similar vein, the majority of respondents (48.4%) agreed that the cost of renting a semidetached duplex residential building is Above ₦5,000,000. The prevailing property value of a fully detached bungalow is averagely between ₦30,000,001 to ₦40,000,000 in the study area. In the case of semidetached bungalow residential buildings, the predominant value is in between ₦20,000,001 and ₦40,000,000. The value of a fully detached duplex is predominantly above ₦90,000,000 as majority of respondents (60.22%) attested to the fact. While that of semidetached on the average ranges from ₦70,000,001 and ₦90,000,000.

The findings regarding impact of building obsolescence on adjoining residential properties shows that, building obsolescence does not have a significant impact on an adjoining residential property. The result of the Weighted average (*W*) for each obsolescence factor shows that: Age of Buildings rated 1.66 ranked as “2” which is equivalent to disagree. The other factors which are: construction faults (2.02), natural deterioration (1.57), poor standard of maintenance (1.66), poor accessibility (1.94), and environmental pollution (1.66) all fall into the category of disagree, ranked as “2”. The total mean weight value of the factors analysed is 1.75, which still fall in the rank of 2

connoting that respondents disagree that building obsolescence affects the value of adjoining residential property.

## **CHAPTER FIVE**



## **5.0**

# **CONCLUSION AND RECOMMENDATIONS**

## **5.1 Conclusion**

In conclusion, the effect of building obsolescence has no significant effect on adjoining residential property value in Abuja. The study area varies in various neighbourhoods. This makes the value higher in some areas when compared to the suburban areas. There are however various properties which are undergoing obsolescence which some are higher than the other. It has been studied in the past that new developments have some level of positive impacts on the value of existing properties. It is also an obvious theory that obsolescent buildings have less value than new ones, all things being equal. This study which therefore studied if the already obsolescent properties affect the value of adjoining residential properties, and concluded that, building obsolescence does not have a significant impact on adjoining residential properties, either positively or negatively.

## **5.2 Recommendations**

1. It has been identified that the predominant causes of building obsolescence in the study area are poor standard of maintenance, natural deterioration, construction faults, age of buildings, poor accessibility and environmental pollution, with poor standard of maintenance being the most predominant one. It is therefore recommended that special attention should be paid to standard of building maintenance because it contributes predominantly to the longevity of buildings.

2. Among the factors that causes obsolescence, it was identified that Construction faults is the major factor that can affect the value of adjoining property value. This can be exemplified in the case of building collapse, which when it affects an adjoining property, will definitely reduce its values. It is therefore recommended that standard building

materials should be adopted in building constructions to avoid issues of building collapse. Also, accessibility to a building, usually affect the accessibility of an adjoining building. This makes it important for Government to ensure all buildings are well laid out and their accessibility is not jeopardized within all neighborhoods.

3. Another identified issue in the study is the high rate of property rental values and outright values. This property cannot be accommodated by majority of the masses who are in the low-income group. This results in empty buildings within the cities since people cannot afford them. It is therefore recommended for Governments and even private developers to start developing innovative ideas and methods to ensure affordable housing for all in Nigeria.

### **5.3 Contribution to knowledge**

The primary aim of the research is to assess effect of building obsolescence on the value of adjoining Residential Property. And the outcomes outline some contribution to the body of knowledge.

1. So far most studies carried out have focused on causes of Obsolescence and its impact on a particular property value. But this research was able to contribute to body of knowledge by dwelling on effect of building obsolescence on adjoining residential property value. Which proves that building obsolescence has no significant effect on the value of adjoining residential property.
2. Another contribution to the body of knowledge is the fact that building professionals through the findings of the research work, will now be able to determine with ease the value of a property that is adjoining building obsolescence.

3. The third contribution to knowledge is the unique way data were carefully collected and analysed by using questionnaire, interview and observation at the case study area of Wuse and Garki in Abuja.

## **REFERENCES**

- Abidoye R.B., & Chan A.P. (2016). Critical determinants of residential property value: professionals' perspective, *Journal of Facilities Management*, 14(3):283-300.
- Abubakar, I.R. (2014). Abuja, City Profile, *Cities*,41: 81-91.

- Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001) Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19, 43-50.
- Bateman I., Day B., & Lake I. (2001). The effect of road traffic on residential property values: *A literature review and hedonic pricing study*. Prepared for Scottish executive and the stationary office, Edinburgh, Scotland. January, 2001. 207 pages.
- Brasington, D., & Hite, D. (2005). Demand for Environmental Quality: A Spatial Hedonic Approach. *New Economic Papers*. [econpaper.repec.org/paper/isuisuwpp](https://econpapers.repec.org/paper/isuisuwpp)
- Buitelaar, E., Moroni, S.& De Franco, A. (2021) Building obsolescence in the evolving city. Reframing property vacancy and abandonment in the light of urban dynamics and complexity, *Cities*, 108(102964). <https://doi.org/10.1016/j.cities.2020.102964>.
- Designing Buildings (2019). Adjoining buildings definition, [https://www.designingbuildings.co.uk/wiki/Adjoining\\_buildings\\_definition](https://www.designingbuildings.co.uk/wiki/Adjoining_buildings_definition)
- Ellen, I.G., Schill, M.H., Susin, S., & Schwartz, A.E., (2001). Building homes, reviving neighborhoods: spill overs from subsidized construction of owner-occupied housing in New York City, *Journal of Housing Research*, 12(2), 185– 216.
- Garnet (2006). The Theory and Practice of Building Renewal; Understanding, Analysing and Preventing Obsolescence, Leaping Frog Publications. <https://leapingfrogpublications.co.uk/housing-society/building-obsolescence/>
- Gomez, K., & Hurra, V. (2021). How Does Air Pollution Affect Housing Rental Prices in Chile? An Economic Assessment of Pm2.5 Concentration Across Chilean Communes. *Environment and Development Economics Journal*. (26)4. <http://www.cambridge.org/core/journal>
- Home stratosphere (2021).35 Different Types of Houses <https://www.homestratosphere.com/types-of-houses/>
- Ihlanfeldt K.R. (2007). The effect of land use regulation on housing and land prices. *Journal of Urban Economics*, 61(3):420-435.
- Katz, L. & K. T. Rosen (1987). “The Inter Jurisdictional Effects of Growth Controls on Housing prices.” *Journal of Law and Economics* 30: 146-160
- Law Insider (2020). Definition of Adjoining Premises, [Lawiinsider.com. https://www.lawinsider.com/dictionary/adjoining-premises](https://www.lawinsider.com/dictionary/adjoining-premises)
- Leaman, A., Stevenson, F., & Bordass, B. (2010). Building evaluation: practice and principles. *Building Research & Information*, 38(5),13.
- Leguizamon, S., (2010). The influence of reference group house size on house price, *Real Estate Economics*. 38(3), 507–527.
- Lim J. S., & P. Missions. (2003). Does Size Really Matters? Landfill Scale Impacts on Property Values, Unpublished Working Paper, Department of Economics, Ryerson University, Toronto.

- Locational Mappa of Abuja. (2019). Abuja Municipal Area Council, FCT, Abuja.
- Mansfield J.R, & Pinder J.A. (2008). Economic and functional obsolescence: Their characteristics and impacts on valuation practice, *Property Management*, 26(3),191-206.
- Mc Millen, D. P, (2004a), House Prices and the Proposed Expansion of Chicago's O'Hare Airport, 3/2004, Economic Perspectives, Federal Reserve Bank of Chicago, PP:28-39
- Merriam-Webster (2020). Merriam Webster Online Dictionary. Retrieved from <https://www.merriam-webster.com/dictionary/adjoining>
- Nwanekezie, O.F., & Nwanguma, R.W. (2020). Assessing the Effect of Building Obsolescence on Property Values in Uyo, Nigeria, *Architecture Research*,10(1), 21-26 DOI: 10.5923/j.arch.20201001.03
- Olajide, S.E. & Ijagbemi, C.O. (2019). Review of the impact of obsolescence on residential property values, *International Journal of Multidisciplinary Research and Development*,6(8), 92-99.
- Olajide, S.E. (2017). *Elements of Estate Management*. Germany: Lambert Academic Publishing.
- Oxford English Dictionary (2010) Oxford English Dictionary, Oxford University Press, Oxford.
- Rincón, L., Pérez, G. & Cabeza, L.F. (2013). Service life of the dwelling stock in Spain. *International Journal of Life Cycle Assess*, 18, 919–925. <https://doi.org/10.1007/s11367-013-0552-x>
- Smith B.C. (2004). Economic depreciation of residential real estate: Micro level space and time analysis, *Real Estate Economics*, 32(1):161-180.
- Stimmel, Stimmel & Roeser (2020). Adjoining Landowners Rights and Obligations: The Basics, Law offices of Stimmel, Stimmel & Roeser. <https://www.stimmel-law.com/en/articles/adjoining-landowners-rights-and-obligations-basics>
- Thomsen A. & Flier K.V.D. (2011). Obsolescence and The End-of-Life Phase of Buildings, *Management and Innovation for a Sustainable Built Environment*, 20–23 June, Amsterdam, The Netherlands.
- Thomsen, A., van der Flier, K. & Nieboer, N. (2015). Analysing obsolescence, an elaborated model for residential buildings, *Structural Survey*, 33(3),210-227. <https://doi.org/10.1108/SS-12-2014-0040>
- Thorncroft, M. (1965). Principles of estate management, London: Estates Gazette Limited.
- Zahirovich-Herbert, V. & Gibler, K.M. (2014). The effect of new residential construction on housing prices, *Journal of Housing Economics*, 26, 1-18. DOI: 10.1016/j.jhe.2014.06.003

Zivkovic, M., Oliynyk O. & Murgul V.A. (2016). Reconstruction of Urban Areas: Sustainable Strategy of Obsolete Building Conversion to Residential Uses, *Construction of Unique Buildings and Structures*, 1(40);103-111. DOI: 10.4028/www.scientific.net/AMM.725-726.1199.

**FEDERAL UNIVERSITY OF TECHNOLOGY**

**DEPARTMENT OF ESTATE MANAGEMNT**

**QUESTIONNAIRE ON**

**THE IMPACT OF BUILDING OBSOLESCENCE ON ADJOINING  
RESIDENTIAL PROPERTY VALUE IN ABUJA, NIGERIA**

**NOTE:** This Questionnaire is purely for academic purpose. Therefore, the information given shall be treated in strict confidence. Kindly Tick as appropriate, Thanks.

Date:

\_\_\_\_\_

Estate Firm: \_\_\_\_\_

Location in Abuja: \_\_\_\_\_

**SECTION A: SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENT**

1. Gender: (a) Male (b) Female
2. Position in the Estate Firm (a) CEO (b) Managerial (c) Field Professional(d) Public Relations (e) Research
3. How many years of experience in estate management do you have: (a) 1-10 years (b) 10-20 years (c) 20-30years (d)30-40 years (e) 40 years and above
4. How long has your Firm been established? (a) 1-5 years (b) 5-10 years (c) 10-15years (d)15-20 years (e) 20 years and above
5. How long have you been working in this Firm? (a) 1-5 years (b) 5-10 years (c) 10-15years (d)15-20 years (e) 20 years and above

**SECTION B: TYPES OF ADJOINING RESIDENTIAL PROPERTIES IN THE STUDY AREA**

6. The following properties are the most predominant in your work area. How do you agree with this? where:(1) I strongly disagree, (2) I disagree, (3) Am not sure, (4) I agree (5) I strongly agree

	<b>Building Type</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i.	Bungalow					
ii.	Bungalow Semidetached					
iii.	Duplex					
iv.	Duplex Semidetached					
v.	Terrace					
vi.	Others					

**SECTION C: PROPERTY VALUE OF ADJOINING RESIDENTIAL PROPERTIES IN THE STUDY AREA**

7. What is the average annual rental value of each of the types of properties bellow in Abuja?
  - i. Bungalow (a) ₦100,000- ₦1,000,000 (b) ₦1,000,001 - ₦2,000,000 (c) ₦2,000,001 - ₦3,000,000 (d) ₦3,000,001 - ₦4,000,000 (e) Above ₦4,000,000
  - ii. Bungalow Semidetached(a) ₦100,000 - ₦1,000,000 (b) ₦1,000,001 - ₦2,000,000 (c) ₦2,000,001 - ₦3,000,000 (d) ₦3,000,001 - ₦4,000,000 (e) Above ₦4,000,000
  - iii. Duplex(a) ₦1,000,000 - ₦2,000,000 (b) ₦2,000,001 - ₦3,000,000 (c) ₦3,000,001 - ₦4,000,000 (d) ₦4,000,001 - ₦5,000,000 (e) Above ₦5,000,000
  - iv. Duplex Semidetached(a) ₦1,000,000 - ₦2,000,000 (b) ₦2,000,001 - ₦3,000,000 (c) ₦3,000,001 - ₦4,000,000 (d) ₦4,000,001 - ₦5,000,000 (e) Above ₦5,000,000
8. What is the average property value of each of the types of properties bellow in Abuja?
  - i. Bungalow (a) ₦10,000,000 - ₦20,000,000 (b) ₦20,000,001 - ₦30,000,000 (c) ₦30,000,001 - ₦40,000,000 (d) ₦40,000,001 - ₦50,000,000 (e) Above ₦50,000,000

- ii. Bungalow Semidetached (a) ₦10,000,000 - ₦20,000,000 (b) ₦20,000,001 - ₦30,000,000 (c) ₦30,000,001 - ₦40,000,000 (d) ₦40,000,001 - ₦50,000,000 (e) Above ₦50,000,000
- iii. Duplex (a) ₦10,000,000 - ₦30,000,000 (b) ₦30,000,001 - ₦50,000,000 (c) ₦50,000,001- ₦70,000,000 (d) ₦70,000,001 - ₦90,000,000 (e) Above ₦90,000,000
- iv. Duplex Semidetached (a) ₦10,000,000 - ₦30,000,000 (b) ₦30,000,001 - ₦50,000,000 (c) ₦50,000,001 - ₦70,000,000 (d) ₦70,000,001 - ₦90,000,000 (e) Above ₦90,000,000

**SECTION D: CAUSES OF OBSOLESCENCE IN THE RESIDENTIAL PROPERTIES**

9. Please rate the contribution of following causes of residential building obsolescence in your area by ticking the corresponding box where: 1 = very low, 2 = low, 3 = moderate, 4 = high and 5 = very high

	<b>Factor</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i.	Age of buildings					
ii.	Construction faults					
iii.	Natural deterioration					
iv.	Poor standard of service					
v.	Poor accessibility					
vi.	Environmental Pollution					

**SECTION D: IMPACT OF RESIDENTIAL BUILDING OBSOLESCENCE ON ADJOINING RESIDENTIAL PROPERTY VALUE**

10. How do you agree to this? There are obsolete properties adjoining residential properties on my site? (1) I totally disagree, (2) I disagree, (3) Am not sure, (4) I agree (5) I totally agree

11. How do you agree to this? Obsolete building affects the value of an adjoining property? (1)I totally disagree, (2) I disagree (3) Am not sure (4) I agree (5)I totally agree.

How do you agree that the following causes of building obsolescence affects adjoining property value in your area by ticking the corresponding box where: (1) I totally disagree, (2) I disagree, (3) Am not sure, (4) I agree (5) I totally agree



	<b>OBSOLESCENCE</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i.	Age of buildings					
ii.	Construction faults					
iii.	Natural deterioration					
iv.	Poor standard of service					
v.	Poor accessibility					
vi.	Environmental Pollution					