APPLICATION OF COST-BENEFIT ANALYSIS TECHNIQUE IN VIABILITY APPRAISAL OF COMMERCIAL COMPLEXES IN MINNA, NIGERIA

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MTech/SET/2018/8339

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JULY, 2023

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A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL,

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY (MTECH) IN ESTATE MANAGEMENT AND VALUATION.

JULY, 2023

ABSTRACT

Investors rely on Cost-Benefits analysis to guide their investment decisions. The need to determine environmental and social costs versus benefits of a proposed commercial property development is critical to help decide on the best option to adopt. Despite this recognised benefit of Cost-Benefit analysis, there has been little focus on CBA of commercial property investments in Minna Metropolis. The research aim to prepare a Cost - Benefit Analysis of commercial complexes in Minna, Nigeria. Enphasises are given to neighbourhoods of Kpakungu and Maitumbi, Minna. One Hundred and Fifty (150) questionnaires were retrieved out of the One Hundred and Sixty Four (164) that were administered. The information gathered were presented through the use of tables. Data gathered were analysed with the use of Relative Importance Index (RII) and Cost-to -benefit Ratio. The study showed that factors that influences demand for commercial premises in the study area include location which has the highest responses with RII of 0.0226 followed by social amenities with RII of 0.0126 then infrastructure/transportation and neighbourhood quality with RII of 0.0066 was ranked 3rd. Highest percentage of respondents believed huge return on investment is important and a driver for most private estate developers participation in commercial complex development in the study area The major group that patronizes commercial complexes in the city, are the middle income earners. The study major constraint in developing commercial complexes in Minna is high construction cost. The study recommends, that the State Government should provide good road networks as well as affordable and efficient transport systems as this would encourage both private investors/developers and those occupying the commercial complexes spaces.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Cost - benefit analysis CBA is a process of establishing if a proposed public project is worthwhile to the community on bases of an analysis of financial, social and environmental cost and benefits (Ogunbajo, 2019). The cost benefit analysis is also used for judging the attractiveness for alternative public project, in many developed countries public works are often not considered for approval until cost -benefit analysis is carried out. CBA is an appraisal technique usual used in assessing the desirability of an investment or project, which is likely to impact on people or the whole community (Udechukwu, 2006). Though majorly used for performing financial analysis, CBA is also used for other purposes or projects. It is mostly applied as an appraisal technique particularly for use as an input into public major decision-making processes. CBA is an analytical tool for determining the economic advantages or disadvantages of most investment decision by assessing its costs and benefits in order to ascertain the welfare change attributable to it (European Commission, 2014)

Unlike the private sector that its objective is profit maximization, the public sector aims at maximizing social welfare and concerns itself with social, economic benefits and cost that is not just financial flows, hence, the reasons for CBA.

Commercial property investments majorly constitute a substantial portion of real property investments all over world. Niger state constitute one of the 36 states in Nigeria, it has the state capital located in the city of Minna. It has majorly witnessed all round infrastructural development and a corresponding population increase with an annual population growth rate of 3.4% which is higher than the overall national growth rate of 2.60% (Niger State Bureau of Statistic, 2014). The state has witnessed an increase in

population as a result of its proximity to the nation's capital city, FCT Abuja among others (Mohammed *et al*, 2007). The increased population has led to increase in demand for commercial premises which many parts of Minna could not meet. The consequential effect of the situation is that some residents making alternative arrangements to get commercial complex through corner shops, kiosks while others that could not afford these shops or kiosks get tables and trays. Inhabitants and citizens in many of the neigbourhoods are facing challenges of living in an overcrowded urban environment with limited commercial premises. There are literatures that have reported the significance of commercial real estate to the well-being of a community or a society. It is observed as an important component in developing a sustainable urban city by improving resilience, improving economy, healthy living, wellbeing and harmonious interaction, as well as increasing social cohesion (CIWEM, 2010). The need to find environmental and social costs versus benefits of any proposed commercial development is important and critical to help decide on the best option to use before launching any major project undertaking in order to a good indication of the soundness of any proposed investment decision (Boardman *et al*., 2008).

1.2 Statement of the Research Problem

Certain elements of most development process majorly require CBA as an appraisal technique. CBA is highly required, among many elements, as a tool for decision making on the co-financing of major projects in operational programmes (OPs) and Cohesion Fund (David *et al*., 2013). CBA is an appraisal tool to be used to analse an investment decision process in order to assess the welfare change attributable to the project. The main purpose of CBA is to facilitate an efficient allocation of resources, demonstrating a convenience for community or society of a certain intervention rather than more possible alternatives, thus the importance to carry out investment appraisal that would

guide and direct in taking investment decisions to either accept or reject such project proposals cannot be overemphasized (Garden, 2012), its led credence to a fact that commercial property investment play a more significant roles in most sustainable economic growth, developments and other social benefits to the community or society in which they are sited. Kenyon (2007) stated that commercial property investments mostly generate employment opportunities; inject additional capital resources into a nation's economic growth. Kenyon (2007), further argued that most commercial properties have an element recreational component. This, in turn, increases employment opportunity, creates more income as well as tourism potential. CBA is usually used to determine the most effective and economic way to conduct a project development decision, engage in an activity, implement a project or accomplish a mission when there are several alternative ways of setting about the given project (David *et al*., 2013). The purpose of the analysis is to help outline the best approach technique that would produce the desired results while keeping the costs as low as possible and harmonious development process in the society and its provision is regarded as social responsibility of government or her agency because they are required for public use (Garden, 2012).

CBA is one of the technique that is used in practice, the way the advantages of CBA are experienced is needed for the support of the instrument and the extent to which decision making in government can be mostly better informed. Usually there are, for instance, some wealth of literature that highlighted theoretical and practical problems of the CBA method (Heinzerling and Ackerman, 2002; Hansson, 2007). There are also some literatures that examines certain solutions for these theoretical and practical problems (Mackie and Nellthorpe, 2011; Koopmans and Oosterhaven, 2011; Salling and Leleur, 2012; Van, 2012). In addition, some contributions reflect on the advantages of CBA compared to other ex-ante assessment methods (Sayers *et al*., 2003; Tsamboulas, 2007;

Tudela *et al*., 2006). Despite the existence of a wide range of many scholarly literature arrayed across a varieties of CBA related topics, the process CBA is applied and conceived by different individuals that use or apply CBAs for example (government, consultants, policy makers, politicians) has received merely minimal attention in most existing literatures. The wide picture is that these literatures showed that planners'/politicians' rankings of most investments are to some extent influenced by CBA results and CBAs are in some cases utilized for enhancing investments alternatives and for evaluating alternative options (for the investment projects) but not for finding a final decision.

Although there are some findings that CBA sometimes are used by planners and politicians, there are no much contributions in existing literatures that discuss which substantive CBA problems and CBA limitations people that use or carry out CBAs experience. Moreover, attitudes towards the importance of CBA in the decision-making process of different individuals in an appraisal technique practice and the ideas of many that use or determine CBAs with regard to solutions for rectifying CBA problems and reducing CBA disadvantages have not been carry out. This thesis aims to fill these knowledge gap. The utilization of commercial complexes by households contributes to economic wellbeing, because most of these social services are essential and cherished items of consumption in their own right. The services also provide links to job opportunities. Inadequate links to consumption of commercial services by households have brought major problems such as increase in the real income spending due to further access to commercial services.

1.3 Aim and Objectives of the Study

1.3.1 Aim

The aim of this study is to prepare a Cost -Benefit Analysis of commercial complexes in Minna, Nigeria. To realize this aim, the following objectives will be pursued.

1.3.2 The Objectives

1. To evaluate the factors that influence the demand for commercial premises in the study area.
2. To evaluate the benefits of commercial complexes in the study area.
3. To assess the viability of commercial complexes in the study area.

1.4 Research Questions

The following research questions will be addressed:

i. What are the level of access to commercial premises in the study area?
ii. What are the viability of commercial complexes in the study area?
iii. What are the financial, social and economic benefit of commercial complex in the study area?

1.5 Scope of the Study

This study is limited to cost - benefit analysis of commercial complexes in the neighbouhood of Kpakungu and the neighbourhood of Maitumbi areas of Minna.

Cost Benefit Analysis is an economic appraisal technique used to determined public decision−making that attempts to quantify the benefits (advantages) and costs (disadvantages) associated with a particular investment project or policy. The CBA effect on any proposed investment in the society is a broad and inexhaustible research area. For brevity and for the purpose of this thesis, the geographical scope will be two major (2)

selected neighbourhoods areas of Minna metropolis namely Kpakungu and Maitumbi. The major reason why the two neighbourhoods are selected for the study is that they served as one of the major two (2) exits to and from Minna metropolis. The citizens of neighbouring societies and community can easily gain access to their commercial service requirement without entering into the city centre.

1.6 Justification for the Study

The urban areas worldwide provide a many of advantages in terms of concentration of people followed by demand for commercial service. Minna is a typical example of an urban city that has rapid development since 1976 when it became the capital city of Niger State. Construction of roads infrastructures increased rapidly with the opening up of residential/commercial precincts that also benefitted from increasing demand for lettable spaces in commercial properties. The provision of shopping facilities is important due to increase of business activities in Minna which has overstretched the existing supply of commercial premises. The existing commercial and shopping facilities are not adequate to cater for everyday need for commercial services thereby making investors to build more to meet the existing demand (Jiya, 2019).

Nevertheless, commercial complexes are previously underrated and they are seen as making less contribution to economic growth and development than residential, recreational and agricultural developments. This misconception is likely due to market failure since the advantages of commercial premises are mainly in the economic and social aspects, such as nearness to public users, reduction in traveling cost and time, these are external effects that are not being considered in the market mechanism (Udechukwu, 2006). If these intangible benefits or advantages are underestimated or being ignored in the decision making process, the true need of commercial projects could not be

elaborated, and sustainability in efficient resource allocation and management might not be able to manifest. The provision of Commercial premises most especially in the urban centres could facilitate the growth and development of SMEs and hence the nation's economic growth and development. This is part of reasons to explore commercial complexes investment in the two neighbourhoods of Minna. But generally, in every investment process there are numerous and varied implications some of which will mean benefits (advantages) and losses (disadvantages) to various investors in the society other than the developer. These call for Cost-benefit analysis technique which is an essential tool in modern project investment decision to measure the economic value as well as its aesthetic, cultural and social acceptance of an investment project. Therefore, the thesis aimed to determine CBA of commercial complexes investment performance to explore general accessibility of data to investors.

1.7 Limitations to the Study

There are a number of limitations during the cause of this thesis. The major limitation is the respondents not wanting to divulge or give adequate required information as requested. However, the researcher was able to persuade the respondent, this enabled him to carried out this work accordingly.

1.8 Description of the Study Area

1.8.1 Historical background of Minna

Minna lies on the latitude of 9^0 37" North and to the Longitude 6^0 33" East on the geographical base of the differentiated basement gueiss of land magnitude. Minna is the state capital of Niger State and headquarters to Chanchaga local government area of Niger state. It is also one of the twenty-five (25) local government councils that make up the

State. It is located along the North Central region on Nigeria, comprising of two major features of hill and upland areas (Ministry of Culture and Tourism, 2020) Figure 1.1.

1.8.2 Maps of the study area

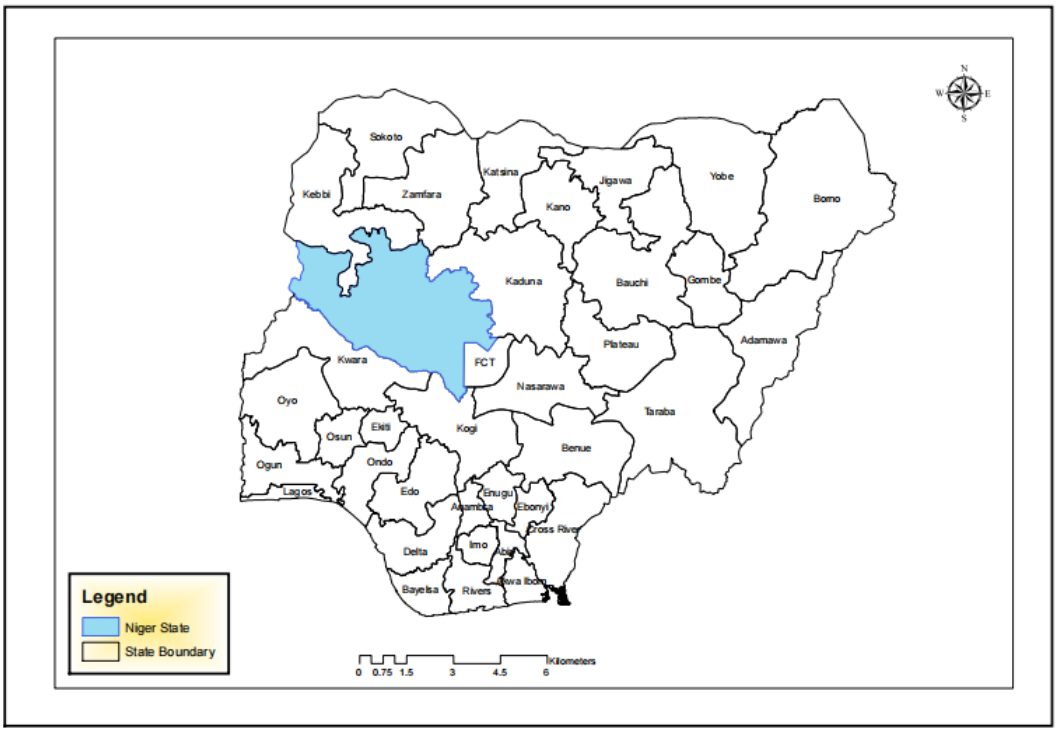


Figure 1.1: Map of Nigeria indicating Niger State the study area

Source: (Niger State Geographic Information System Agency, *2021)*

1.8.3 Historical background of minna

Minna is the capital city of Niger state it has been the reference of this research because it is used to be one of urban centres in Niger state, Nigeria. It is a Gwari town and got its name from ritual performed yearly by the Gwari's who are founders of the town. The word Minna, in Gwari means to spread live fire. Niger state was initially under North western state during the regime of Gen. Murtala Ramat Muhammad Niger state was created on 3rd February 1976 and began functioning from 1st April 1976. There were originally eight local government areas in Niger state namely; Chanchaga, Rafi, Gbako, Etswan, Suleja, Mariga, Magama and Lavun. Agaie and Lapai LGA later came to be.

Between 1979 and 1985 Alh. Muhammad Awwal Ibrahim was the executive Governor of the state, 18 LGA were managed by the administration; Kuta, Paiko, Chanchaga, Rafi, Gbako, Katcha, Lemu, Lapai, Agaie, Suleja, Mariga, Bangi, Magama, Auna, Lavun, Mokwa and Jima-doko. But when the military took over power in 1984, it returned to original local government structure. Chanchaga was seprated into two (2); Minna municipal council with Minna as headquarters; Kuta remain headquarter of Chanchaga local government in 1987. Minna municipal council remained Chanchaga while Kuta remained headquarter of Shiroro LGA Figure 1.2.

In 1991 the LGAs in Niger state became 19 when the then Military President Ibrahim Badamasi Babangida created 9 more states and additional LGAs in Nigeria. By 1996, Gen. Sani Abacha created additional 6 states and 182 LGAs in the country. Additional 6 LGAs where added to Niger state making a total of 25 LGAs. It has remained so since then. (Niger State (Ministry of Culture and Tourism, 2016)

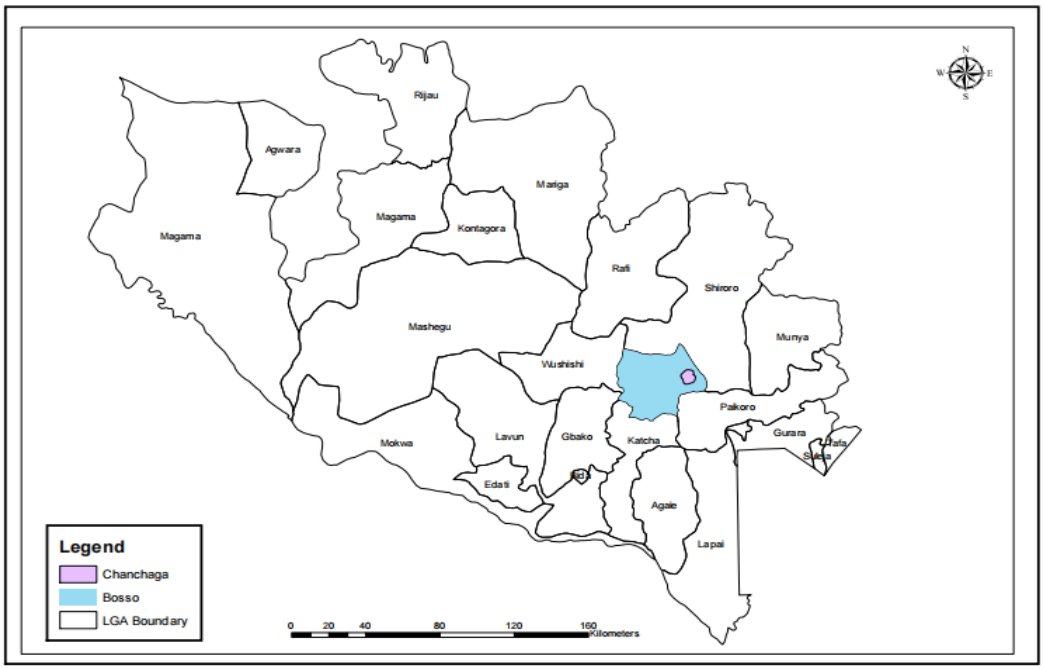


Figure 1.2: Map of Niger State showing the entire Local Government areas in the State

Source: (Niger State Geographic Information System Agency, *2021)*

1.8.4 Geographic location and climate of minna

The state capital lies on the latitude of 6^0.33" east and the longitude 9^0.37" north. It is bounded by Kaduna State and Federal Capital Territory to the north east and south east respectively; the state is also having Zamfara State bordered the north, Kebbi State bordered in north west, Kogi State bordered in the south while the Kwara State is bordered in the south west. Also the Republic of Benin bordered her north west along Agwara LGA Figure 1.3

Niger state experience dry and wet season with mainly annual rainfall ranging from 1.100mm in the northern part of the state to 1.600mm in the southern part of the state. The maximum temperature is mainly not more than 94^0c is recorded between March and June each year while the minimum is usually between December and January. The rainy season last for about 150 days (5months) in the north and 120 days (4months) in the south. Major parts of the state come under the influence of the tropical continental air mass which blows from the north. Dry season in the State commences in October of each year. Mainly, the fertile and hydrological nature of the state permit the cultivation and farming of most of Nigeria's staple crops/foods and always allows sufficient opportunities for grazing, fresh water fishing and forestry development.

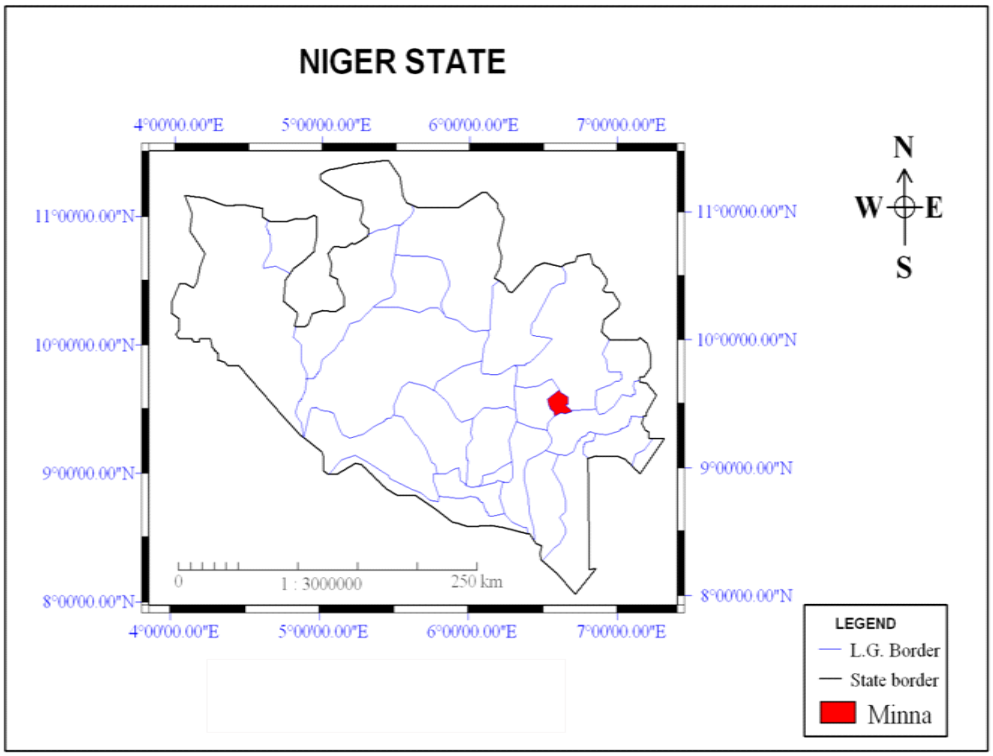


Figure 1.3: Map of Niger State indicating Minna the study area in a shaded colour

Source: **(**Niger State Geographic Information System Agency, 2021)

1.8.5 Population of minna

Minna is capital of Niger State. It had a population of 304,113 in 2007, (NPC Projection, 2007). With an average growth rate of 3.9 % per annum, the population of Minna is today projected to be 433,349. It is the administrative, financial and commercial base of Niger state. Transactions in property letting and sales of properties are carried out almost on daily bases in fairly good proportion in the city. Security of lives and properties is well provided by the security agencies in the state and at the city in particular. Promoters in real estate transactions such as financial institutions, estate agents, developers, and investors etc. are available in sizable number in the city. Business infrastructure and environment in the city are also favorable.

1.8.6 Socio-economic activities in minna

Minna has fertile land as a cherished asset and the potentials are yet to be fully tapped. Mostly the rich annual rainfall and the wide variety of mineral and Agricultural resources all attest to the growth and economic potential of the town. Agriculture is the back bone of the economy of Niger State as almost 90 per cent of the population depends either directly or indirectly on it for their living or livelihood. The state has one of the largest and most fertile agricultural lands in the country. With only about 10 per cent of the state's arable land being cultivated, in addition to the favorable climatic conditions, unique opportunities exist in the State for the establishment of large scale mechanise agricultural farms.

In Niger state every government that has come to power always endeavored to provide good infrastructure such as roads, electricity, water, and communication facilities etc to make way for interested investors and developers. However, most of the inhabitants are engaged in Agricultural activities which range from grazing, faming and fishing.

Significant non-oil economic activity in Niger State includes Crop Production (90% of the State’s Economy), Real Estate investment (4 %) Trading (3%) and livestock farming (2%), to make the State’s Economy the 18th largest in Nigeria.

1.8.7 Land use pattern and vegetation in minna

Three major soils types can be found in Niger State. These include the ferruginous tropical soils, hydromorphic soils and ferro soils. The main predominant soil type is the ferruginous tropical soils which mainly are basically derived from the Basement Complex rocks, as well as from old sedimentary rocks. Hydromorphic or waterlogged soils are majorly found in the extensive flood plain of the Niger River basin Figure 1.4 - 1.5. The soils are poorly drained and are majorly grayish or sometimes whitish in colour due to the high content of silt. Ferosols which emanated on sandstone for motions can be

found within the Niger trough. Like in other states with similar vegetation, it is characterized by woodlands and tall grasses interspersed with tall dense forest species. However, within the Niger trough and flood plains occur taller trees and a few palm oil trees. In some areas, traces of rain forest species can be found or seen.

The state capital is mostly dominated with the residential land uses, commercial land uses and recreational land uses and at the out sketch, is dominated by agricultural land uses.

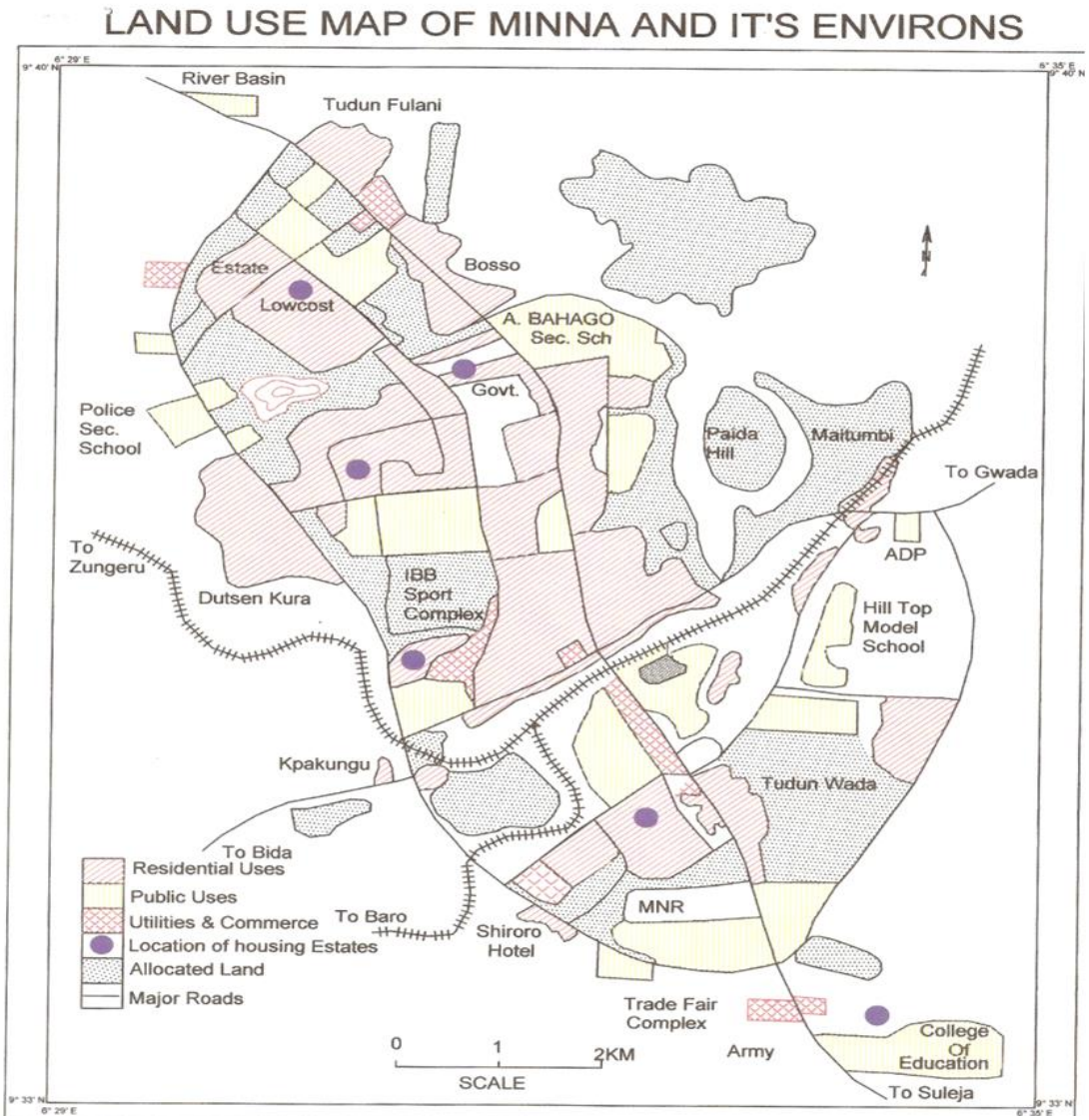


Figure 1.4: Map of Minna showing the land use pattern

Source: **(**Niger State Geographic Information System Agency, *2021*)

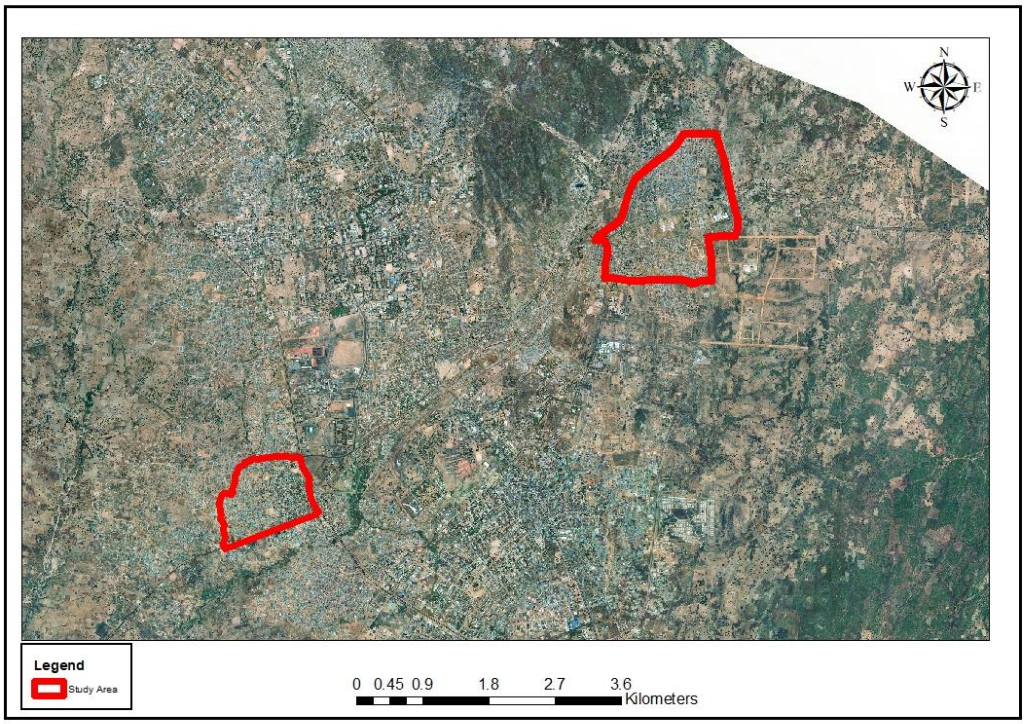


Figure 1.5: Satellite Image Showing the study areas

Source: **(**Niger State Geographic Information System Agency, 2021)

1.8.8 Investment opportunities in minna Niger State

Given the existence of much uncultivated farm land, its great agricultural produce and its mineral resources, The State government has put in place great incentives to woo potential investors to the state. These include the establishment of industrial estates, and easy acquisition of land for development purposes, free compensation payment for any genuine investor.

Also in addition to these, the existence in the state of three big hydroelectric power stations, Niger state has adequate industrial power. Furthermore, the state capital is not only connected to all the Local Government Headquarters, but the entire state is transverses with interregional roads connecting the State from north to south as well as east to west. The State is thus well connected to other parts of the country.

The several banks and financial institutions in the state are ready to provide essential financial services to potential investors. Moreover, the State is ever ready to enter into partnership with investors for the establishment of commercial and industrial projects. The state possesses vast investment potentials in agro-allied products and mineral based raw materials. Available evidence indicates that the pharmaceutical, food, paper and textile industries in Nigeria require huge quantities of starch for their production processes, most of which are currently imported from the developed countries. The state also has potentials for establishment of castor seed processing industry. As the raw variety grows well in most parts of the state, this could serve as a basis for the establishment of both small and large scale castor seed plantations. Castor oil is used in pharmaceutical industries in the manufacturing of drugs, quick drying and water resistant varnishes, enamels, oil paint, fabric printing ink and lithographic varnishes, amongst others. Niger State has the potential for the development of livestock, meat and dairy industries. Another viable industry is the development of fisheries, available in abundance from the several inland water resources in the state.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 History of Cost-Benefit Analysis as an Appraisal Technique

The theoretical roots of CBA are found in the work of Dupuit in 1844. Dupuit's substantial contribution to the theory regarding CBA was a concept central to the idea of net social benefit, consumer's surplus. Consumer's surplus is the additional utility that a consumer enjoys when their WTP for a good is greater than the actual price they pay for it. Dupuit argued that while the minimum benefit of a project is the price multiplied by the quantity of the goods produced by it, this can be exceeded since some consumers may be willing to pay more than the price, therefore enjoying a net welfare gain (Sassone & Schaffer, 1978).

The modern practice of CBA began with the 1936 United States Flood Control Act. This act preceded the development of the appropriate welfare economic foundations, which later provided CBA's theoretical basis. The Act required that the benefits of a flood control project should exceed its costs, regardless of their incidence (Pearce, 1998). However, while the Act stipulated the inclusion of all benefits, in treating project costs it only referred to construction costs rather than welfare losses (Pearce, 1983). Pearce (1998) described how subsequent development of the ideas contained in the Act continued in the 1950s, spurred on by concern for efficiency in government spending. The subcommittee of the Federal Inter-Agency River Basin Committee issued the Green Book in 1950, which aimed to introduce a formal procedure for the comparison of costs and benefits (Pearce, 1983). In 1952, the Bureau of Budget tried to further guide project evaluation, in Budget Circular A-47. Both the Circular and the Green book were criticised for not considering income distribution concerns and emphasizing

measurement of gains in terms of Gross National Product (GNP) whilst ignoring costs and benefits not captured by it (Sassone and Schaffer, 1978).

The application of CBA spread from the United States of America (USA) to the United Kingdom (UK), and other developed and developing countries (Dasgupta and Pearce, 1972). In the late 1960s and 1970s, international institutions developed guidelines for CBA, with particular focus on developing countries. Little and Mirrlees compiled the Organization for Economic Co-operation and Development (OECD) guidelines for conducting CBA in 1969 (revised in 1974). In 1972, the United Nations International Development Organisation (UNIDO) guidelines prepared by Marglin, Sen and Dasgupta were published, and in 1975, the World Bank guidelines by Squire and van der Tak (Pearce, 1983). Furthermore, numerous textbooks regarding CBA have been written, applied to both developed and developing countries, such as those by Campbell and Brown (2003), Pearce (1983), Gittinger (1982) and Sassone and Schaffer (1978). In Nigeria, currently there is no national guidelines for CBA, however awareness is fast growing for a need for Cost-Benefit Analysis in Nigeria with Special Reference to government proposed developments.

The basic method of public project assessment is the Cost-Benefit Analysis (CBA). It is the technique, which chooses the best project that achieves the specified goal with the smallest loss in social wellbeing (Kopp *et al*., 1997). It is also a tool which tests the socio-economic viability of an existing or proposed project or compares two or more ways of executing a project (Devarajan *et al*., 1999). Holistically, CBA is considered as a useful technique at the appraisal of environmental, infrastructure, health care, cultural and sport projects amongst others.

The basic rule of CBA is that project should be performed only when discounted benefits would be higher than discounted investment expenditures. Inspite of critical remarks and some simplifications CBA is still being treated as a simple tool with numerous applications in various spheres, especially in environmental and other pure public projects, used commonly by banks and investors, more rarely by state agendas and local governments-especially in the less developed countries.

2.2 General Overview of Cost-Benefit Analysis Technique

Cost benefit analysis (CBA) is a means of establishing whether a proposed public project is worthwhile to the community based on an analysis of financial, social and environmental cost and benefits (Ogunbajo, 2019). The cost benefit analysis can also be used for judging the attractiveness of alternative public projects, in many developed countries public projects are often not considered for approval until cost benefit analysis is carried out. Many literatures have reported the significance of commercial properties to the well-being of a society. It is seen as an essential element in developing a sustainable city by improving resilience, improving economy, healthy living and well-being, as well as increasing social cohesion (CIWEM, 2010).

Cost -benefit analysis is an appraisal technique used in assessing the desirability of an investment or project, which is likely to have an impact on a group of people or the entire community (Udechukwu, 2006). It is used for projects with both quantitative and qualitative implications, thus mainly applied in the appraisal of public sector related projects with social, economic, financial or political implication. Certain aspects of urban development process requires more funds than others, thus the need to carry out investment appraisal that would guide in taking decisions to either embark or reject such proposals. Project evaluation techniques of a more sophisticated nature are normally applied to urban development projects.

CBA is an economic technique applied to public decision−making that attempts to quantify the advantages (benefits) and disadvantages (costs) associated with a particular project or policy. This technique has been used to analyze policies affecting transportation, urban regeneration, agriculture, public health, criminal justice, defence, education, and the environment. The appeal of CBA is that by monetizing the benefits of the policy, it is possible to compare and/or aggregate many different categories of benefits with one another, and with the costs of the policy.

A scheme or project would be deemed acceptable if its benefits outweigh the costs. In this sense, a CBA informs decision−makers of both the direction and the strength of social preferences, and thereby also of the social desirability of a project or policy. Out of a number of alternative scheme being examined, CBA would recommend choosing the one with the largest net benefits, where net benefits are defined as the benefits minus the costs. Cost benefit analysis or more specifically, the estimation of costs and benefits that is required to perform a CBA also allows one to determine the socially optimal size of the project, i.e., the one that maximizes net benefits.

It should be noted that in order to determine the net effect of a proposed policy, we must first identify those persons who stand to gain and those who stand to lose from the implementation of the policy, and then estimate their respective gains or losses. For all practical purposes, CBA adopts the principle of a potential Pareto improvement, where winners can potentially compensate the losers. In total the benefits and the costs examined in a CBA are the aggregate gains and losses experienced by the individuals who comprise society.

Thus, if no individual is made better off by the public scheme, there are no benefits associated with it. If no one is made worse off by the scheme, there are no costs.

A CBA is usually performed to identify the most effective and economic way to conduct a transaction, engage in an activity, implement a project or accomplish a mission when there are several alternative ways of setting about it. The purpose of the analysis is to help determine the best approach that would yield the desired results while keeping the costs as low as possible (David *et al*., 2013).

The CBA, also referred to as benefit-cost analysis (BCA) makes use of a systematic process for working out the costs of following a given approach or policy and weighing it against the benefits. The approach that can provide the most benefits for the least cost is then chosen for implementation. Both governments and organizations depend on cost-benefit analysis to help them decide on the best option before launching a major undertaking.

Cost-benefit analyses serve two important purposes; they can provide a good indication of the soundness of an investment or a decision. They can justify same by showing that the overall benefits are more than worth the costs and to what extent.

They make it possible to compare different approaches to implementing a given program by providing rough estimates of the total cost of each option and the benefits available from each option (Mishan and Quah, 2007).

Cost-benefit analysis is not the same thing as other types of investment analysis. In CBA, costs and benefits are assessed in terms of money value and this includes corrections made for the time value of money. The value of benefits realized and the value of money invested in the venture over time are calculated to give their Net Present Value (NPV). There are various other types of investment or project analyses such as, cost-effectiveness analysis, cost–utility analysis, risk–benefit analysis, economic impact analysis, fiscal impact analysis, and social return on investment (SROI) analysis.

Therefore, the analytical technique employed for quantifying the risks and benefits of programmes and projects over a given period of time (Pearce *et al*., 2006), must use the same process to make comparisons valid (Willemen *et al*., 2010). In contrast to the present value (PV) method of investment appraisal, CBA makes use of the net present value (NPV) method by excluding the investment and returns (Lohmann, 2009). Though mostly used for performing financial analysis, CBA is also used for other purposes. It is frequently employed to work out environmental and social costs versus benefits of projects whenever these can be quantified with an acceptable degree of accuracy (Boardman *et al*., 2008).

2.3 The Basic Concept and Significance of Cost Benefit Analysis

Cost-benefit analysis is the application of neo-classical economic calculus to the fields of public decision-making (Dupuis, 1985). It is therefore based on micro-economic analysis theory and on the general principle of expressing costs and benefits in monetary terms. It implies the inclusion not only of all the financial factors but also of monetary equivalents (by monetary simulation) of all the other features of the project being evaluated (Oladokun *et al*., 2009).

The major roles of CBA can be highlighted in two folds. Firstly, that it seeks to bring greater objectivity into decision making by identifying all benefits and costs of a particular scheme, quantifying same for comparison. Secondly, that its use in the public sector where price signals are inadequate to guide investment decision, "spillover" benefits and costs are important because of the magnitude of the schemes (Harvey, 2000). Its purpose is to assist public decision-making, not only in terms of producing the ideal project but also by proposing the optimum solution for the community out of the spectrum of possibilities (Johannesson, *et al.*,1996). The objective, therefore, is to

determine optimum quantities as a contribution to decision-making or to evaluate the effectiveness of decisions already taken. Because of its paradigms and systematic use of monetary units, cost-benefit analysis holds a privileged position in the 'rationalization of budgetary choices' technique where it represents the end-point of public sector economics (Samuelson, 1954, Musgrave and Musgrave, 1998).

The validity of cost-benefit analysis is therefore grounded on bold and restrictive assumptions making for a normative approach to public decision-making (Musgrave, 1996). The government is assumed to do what the theory says it should and to comply with the rules of defined economic behaviour, acting as a rational agent maximizing utility functions under various constraints.

2.4 Theoretical/Conceptual Framework of CBA

Unlike the private sector whose objective is profit maximization and whose concern is with financial flows of revenues and costs, the public sector aims at maximizing social welfare and concerns itself with social benefits and costs not just financial flows, hence, the need for costs-Benefit Analysis (CBA).

Cost-Benefit Analysis is an analytical tool for judging the economic advantages or disadvantages of an investment decision by assessing its costs and benefits in order to determine the welfare change attribute to it (European Commission, 2014). It is a useful evaluation tool which takes a long term and wide view of the consequences of a programme or project designed to help achieve better decisions in public spending, especially for investment projects in such fields as transport, recreation, water resources and urban renewal among others.

In appraising investment projects, the technique attempts to take into cognisance all costs and benefits of a particular investment decision and not just those that are private

to the individual decision makers. In other words, its assessment parameters are not confined to financial flows but also include social flows. Examples of development projects for which Cost-Benefit Analysis can be used to evaluate include: Electrification projects; Road Construction; Public Schools; Public Health Centers; Industrial Projects; Public Housing; and Airports Construction among others.

2.4.1 Types of cost-benefit analysis

Four types of CBA which aid government resource allocation decisions have been identified by Boardman *et al.* (1996). These are Ex Ante, Ex Post and In Medias Res.

2.4.1.1 Ex-ante

This is the most standard type of CBA, as it is commonly used to assist government in the decision making on whether available scarce resources should be allocated to a specific projects. It therefore makes direct immediate and specific contributions to public policy decisions. It is futuristic in nature as the exercise is done before the execution of a project. It helps to prevent waste of resources and minimise abandoned project syndrome.

2.4.1.2 Ex-post

Ex-Post C.B.D is conducted after the completion of project works. It is done to consider all costs that have been spent on a project. The effect of the analysis at this stage is less immediate but only serve as a guide to policy makers on what steps to be taken in future. It may lead to a change in policy with regards to the type of project to be executed, time of execution, mode of execution and choice of materials.

2.4.1.3 In medias Res

This refers to the analysis conducted during the course of the life of a project. Some elements of the exercise are similar to an ex ante analysis, while others are similar to an ex post analysis.

2.4.1.4 Ex-ante and Ex-post predicts

The fourth type of C.B.D is the one that comprises ex ante predictions with ex-post measurement, or more likely with in medias es estimates for the same project. This type of C.B.D is mostly useful to policy makers.

Although, traditionally, the main application of CBA is for projects appraisal in the ex-ante phase, CBD can also be used for in medias res and ex-post evaluation.

2.5 Stages of Cost-Benefits Analysis

The European Commission Guide to Cost-Benefit Analysis (2014) stipulates seven steps for a standard CBA:

1. Description of the context
2. Definition of objectives
3. Identification of the project
4. Technical feasibility and Environmental sustainability
5. Financial analysis
6. Economic analysis
7. Risk assessment.

2.6 Types of Cost and Benefit

Watkins. (2008) identified different kinds of costs and benefits which were defined based on different criteria. Costs and benefits may be real or monetary. The main types

of real cost and benefit are: tangible or intangible, internal or external and final or intermediate.

2.6.1 Monetary and real costs and benefits

Monetary costs and benefits are easy to pinpoint and measure in projects.

However, they give no idea of the net costs and benefits to the community; they are simply financial quantities and do not therefore represent real costs and benefits. Real costs and benefits, for their part, are not expressed in money terms. They are real in the sense that it is they that affect the development of individual and social values which are complex in their nature. Sometimes impossible to quantify, difficult at the very least even to identify clearly.

2.6.2 Tangible and intangible real costs and benefits

Tangible costs and benefits refer to those to which a market value can be assigned, either directly or indirectly. Intangible costs and benefits are those for which a market valuation proves impossible or is completely meaningless (Devarajan *et al*., 1999).

2.6.3 Internal and external real costs and benefits

The concept of externality is considered to exist where there is interdependence but no compensation (Sardar and Christine, 2002).

A (positive or negative) external effect may be expressed as a (positive or negative) variation in the level of utility enjoyed by an agent as a result of an action by another agent without this effect being assigned a market value (Watkins, 2008).

In a nut shell, internal costs and benefits are those directly related to the implementation of the project whereas external costs and benefits are all those inferred by the project. Their exhaustive identification obviously poses vast problems.

2.6.4 Final and intermediate real costs and benefits

A cost or benefit is 'final' if it is borne by or directly benefits the end consumer.

An intermediate cost or benefit arises at the level of the production of other goods or services and will therefore affect the welfare of consumers (measured in terms of surplus) only in an indirect manner (Dupuis, 1985).

2.7 Cost Benefit Analysis Processes and Procedural Constraints

Brzozowska (2007) observed the following recipe as an outline for the preparation of cost-benefit analysis:

(1) Establish assumptions and constraints related to the strategy or project.

(i) Assumptions: typically deal with the economic life of a project and the period of comparison for various alternative strategies. The economic life of a project generally deals with the amount of time during which benefits continue to accrue. The end of a project's economic life is marked by the obsolescence. The period of comparison should allow for comparability of the costs and benefits of the different alternatives.

(ii) Constraints: the constraints in CBA can be classified as: administrative, including available management expertise; distributional, as in provision of services and assistance; legal, as in laws, rules, and rights; political, as with the public acceptability of a strategy; resource, in terms of staff, budget, time, and technology; social, including religious and cultural concerns; technological, as in what is technically possible at the time.

(2) Set the objectives of the analysis. Determine the desired results or effects that should be brought about by the strategy or project.

(3) Identify the possible alternative approaches.

(4) Identify the costs associated with each alternative. Costs can include:

(i) Initial Costs: such as research and development, planning, training, land or building acquisition, etc

(ii) Recurring Costs: such as salaries, benefits, materials, rent, maintenance, overhead, etc.

(5) Consider the time value of money. Future costs should be reduced to present value. Inflation should also be considered.

(6) Identify potential benefits and consequences associated with each alternative. Benefits and consequences include:

(i) Tangible Benefits: that it is additions to and subtractions from social welfare which can be expressed as Naira values.

(ii) Intangible Benefits: this can be valued only through subjective or qualitative interpretation.

(iii) Negative Effects: this implies undesirable consequences resulting from alternatives which can be both tangible and intangible.

(iv) Spill Over Effects: This means indirect and/or unintended ripple effects which may or may not be directly expressed in the analysis.

(7) Establish criteria for making the decision and select the most desirable alternative.

2.7.1 CBA measurement and the choice of most desirable project

In selecting or making decision about the most feasible project or alternative to embark on, Watkins *et al* (2008) and Devarajan *et al.* (1999) gave consideration to several criteria. These include:

(1) Net Present Value (NPV) of all costs and benefits;

(2) Cost-Benefit (C-B) Ratio; and,

(3) Internal Rate of Return (IRR) of the project/alternative.

2.8 Commercial Properties

According to Leramo (1992), commercial properties are properties built for commercial purpose. As previously defined, commercial properties are real properties of any kind, that shelter those who are engaged in any trade or profession with the expectation of profits and it is the profit that determines how much a tenant will pay as rent.

2.8.1 Types of commercial property

Decision to purchase, lease or rent commercial properties is generated by prospect for returns from the use of properties that fit the needs of the particular individual firm or companies. Investors may make purchases, to be leased out to prospective tenants. Builders, promoters and speculators, may develop new properties for lease or sale to business firms. Decisions to purchases, lease or rent commercial properties therefore depend in part, on the present level and future prospects of general business conditions or the relative prosperity of that particular line of business. Consequently, Three major types of commercial properties have been identified namely, shops, offices and commercial warehouse. These types of properties are usually in the Central Business District (CBD) example Mobil roundabout and Obasanjo Commercial Complex.

2.8.1.1 Shop

These are buildings or part of building where goods are displayed for sale on either retail or wholesale basis. They are very wide in spectrum ranging from small sized shops cover floor spaces of about $20m^2$ or less net floor area. The medium sized shops cover floor spaces of between $50M^2$ and $100m^2$ net floor area and are found or located in major streets, or roads in some part of the city. They are usually occupied for sale of various items. They are sometime called departmental stores for example B Y Stores located at Paiko road Tunga, Minna and Obasanjo Complex located at Bosso Road Minna. Income

from shop property generally forms a very sound type of investment, attractive both the private investors and to corporate bodies, such as institutions, pension funds and insurance companies.

The security of shop property lies largely in the fact that the tenant usually has a considerable stake in the property. He has probably built up a good business connection around the premises and will run the risk of losing this "good will" if he has to move elsewhere. He may also have sunk a considerable amount of capital in expensive fitting and stock, which would be depreciated by removal. He will, therefore, do his utmost to avoid default in payment of his rent.

2.8.1.2 Commercial warehouse

A warehouse becomes a commercial property when it has something to do with the storage and sale of goods at the same time. However, the term warehouse has been generally understood to mean a building used primarily for the storage of goods or housing of wares and has been defined as a property or structure designed and used for storage of wares, goods and merchandise.

2.8.1.3 Offices

Generally applies to premises, which are used for professional or trade purpose. The work carried on therein is of a clerical nature and does not include the displaying or selling of goods (Ifediora, 1993). These are also buildings where tertiary sectors of economics activities are carried out such activity includes the services rendered by banks, insurance companies and professional such as Estate Surveyors and Valuers, lawyers and accountants. They engage in gathering, processing and analysis of information and idea for purely advisory roles (Roberts *et al*., 1974). In simplistic terms, offices are service

industries consisting of those experts whose role essentially advisory as opposed to being directly productive in the industrial sense.

According to Ratcliffe, (1949), this sector is exclusively office oriented. It involves the gathering of information, and ideal, processing and analysis of the merits of such service oriented. It. Their evolution (offices) has become a marked characteristic of advance economics and a major index of modern urban growth and development. Office premises range from the converted space within a predominantly residential block to the purpose designed block with it elaborate services and organization. Between the two extremes are a host of other types of office premises varying in size and character depending on the business potentials of the town or locality. Varying terms of letting are thus common with office property.

2.9 The Concept of Commercial Real Property

Generally, investment in property or real estate can be spread on bare land, residential properties, office buildings, strip stores, shopping centres industrial properties and diverse realty investments such as hotels and motels (Sirota, 2004). Commercial property is a development or use of land that entertains business operations, requires huge capital outlay and has significant proportion in the nation's capital and general economy. There is a new form of distinguishing commercial property at the international scene, for instance, the emphasis in Asian real estate market is on Purpose Built Commercial Property (PBCP) and Purpose Built Office (PBO) in Malaysia. In Nigeria, Iroham *et al.*, (2014) was of the view that commercial property in urban centres can be categorized into three types; purpose-built office space, converted office space and shopping complex, but Bello (2012) viewed purpose-built commercial property at the perspective of shopping complex, or and office complex. Ozigbo (2013) specified commercial property

as composite of office property and retail property. Commercial property is an 'investible real estate' presented by Bello (2012) as property occupied for business activities by multiple-tenants, generating stream of income that can be analysed and thus being a source of financial returns to the owner from the rent paid by the occupants.

In most cases, these properties are found on the high streets of the prime areas of urban centres specifically the CBDs. Commercial property investment include shops or stores, malls, show rooms, purpose built office, detached house or block of flats converted to office, film houses, hotels, motels and some other social centers used for commercial purposes. Office property generally applies to premises which are used for professional or trade purposes. The work carried out therein is of a clerical nature and does not include the display or sale of goods. It ranges from the converted space within a predominantly residential block to the purpose-designed building with its elaborate services (Olusegun, 2008).

Investment, is an art of giving up capital for anticipated return, is a conscious decision embarked upon by individuals, corporate bodies and governments. Underlining a typical private investor's motive is profit measured in terms of money meaning that expected gain must exceed aggregate cost. However, investment decisions by the governments i.e. the public bodies do exhibit converse attention. The main tasks of public projects are to provide public services to community – most often of non-profit profile. The main problem is to choose the best project among others in certain needs and terms. In this view, an appraisal of economic efficiency, as a measure of the net contribution of a project to overall social welfare should be conducted to each single case. Standard appraisal methods based on projected profits and investment expenditures are not applicable because of intangible nature of pure public projects.

2.10 Commercial Property Investment

Commercial property type invested in with the view to create continuous income or property bought or developed purposely to earn income through renting, leasing or price appreciation. It constitutes a significant part within asset markets and it is used as an investment medium which provides revenues to its holders based on value. It also has clear evidence of income that can be analysed as returns on investment and can be sold in the property markets (Bello, 2012). Noting the importance of this means of investment, various authors have written either on its investment attributes or investment, at local and international scope. Investment attributes in this regard are the qualitative features of property which can aid its performance in term of rewards, but not the investment characteristics – the quantitative rewards analysis for a defined period.

Bello (2009) utilized the coefficient of multiple regression model outcomes on the attributes against log price to explore the importance of Finland commercial property attributes to arrive at the influence it may have on prices and home owners' decision making on where to live, time to make purchase and age of building to buy. This index could not apply within the scope of performance analysis, but on the bench-marking of real estate portfolios or decision making in the portfolio management asset allocation. At the same time, this would increase the transparency, liquidity and professionalism of the German and other related real estate market. This work was based on accounting reports, limited to hedonic pricing of general real estate in Germany; it is not explicit on investment properties of an emerging economy. However, the work represents a hedonic based index methodology to guide the home owners or renters where the appraisal is used as the representative body of building hedonic characteristics, especially when fresh to explain transaction prices; it does not specifically focus on the investment attributes of property elaborately to guide investors, but the property owners and renters.

Krystalogianni *et al.* (2004) examined the significance of widely used leading indicators of the UK economy for predicting the cyclical pattern of commercial property performance using monthly capital value data for UK industrials, offices and retail from the Investment Property Databank (IPD). This work was however not on comparative attributes of direct real estate investment, but on prediction of already established secondary data of indirect commercial property in the United Kingdom.

In Asia continent, Graeme *et al.* (2009) assessed the significance and performance of the Chinese commercial property market and compared it with six developed and emerging commercial property markets in Asia over the period of 1998-2007 for both direct and indirect property. This comparative work of direct and indirect real estate investment found out that Chinese commercial property had significantly enhanced performance and diversification benefits to Chinese investors in recent years, but unable to distinguish or identify the similarity between the two investments compared. Colwell *et al.* (1998) applied a hedonic model to Chicago office property utilizing building characteristics and some neighbourhood characteristics as explanatory variables. The results depicted a contrary result to general market belief that there was a nominal expansion in Chicago office transaction prices over the course of the 1980s. This work on hedonic model is limited to office property alone, and mere personal observations of the authors on building and neighbourhood characteristics but not on attributes of comparative direct investments.

Fisher *et al.* (1994) examined the alternative price indices in the US commercial property markets. After an empirical look at un-smoothed appraisal based indices, ex-post transaction based indices and un-levered REIT share indices; they concluded that each index method can provide different insights and uses for investors and academics alike. This is restricted to commercial property performance index. In Nigeria, Yakub *et al.*

(2013) used correlation and time-series analysis to investigate the effect of the rent review on occupancy ratio of multi-storey commercial properties in Kaduna city between 2006 and 2012 using a semi-structured questionnaire (along with interview) administered on tenants and managing agents of 3 selected multi-storey buildings. The study discovered that the ceaseless increase in rent on the properties over the years impacted on the occupation ratio of these buildings by virtue of inverse relationship between the occupancy-status and rentals in the buildings, thus, increase in rental value reduces the occupancy rate. Although this was on direct commercial property investment, but it has inadequate sample of just three commercial properties in a city and was unable to investigate attributes of the investment property.

Bello (2012) analysed the risk and return profile of commercial property in South-Western Nigeria with selected stocks market investment between 2000 and 2009; compared the inflation hedging characteristics and diversification potentials of investing in commercial property and selected stock market investment using data of rental and capital values for commercial properties and stock market data of prices and dividends (return) for banking, insurance and conglomerates sectors. The study found that stock market options offered attractive higher return when compared with commercial property albeit higher risk with commercial property having diversification benefits to stocks investment. The study is limited to the investment characteristics but not inclusive of the investment attributes of commercial property and do not compare property with hotel investment specifically.

Babajide *et al.* (2014) examined the implications of property market forecasts to commercial property valuation in Nigeria and revealed that real estate forecasting is not popular in the Nigerian market. However, there would not be a reliable forecasting of the

commercial property market when the attributes of such investment are not properly understood, evaluated or compared with other investment appropriately.

Iroham *et al.* (2014) used ANOVA and Tukey Post-Hoc Test to assess the trends in rental values of commercial properties in Akure between 2006 and 2011 and discovered that the converted office space is mostly predominant (53%) while the shopping complex is the most professionally managed property (46%) and that the rental values of these properties are significantly different. This work is restricted to the investment characteristics and not inclusive of the attributes of investment. Furthermore, the data used for this study were limited to 22 estate surveying firms in Akure town of Ondo State.

Ogunba *et al.* (2014) examined the inflation hedging characteristics of commercial property investments in Ibadan metropolis in Nigeria between 2000 and 2010 and found out that property returns have a poor hedge against actual inflation, a partial hedge against unexpected inflation and almost a complete hedge against expected inflation. This indicated that commercial properties may not offer as much protection against inflation as is usually expected by investors. In the same direction,

Dabara (2014) considered return profile of commercial property investment, but in selected state capitals of South-Western Nigeria like Ogunba et al (2014) focusing on actual, expected and unexpected inflation rates for the period of 2002 and 2012. Three of Six (6) state capitals of the South-Western Nigeria were considered, but the work should have been more robust if all the 6 state capitals of the South-Western Nigeria were covered.

From all of the above past studies, it would be observed that the focuses are on performance measurement of either direct or indirect commercial property, little emphasis was placed on cost-benefit analysis of commercial complex specifically.

2.11 The Need for Commercial Real Property Investments

Investment is the giving up of a capital sum now in exchange for benefit to be received in the future which usually take the form of an income flow and or capital gain (Enever and Isaac, 2002). Investment in property may be achieved in a number of ways, the chief of which are: property acquisition, mortgage investment, property development and acquisition of shares in property companies which produces interest, dividends or royalties. In the context of portfolio investing, real estate is traditionally considered an "alternative" investment class (Woychuck, 2012). That means it is a supplementary investment used to build on a primary portfolio of stocks, bonds and other securities. Woychuck (2012) affirmed that one of the beneficial features of real estate is that it produces relatively consistent total returns that are a hybrid of income and capital growth. In that sense, real estate has a coupon paying bond-like component in that it pays a regular, steady income stream and it has a stock-like component in that its value has a propensity to fluctuate; and like all securities, one would prefer the value to go up more than to go down. Hence, the need for consideration of factors determining property investment performance.

The essential objective of investment is to maximize returns while minimizing risks (Fraser, 1993). Enever and Isaac (2002) affirmed that the rate of return on a particular investment is determined by the forces of supply and demand within the market and is evaluated by investors and their advisers by comparing returns from various investments. They further stated however, that certain underlying economic influences affect the rate of return on property investment. These are inflation, incidence of taxation, tenant risk, risk of irregularity of income, legal risk, liquidity of the investment, cost of transfer (sale and purchase) and the cost and trouble of management amongst others.

Real estate investment as a resource of primary importance in the economy of any nation seemingly constitutes a large portion of the total wealth in Nigeria, although the estimated value is yet to be ascertained. Little is known about their risk and return characteristics to enable future planning and forecasting. Moreover, willing foreign and local investors often seek to know the inherent risk in any geographical location before investing. However, real estate investment data are not generally accessible. Furthermore, it is generally opined that real estate investments are related to general economic activity and prosperity of a nation or country.

This paper identified criteria considered in commercial property investment performance evaluation through identifying what factors affect property investment performance, how are they considered by investors, and Estate Surveyors and Valuers generally and in the study area in particular and which of the factors exert the most critical influence on property performance generally and in the study area in terms of rate of return on commercial investment in Victoria Island. This could attract prospective investors from both National and International regions and subsequently improve the economy of Niger State.

2.12 Factors Influencing Commercial Real Property Investment Performance

Investors can invest directly in physical real estate or choose to invest indirectly through managed funds. Investing directly in real estate involves purchasing the residential or commercial property to use as an income-producing property or for resale at a future time. Indirect ways to invest in the real estate market include investing in Real Estate Investment Trusts (REITs), Real Estate Exchange Traded Funds (ETFs), Commingled Real Estate Funds (CREFs) and Infrastructure Funds. (Woychuck, 2012). For an investment to be tagged as good, it should satisfy the conditions of return on investment and capital appreciation over a period of time amongst others. Moreover, like other

investments, real estate is also affected by several factors which may not necessarily be economic as there are many other factors that affect or determine real estate performance and hence, limit the performance of real estate investment generally. Nguyen (2011) grouped factors that influence real estate investment into four categories which are demographics, interest rates, economy and government policies/subsidies while Riscario Investment Agency (2013) identified some factors as affecting investment returns and they are inflation, general economic factors and risk. Leiser and Groh (2011) also identified factors that affect commercial property investment performance as property rights, security of property rights, ease of access to loans, credit information index, soundness of banks, interest rate, access to private capital, private equity investments, REITs market volume, crime, corruption, size and liquidity of stock market, stock market capitalization, quality of infrastructure, density of road network, taxation, burden getting a construction permit, cost of building materials, case of registering properties, human development, political instability, population, direct foreign investment and degree of urbanization. Morley (1988) further suggested factors that affect property performance as rental value and rental growth, yield on sale and timing of sale, age and obsolescence, lease structure, liquidity, management costs, taxation and inflation. Furthermore, Chandra (2010) identified factors affecting property investments as illiquidity of the market, Maintenance efforts, political factors, social factors and development factors. Leiser and Groh (2011) further identified economic activity, infrastructural facilities, legal framework and socio-cultural factors while a study of the United Kingdom housing price determination carried out in 2011 at Harvard University identified factors influencing property performance as micro and macroeconomic indicators which are gross domestic product (GDP), gross national product (GNP), national income (NI), inflation, interest rates, interest rates on mortgages, the global financial market and global

economic meltdown. Tompos (2005) identified factors affecting real estate market as forced liquidation, cost of transfers, management headaches, tax concerns, re-zoning possibilities, control/management of the property and lack of local knowledge of property values. However, there are other factors that affect property performance which are seasonally or climatically inclined and are referred to as environmental hazards (Han, 2012); these include hazardous material pollution and natural hazards. Han (2012) further divided natural hazards into geological hazards. (This includes earth quake, landslide, avalanche-snow related, volcanic eruption) and hydro meteorological hazards (flood, drought, hurricane and heat waves).

2.13 Review of Empirical Studies on the Use of CBA Technique in Project Appraisals in Nigeria

Nwabueze *et al.* (2020) examined cost-benefit analysis of a pipeline infrastructure project based on a given natural gas demand in order to estimate the net present value and payback time for natural gas pipeline investment in Nigeria. The result of the cost-benefit analysis indicates a positive net revenue and net present value (NPV) at the current regulated transport cost and availability factor for gas pipelines in Nigeria. However, with a payback period of 14 years, a natural gas pipeline project in Nigeria is likely to lose-out investment capital to other competing investments within the oil and gas sector. Scenario analysis indicates that by doubling the regulated transport cost with a 50% tax reduction, the pipeline investment results in a much higher NPV and a payback of 4 years, which is more acceptable to investors.

Oyebode and Ige (2019) evaluated the cost and benefits for a proposed rural water supply scheme identifying the optimum alternatives to be chosen for the water supply scheme. They also assesses the cost and benefit analysis of a rural water supply project, taking the community of Dei-Dei as a case study. The main challenge associated to regional

water supply systems lies in understanding the best infrastructure alternatives, in terms of cost and benefits. The method used to ration a project 's output determines who obtains it, and therefore, the valuation that is placed on it. Hence when they conduct cost-benefit studies, they considered simultaneously the way in which a project's benefits are measured and the method used to ration the project's output. Reducing the positive and negative impacts of the project to its equivalent money value, the cost-benefit analysis determines whether on balance the project is worthwhile. Equivalently the money value is based upon information derived from consumer and producer market choices. It has been ascertained that demand and supply schedule for water supply need urgent attention to avert issues related to human health, goods and services affected by the project. It has been concluded that the condition of water availability in Dei-Dei is considered deplorable. The current demand of water from Dei-Dei is 9,107 m3 /year with adequate influence from the community and other local authorities the proposed facility is able to be both beneficial and cost sensitive to suit its intended 20-year operation and maintenance cost which will provide the future water demand of 10,715 m3/year coming from the three stated alternatives (Rainwater Collector, Communal Hand Pumps and Public Taps).

Ihum and stephen (2018) investigated the viability of constructing Kashimbilla Multipurpose Dam in Taraba State Nigeria using Cost and Benefit Analysis (CBA) under two different scenarios. It particularly varied interest rate, project costs and benefits. The analysis has demonstrated that Kashimbilla Dam is a worthwhile project. While the result from the computation of the CBA suggests that the project is viable, other social benefits such as improved crop yields resulting from irrigation services, improved water availability, full benefits from flood control (value of human life), increased access to

water resources, creation of employment and tourism indicate also that the project is a worthy public undertaking.

Abelson (2007) studied Cost benefit analysis of proposed major rail development in Lagos, Nigeria. He discovered Railways are often advocated, despite the high subsidies usually required, because of their carrying capacity and the perceived environmental advantages of air quality, safety, energy savings and general urban amenity. This paper reviews these issues taking Lagos as a case study. After reviewing transport issues in Lagos, the paper provides a detailed cost-benefit analysis of the proposed metro. Special attention is paid to land take requirements, severance, air quality, traffic noise, construction impacts and various minor environmental impacts. The paper concludes that the metro (as proposed) is economically and financially a very marginal prospect. Important points that emerge are the critical importance of efficient transport management, the importance of social impacts, the relatively minor importance of environment impacts, and the need for more attention to network and land use impacts.

Odoudoh and Oladokin (2015) focused on how Cost Benefit Appraisal technique can be applied in urban infrastructure provision in Nigeria. Data collected to determine if the amount of public funds incurred in the provision of urban infrastructure equates the benefits derived by the users from such projects. To achieve the aim of their study, several appraisal techniques were studied, including social cost benefit analysis, planning balance sheet analysis, development balance sheet, urban threshold analysis and goal achievement matrix (GAM). Their research uses a modified GAM to evaluate the development of urban infrastructure in terms of achievement or non-achievement of set objectives to the users. The result indicated that the distribution of urban infrastructure and tariff are reasonable; while adequacy and quality, regularity of supplied, maintenance of provided infrastructure, among other variables studied were not achieved. In all, the

costs of providing the infrastructure outweighed the benefits to the people. Their research concluded by recommending that appropriate investment appraisal should be carried out before embarking on urban infrastructure provision.

Mcquigan *et al.* (1999) examined CBA in the light of several criteria that have been proposed by welfare economists for evaluating the desirability of alternative social and economic states. CBA is the primary tool that economists employ to determine whether a particular policy or policy proposal promotes economic efficiency (Kotchen, 2010). Many public institutions and private investors in Nigeria normally proceed with projects on the assumption that their benefits will certainly exceed their costs even without any form of development appraisal to determine the feasibility and/or viability of such project. According to Ogbuefi (2004), the main thrust of investment appraisal is the examination of costs and benefits emanating from an investment. In any investment, be it private, corporate or government, there are various implications in form of costs and benefits to the investor. The need for cost-benefit analysis arises because the normal yardstick of commercial profitability that guide the investment decisions of private investors may not be an appropriate guide for public investment on infrastructure. Private investors are interested in maximizing private profits and therefore normally take into account only the variables that affect net-profit: receipts and expenditure, which are both valued at prevailing market prices for inputs and output. The Concept of Sustainable Development emerged in 1987 with emphasis on development as a process of change in the direction of investment, orientation of technology and institutional changes which are in harmony to meet human needs and aspirations. The approach embodies the notion and ideals of a development process that is equitable and socially responsive, recognizing the extensive nature of poverty, deprivation and inequality between one neighbourhood and the other in an urban centre or one region and another in a country. Urban infrastructure provision

requires equitable distribution of available resources between users in a given location now and in the future. Therefore, to continually meet the needs of the present generation means that there must be continued growth in the supply of urban services. Many authors associate various aspects of urban growth with destruction and degradation of the environment while others relate sustainability to economic stagnation (Umeh, 1977; Udia, 2003; Uchegbu, 2008; Ozigbo, 2002)

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Population for the Study

The population for this study comprises of the developers of commercial complexes, occupiers of commercial complexes, estate surveyors and valuers, and real estate investors in the study area. There are equally a number of private individuals involved in commercial complex delivery Minna. These groups of population will therefore each be broken into a manageable size and hence make up the sample size for the study.

3.2 Sampling Frame

Sampling frame is a list employed to define a researcher's population of interest. The sampling frame gives a set of elements from which a researcher can select a sample of the target population (Lewis-Beck *et al.*, 2004). This explains the process of selecting a number of individuals for a study in such a way that the individuals selected represent a large group from which they were all selected. The sample frame for this study included commercial complex Developers and real estate Investors, and the occupiers of commercial complexes in the study area.

3.3 Sampling Technique

Sampling techniques employed is probability sampling techniques. In probability sampling, a member of the research population has an equal chance of being picked. It involves the selection of respondents at random from the sampling frame, having decided on the sample size.

3.4 Sample Size

The need for a representative statistical sample in empirical studies has led to the demand for an effective method of finding sample size. For any study, the sample size of the study must be determined during the designing phase of the study. However, before finding the

size of the sample that needed to be drawn from the existing population, certain factors must be taken into consideration. Salant and Dillman (1994) mentioned that the size of the sample is depended on four factors:

(a) population size; (b) level of sampling error; (c) how varied the population is;

(d) the smallest subgroup within the sample for which values are needed.

Estimation of sample size in research using Krejcie and Morgan is a commonly adopted method. Krejcie and Morgan (2010) adopted the following formula to calculate sampling size and arrive the table as shown as follow:

$s = X^2 NP(1-P) + d^2 (N-1) + X^2 P(1-P)$

where:

s = Required Sample Size

X= The Table Value of Chi-square for One Degree of Freedom at the desired confidence Level

N= The Population Size

P= The Population Proportion (assumed to be 0.50 since this would provide the maximum sample size)

d= The degree

of Accuracy expressed as a proportion (0.05)

the distribution of sampling population is shown in Table 3.1

Table 3.1: Sample size model developed by Krejcie and Morgan

N	S	N	S	N	S
10	10	220	140	1200	201
15	14	230	114	1300	207
20	19	240	140	1400	320
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	159	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	340
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	355
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	369
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	330
190	127	950	271	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000 +	384

Note: N= Population Size, S=Sample Size

Source: Krejcie and Morgan (reviewed 2010).

Based on the above table for determining sample size, for a given population of 300, a sample size of 117 would be needed to represent the section of the population. Meanwhile, it is important to note that this researcher has considered whether the sample size is adequate to providing enough accuracy to base decisions on the findings with confidence. Chuan and Penyelidikan (2006) mentioned the fact that sample size can be increased more than the recommended size. This researcher has therefore deemed it fit to administer a total of 164 questionnaires to create room for more accuracy in its result.

3.5 Methods of Data Collection

3.5.1 Questionnaire

Structured questionnaires were administered for collection of primary data in the study area from the respondents. The questionnaire was designed in such a manner as to attract vital answers which are expected to help the researcher in analysing the situation at hand. Specifically, a set of questionnaires was designed with two sections which were administered for the occupiers of commercial complexes, Estate surveyors and valuers, real estate developers and investors in commercial complexes in order to collect factual information. Each group of respondents have their questionnaire designed to suit the information expected from them. The researcher administered the questionnaires by personal visit to the respondents. This researcher ensured that questionnaires were accompanied by a letter so as to briefly explain to respondents about the significance of the research study and assuring them that their responses would be utilized for research purposes only and also that confidentiality will be strictly adhered. The questionnaire was structured to gather information relating to Cost-Beneffit Analysis in Minna, Nigeria.

3.5.2 Interview

The essence of this interview method was to have enough information and compare the submissions to the questionnaires of respondents in the two neighbouhoods. This source of data collection provided a means of collecting first-hand information which served as a useful purpose.

3.6 Sources of Data Collection

3.6.1 Primary data

Primary data comprised of the raw data sourced directly from respondent through structured questionnaires. The primary data comprises of respondents' that are developers of commercial complexes, occupiers of commercial complexes, Estate surveyors and valuers, and real estate investors in the study area. The questionnaires were directed to the Estate Surveyors and Valuers, occupiers and developers of commercial complexes in the study area.

3.6.2 Secondary data

Secondary data are second hand information and they are materials from published and unpublished sources. The sources of secondary data consulted are the published and unpublished works from journal, conference proceedings, textbooks which are relevant to the study.

3.7 Techniques of Data Analysis

The data collected from the respondents are analysed using both descriptive statistics Relative Importance Index (RII), Mean Difference and Benefit-to-Cost-Ratio.

Descriptive statistics provides, as Trochim (2006) mentions, simple summaries about the samples and observations made. Such summaries may be either quantitative and simple-

to-understand tables or graphs. These summaries may be sufficient in and of themselves for a certain investigation.

For the purpose of this study the descriptive statistics applied is summary statistics.

Meanwhile Relative Importance Index (RII) is a type of relative importance analysis.

RII was employed for the analysis because it best fits the purpose of this research study as it tests the effectiveness of the strategies for commercial complex delivery in the study area. Johnson and Lebreton (2004) mentioned that RII helps in finding the contribution a particular variable makes to the prediction of a criterion variable both by itself and in addition with other predictor variables. According to Badu *et al.,* (2013) the formula below can be used for the calculation of Relative Importance Index (RII):

$$\mathrm{RII} = \frac{\sum \mathrm{W}}{\mathrm{A} * \mathrm{N}}$$

where, W—weighting given to each statement by the respondents

A—Higher response integer

N—total number of respondents

Benefit-to-Cost Ratio (or Benefit to Cost Ratio) compares the present value of all benefits with that of the cost and investment. The BCR is typically used for cost benefit analysis, along with other measures such as net present value, return on investment, internal rate of return etc. The present 3.2 analytical methods required for the objectives of the study.

Table 3.2: Analytical Methods required for the Objectives of the Study

Objectives	Data required for the study	Analytical methods
1. To evaluate the factors that influence the demand for commercial premises in the study area.	Data on the main reasons commercial complex are occupied in the study area.	Relative Importance Index (RII)
2. To evaluate the benefits of commercial complexes in the study area.	Data on the need for commercial complex in the study area.	Mean Difference
3. To assess the viability of commercial complexes in the study area.	Data on the viability/otherwise of a commercial complexes development in the study area.	Benefit-to- ratio

Source: Author's Field Survey (2021)

3.8 Data Presentation and Analysis

A given research work must present data in such a way that readers of such work would find the data appealing. In the context of this, data gathered from the above-stated sources were presented with the use of tables, bar chat and pie chat.

Meanwhile the data collected was processed systematically in the following phases;

Editing and Coding: This involved thorough checking of the data in each questionnaire for consistency, accuracy and correctness. Also, a standard code frame was assigned for the open-ended responses in preparation for the data capture.

Data Analysis: Data collected were analysed with the use of summary statistics, Relative Importance Index (RII) Mean Difference and Benefit-to-cost ratio.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Results

The data for the study are presented and analyzed using methods outlined in Chapter three. Also, attempts were made to ensure that only data related to both research objectives and questions of the research study are treated. Out of the total 164 questionnaires administered only 150 was retrieved. Therefore, the analysis is based on the total questionnaires returned. The Chapter is presented under the following sub-headings:

4.1.1 Distribution of demographical data

The demographic distribution of data are shown in Table 4.1

Table 4.1: Frequency Distribution of Demographic Data

Variables	Category	Frequency	Percent
Gender	Male	121	80.67
	Female	29	19.33
	Total	**150**	**100.0**
Professional	Estate Surveying and Valuation	37	24.67
	Architecture	15	10.00
	Building	13	8.67
	Town Planner	18	12.00
	Quantity Surveying	8	5.33
	Engineering	4	2.67
	Developer/Investor	9	6.00
	Others, please specify	46	30.67
	Total	**150**	**100.0**
Years of Experience	0-5 years	8	5.33
	6-10 years	20	13.33
	11-15 years	85	56.67
	16-20 years	26	17.33
	Over 20 years	11	7.33
	Total	**150**	**100.0**
Educational Qualification	National Diploma	18	12.00
	Higher National Diploma	44	29.33
	Post Graduate Diploma (PGD)	15	10.00
	First Degree (BSc)	22	14.67
	Master Degree (MSc)	40	26.67
	Doctorate Degree (Dr)	5	3.33
	Others	6	4.00

	Total	**150**	**100.0**
Professional Qualification	Fellow	3	2.00
	Associate	28	18.67
	Corporate	42	28.00
	Probationer	29	19.33
	Graduate	25	16.67
	Other	23	15.33
	Total	**150**	**100.0**
Rank/Designation/position	Managing Director	13	8.67
	General Manager	14	9.33
	Public relation Officer	15	10.00
	Project Manager	10	6.67
	Others	98	65.33
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

In Table 4.1, 86.67% of the respondents represents males while only 19.33% represents females. Estate Surveying and Valuation (24.67%), Architecture (10%), Builder (8.67%), Town Planner (12%), Quantity Surveying (5.33%), Engineering (2.67%), developer/Investor (6%) while others are represented by 30.67%. Their Years of Experience, Educational Qualification, Professional Qualification and Rank/Designation/position are equally represented in the above Table with their corresponding percentages.

4.1.2 Distribution of commercial real property developers' details

The Table 4.2 present the frequency distribution of organisations' details

Table 4.2: Frequency Distribution of Organisations' Details

Variables	Category	Frequency	Percent
Is your organization registered with the Real Estate Developers' Association of Nigeria (REDAN)	Yes	7	4.5
	No	143	95.5
	Total	**150**	**100.0**
Ownership Structure of private developers of commercial real estate	0-5 years	10	6.67
	6-10 years	39	26
	11-20 years	48	32
	16-20 years	25	16.67
	Over 20 years	28	18.66
	Total	**150**	**100.0**

Size of organization	5-10 employees	23	15.33
	11-20 employees	84	56
	21-50 employees	10	6.67
	51-100 employees	3	2
	Over -100 employers	30	20
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

In Table 4.2, respondents with the ages 16-20 years of experience have the largest numbers representing 42% while those from year 1-5 has the lowest respondents with 10%. This goes to show that large number of the respondents have been in the commercial complex development for long in the study area. Also, those with staff strength of between 11-20 employees has respondents of 84%.

4.1.3 Frequency distribution of reasons for private developers' participation in commercial complex provision

Table 4.3 show the frequency distribution of reasons for private developers' participation in commercial complex provision

Table 4.3 Frequency Distribution of Reasons for Private Developers Participation in Commercial Complex Provision

Variables	Category	Frequency	Percent
Profit	Not Important	1	0.66
	Slightly Important	4	2.67
	Fairly Important	15	10
	Important	52	34.67
	Very Important	78	52
	Total	**150**	**100.0**
Speculation	Not Important	2	1.33
	Slightly Important	10	6.67
	Fairly Important	18	12
	Important	58	38.67
	Very Important	62	41.33
	Total	**150**	**100.0**
Political Prestige	Not Important	8	5.33
	Slightly Important	55	36.67
	Fairly Important	40	26.67
	Important	24	16
	Very Important	23	15.33
	Total	**150**	**100.0**

Provision of Social Benefit	Not Important	2	1.33
	Slightly Important	12	8
	Fairly Important	44	29.33
	Important	62	41.33
	Very Important	30	20
	Total	**150**	**100.0**
Lack of other options	Not Important	74	49.33
	Slightly Important	55	36.67
	Fairly Important	18	12
	Important	2	1.33
	Very Important	1	0.67
	Total	**150**	**100.0**
Professionalism	Not Important	3	2
	Slightly Important	10	6.67
	Fairly Important	27	18
	Important	82	54.67
	Very Important	28	18.66
	Total	**150**	**100.0**
What is your assessment of the level of participation of the private estate Developers in commercial complex development in Minna, Nigeria?	Very low (<30%)	10	6.67
	Low (30-44%)	29	19.33
	Average (45-59%)	83	55.33
	High (60-69%)	18	12
	Very high(≥70%)	10	6.67
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

In Table 4.3, 52% of the respondents believe profit making is the very important for private developers participation in complex development in the study area and others with their corresponding percentages. Also, 41.33% of respondents believes speculation is very important for private developers participation in commercial complex provision and others with their corresponding percentages. About 36.67% respondents believes political prestige is slightly important for private developer's participation and others with their corresponding percentages. Again, 41.33% of the respondents believes Provision of Social Benefit is important for private developers participation in commercial complex provision and others with their corresponding percentages. Also 49.33% of the respondents believes lack of other option is not important as reason for private developers participation and others with their corresponding percentages. A total

54.67% of the respondents believes professionalism is important as reason for private developers participation in commercial complex provision and others with their corresponding percentages. Also, important to note is the fact that 55.33% of the respondents believes the level of participation of private developers is between 45-59%.

4.1.4 Distribution of the reasons for present level of participation of the private estate developers in commercial complex provision in Minna

The distribution of the reasons for present level of participation of the private estate developers in commercial complex provision in Minna are shown in Table 4.4

Table 4.4: Frequency Distribution of the Reasons for Present Level of Participation of the Private Estate Developers in commercial Complex Provision in Minna

Variables	Category	Frequency	Percent
Huge Return on Investment	Not Important	1	0.67
	Slightly Important	10	6.67
	Fairly Important	8	5.33
	Important	13	8.67
	Very Important	118	78.67
	Total	**150**	**100.0**
Normal Business Operation	Not Important	41	27.33
	Slightly Important	27	18
	Fairly Important	12	8
	Important	4	2.67
	Very Important	66	44
	Total	**150**	**100.0**
Incentives from the Government	Not Important	12	8
	Slightly Important	68	45.33
	Fairly Important	42	28
	Important	24	16
	Very Important	4	2.67
	Total	**150**	**100.0**
Inadequate Finance for commercial Property Development	Not Important	2	0.8
	Slightly Important	15	6.2
	Fairly Important	22	9.1
	Important	75	31.0
	Very Important	36	52.9
	Total	**150**	**100.0**

Limited Access to Land for Commercial Property Development at Accessible Locations	Not Important	11	7.33
	Slightly Important	24	16.0
	Fairly Important	22	14.67
	Important	75	50.0
	Very Important	18	12.0
	Total	**150**	**100.0**
Inadequate Return on Investment	Not Important	4	2.67
	Slightly Important	13	8.67
	Fairly Important	12	8
	Important	53	35.33
	Very Important	68	45.33
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

In Table 4.4, 78.67% of the respondents believe huge return on investment is important and a driver for most private estate developers participation in commercial complex development in the study area and others with their corresponding percentages. Also 44 % of the respondents believes normal business operation is very important for most private developers participation in commercial complex development in the study area and others with their corresponding percentages. Those that believes that the present level of commercial complex development is as a result of incentives from government says incentives is slightly important and has 45.33% and others with their corresponding percentages.

4.1.5 Availability of commercial complex inputs in Minna

The availability of commercial complex inputs in Minna is present in Table 4.5

Table 4.5: Frequency Distribution on the Availability of Commercial Complex Inputs in Minna

Complex Construction Input	Category	Frequency	Percent
Labour	Not available	3	1.2
	Poorly available	6	2.5
	Fair available	15	10.3
	Available	58	35.5
	Readily available	68	50.5
	Total	**150**	**100.0**

Material	Not available	2	1.33
	Poorly available	4	2.67
	Fair available	28	18.67
	Available	46	30.67
	Readily available	70	46.66
	Total	**150**	**100.0**
Market	Not available	2	1.33
	Poorly available	62	41.33
	Fairly available	51	34
	Available	30	20
	Readily available	5	3.33
	Total	**150**	**100.0**
Profit	Not available	3	2
	Poorly available	39	26
	Fair available	48	32
	Available	20	13.33
	Readily available	40	26.67
	Total	**150**	**100.0**
Finance	Not available	9	6
	Poorly available	84	56
	Fair available	34	22.67
	Available	12	8
	Readily available	11	7.33
	Total	**150**	**100.0**
Land	Not available	8	5.33
	Poorly available	10	6.67
	Fair available	70	46.67
	Available	40	26.67
	Readily available	22	14.66
	Total	**150**	**100.0**
Equipment	Not available	6	4
	Poorly available	12	8
	Fair available	19	12.67
	Available	70	46.67
	Readily available	43	28.66
	Total	**150**	**100.0**
How would you rate or describe the performance of construction personnel in your organization	Excellent	95	63.33
	Good	40	26.67
	Average	10	6.67
	very poor	5	3.33
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

In Table 4.5, 50.5 % of the respondents says labour is readily available for commercial complex development in the study area and others with their corresponding percentages.

The other important Input include market (41.33%), materials(46.67%) , land(46.67%), equipment (46.67%) and others as shown in the above Table with their corresponding percentages

4.1.6 Distribution on the commercial complex types in the study area

The Distribution on the commercial complex types in the study area is shown is Table 4.6

Table 4.6: Frequency Distribution of the Commercial Complex Types in the Study Area

S/No	Complex type	Frequency	Percent
Office	Very infrequent(<30% of construction)	86	57.33
	Infrequent (30-39% of construction)	14	9.33
	Fairly infrequently (40-49% of construction)	8	3.33
	Frequently (50-69% of construction)	21	14
	Very frequently (≥70% of construction	21	14
	Total	**150**	**100.0**
Shops	Very infrequent(<30% of construction)	30	20
	Infrequent (30-39% of construction)	56	37.33
	Fairly infrequently (40-49% of construction)	17	11.33
	Frequently (50-69% of construction)	40	26.67
	Very frequently (≥70% of construction	7	4.67
	Total	**150**	**100.0**
Super Market	Very infrequent(<30% of construction)	34	22.67
	Infrequent (30-39% of construction)	103	68.67
	Fairly infrequently (40-49% of construction)	10	6.67
	Frequently (50-69% of construction)	1	0.66
	Very frequently (≥70% of construction	2	1.33
	Total	**150**	**100.0**
Shopping Complex	Very infrequent(<30% of construction)	67	44.67
	Infrequent (30-39% of construction)	18	12
	Fairly infrequently (40-49% of constr.)	15	10
	Frequently (50-69% of construction)	44	29.33
	Very frequently(≥70% of construction)	6	4
	Total	**150**	**100.0**
Shopping Malls	Very infrequent(<30% of construction)	76	50.67
	Infrequent (30-39% of construction)	10	6.66
	Fairly infrequently (40-49% of construction)	24	16
	Frequently (50-69% of construction)	25	16.67
	Very frequently (≥70% of construction	15	10
	Total	**150**	**100.0**

Source: Author's Field Survey (2021)

Table 4.6 gives the distribution on the commercial complex types in order of frequency of construction with their corresponding percentages.

4.1.7 Evaluation of factors that influence the demand for commercial premises in the study area

Relative Importance Index (RII) was employed as a statistical tool for analysis of the factors that influence the demand for commercial premises in the study area and result are presented in Table 4.7.

Table 4.7: Relative Importance Index (RII) for Factors that Influence the Demand for Commercial Premises in the Study Area

Variable	Frequency	Percent	RII	Rank
Location	51	34	0.0226	1st
Nearby Properties	10	6.7	0.0044	5th
Land use	11	7.3	0.0048	4th
Social amenities	28	18.7	0.0124	2nd
Transportation/infrastructure	15	10	0.0066	3rd
Neighbourhood quality	15	10	0.0066	3rd
Age of property	5	3.3	0.0022	6th
Improved road/highway quality	10	6.7	0.0044	5th
Design quality specification	5	3.3	0.0022	6th

Source: Author's Field Survey (2021)

Table 4.7 shows the factors that influences demand for commercial premises in the study area. Meanwhile location has 34% responses with highest Relative Importance Index of 0.0226 is ranked first (1st) follow by social amenities with 18.8% and Relative Importance Index of 0.0126 and is ranked (2nd). The RII of 0.0066 for infrastructure/transportation and neighbourhood quality are ranked 3rd with 15% each and closely follow by land use and ranked 4th with 11%. Meanwhile, neighbourhood

Properties and improved road/highway quality with RII of 0.0044 are ranked 5th each followed by age of property and design specification with RII of 0.0022 Each ranked 6th and Economy, Information on current owners, Policy intervention, Supply of new Properties or conversion and Volume of traffic each has no any rank. The commercial property yields in Minna si shown in Table 4.8

Table 4.8 Commercial Property Yields in Minna

Commercial Area	Yield (%)
Bosso Road	4
Paiko Road	4
Chanchaga	7
Eastern By-pass/ Sakahauta	5
Central Area (Kateren Gwari, Old Airport Road)	4.5
Shiroro Road	4.5
Western By-pass / Maitumbi	6
Dutsen Kura	6
Kpagungu	6

Source: *Field Survey (2021)*

4.1.8 Assessment of viability of commercial complexes in the study area

Table 4.9 revealed the analysis of viability of commercial complexes in the study area

Table 4.9 Benefit-to-Cost Ratio of Commercial Complexes in the Study Area

S/N	Brief Description of the Property	LOCATION	Net floor Area	Net Income	Capitalization Factor	Market Value	Capital Outlay	Net Present Value	Benefit to Cost Ratio
	2 story complex containing shops and office paces	GBEGANU JUNCTION	382.5	1,434,375	16.667	23,906,297.81	72,462,500	-48,556,202.19	-.67.01
	Two (2) storey commercial complex having shops & complex wire houses	KPAKUNGU	1434.37	5,375,888	16.667	91,390,096	89,598,312.53	-117,964,187.47	-56.83
	A single storey building with shops and wire house	KPAKUNGU	221	828,750	16.667	13,812,527.63	39,450,000	-25,637,472.37	-64.99
	Two (2) storey building with shops	KPAKUNGU	459	1,744,200	16.667	29,070,058.14	65,880,000	-36,809,941.93	-55.87
	Two (2) storey building with shops	KPAKUNGU	264	4,337,550	16.667	72,293,945	58,080,000	14,213,945.85	24.47
	A single storey building with shops	KPAKUNGU	229.5	872,100	16.667	14,535,029.07	30,873,000	-16,337,970.93	-52.92
	Two (2) storey building with shops	KPAKUNGU	1,215	16,600,00	16.667	276,672,200	267,300,000	9,372,220	3.51
	Two (2) storey complex with shops	SOJE	956.25	3,633,750	16.667	60,562,621.13	138,375,000	-77,812,378.87	-56.23
	A single storey building with shops	SOJE	360	5,100,000	16.667	79,200,000	85,001,700	5,801,700	6.83
	Two (2) storey complex having shops & offices	SOJE	217.5	978,750	16.667	16,312,532.63	31,388,200	-15,075,667.37	-48.03
	Two (2) storey building having shops	BARIKIN SALE	287.55	1,293,975	16.667	21,566,293.13	45,045,000	-23,478,706.87	-52.12
	A single storey building with shops	BARIKIN SALE	132	2,800,000	16.667	46,667,600	29,040,000	17,627,600	60.70
	Two (2) storey building with shops	BARIKIN SALE	258.4	2,904,400	16.667	48,407,634.8	42,560,000	5,847,624.8	13.74
	Two (2) storey building with shops and offices (Ahmadu Bello House)	SHIRORO ROAD	1,872	12,400,000	16.667	206,670,800	280,800,000	-74,129,200	-26.40
	Two (2) storey building with shops (IBB Mall)	SHIRORO ROAD	1,200	19,800,000	16.667	330,007,000	330,000,000	30,007,000	10.00
	A single storey building with shops (Shukura Plaza)	SHIRORO ROAD	630	5,500,000	16.667	91,668,500	76,000,000	15,668,500	20.62
	Two (2) storey building with shops (Sani Basket Plaza)	SHIRORO ROAD	1028	10,100,000	16.667	181,670,300	154,200,000	29,470,300	17.81
	A single storey building with shops (Shaba Isa Plaza)	SHIRORO ROAD	624	7,700,000	16.667	128,335,900	94,000,000	34,335,900	36.33
	A single storey building with shops (Halimzal Plaza)	SHIRORO ROAD	400	7,000,000	16.667	116,669,000	102,000,000	14,669,000	12.37
	Two (2) storey building with shops (Arewa Plaza)	SHIRORO ROAD	740	9,000,000	16.667	150,003,000	120,000,000	30,000,000	25.00
	A single storey building with shops	WESTERN BYE-PASS	480	6,750,000	16.667	112,502,250	72,000,000	40,502,250	56.25
	A single storey building with shops	WESTERN	280.5	2,700,000	16.667	45,000,900	40,000,500	5,000,900	12.50

A single storey building with shops	BYE-PASS WESTERN	360	5,400,000	16.667	90,001,800	79,000,000	11,007,800	13.93
Two (2) storey building with shops	BYE-PASS WESTERN	180	4,900,000	16.667	81,668,308	50,000,008	31,668,308	63.34
A single storey building with shops	BYE-PASS MAITUMBI	280.5	981,750	16.667	16,362,532.73	44,799,500	-27,004,881.08	-60.27
A single storey building with shops	MAITUMBI	305.05	1,067,675	16.667	17,794,618.92	50,104,600	-11,429,638.67	-22.81
A single storey building with shops	MAITUMBI	300	3,000,500	16.667	50,084,335	44,799,500	6,034,850	13.47
A single storey building with shops	MAITUMBI	440	4,300,000	16.667	71,668,100	85,000,000	-13,331,900	-16.68
A single storey building with shops	MAITUMBI	233.7	2,550,000	16.667	42,500,850	40,000,000	2,500,850	6.25
A single storey building with shops & offices	KUTA ROAD	386.75	5,740,400	4.5	25,831,800	46,410,000	-20,578,200	-44.34
Two (2) storey building with --- & office	BOSSO ROAD	368.9	6,660,000	25	166,500,000	151,600,000	14,900,000	9.83
Two (2) storey complex with shops & offices	BOSSO ROAD	348.5	4,568,250	25	114,206,250	83,000,000	31,206,250	37.60
Two (2) storey building with shops & eatery	BOSSO ROAD	382.5	4,721,250	25	118,031,250	76,891,500	41,139,750	53.50
Two (2) storey building with shops & eatery	BOSSO ROAD	336	4,200,000	25	105,000,000	80,000,000	25,000,000	31.25
A single storey building with shops	BOSSO ROAD	204	4,000,000	25	100,000,000	64,000,000	36,000,000	56.25
Two (2) storey complex with shops	BOSSO ROAD	437.5	3,968,750	25	99,218,750	85,000,000	14,218,750	16.73
Two (2) storey complex with shops	BOSSO ROAD	309.8	8,100,000	25	202,500,000	150,000,000	52,500,000	35.00
Two (2) storey complex with shops	BOSSO ROAD	540	8,900,000	25	222,500,000	168,800,000	73,700,000	31.81
A single storey building with shops	BOSSO ROAD	227	5,400,000	25	135,000,000	105,000,000	30,000,000	28.57
Two (2) storey complex with shops	BOSSO ROAD	198	3,330,000	25	83,250,000	75,000,000	8,250,000	11.00

Source: Author's Field Survey (2021)

The Table 4.9 above shows the rate of benefit cost ratio which is an indicator of the profitability of a potential investment or project. The BCR values in the Table are mostly positive, this indicates that majority of commercial complexes considered under investment are profitable, that is they are viable.

4.1.9 Evaluation of benefits of commercial complexes in the study area

Table 4.10, shows the economic benefits of commercial complexes

Table 4.10: The Economic Benefits of Commercial Complexes

Factors	Responses	Weighted Mean	Mean Difference	Interpretation
Employment	35	3.5	1	S
Environment	10	1	-1.5	NS
Income	45	4.5	2	S
Recreation/Leisure	3	0.3	-2.2	NS
Safety and security	8	0.8	-1.7	NS
Crime	36	3.6	1.1	S
Tax	11	1.1	-1.3	NS
Tourism	2	0.2	-2.3	NS
Total	**150**			

Source: Author's Field Survey (2021)

Keys: S (Significant)

NS (Not Significant).

The Table 4.10 above shows the economic benefit of complex in the study area using mean difference statistical tool. It indicates employment, income and crime as a significant benefits of commercial complex in the study area while other factors are not significant as economic benefits of complex in the study.

4.2 Discussion of Results

This research aimed to examine the utilisation of cost-benefit analysis methodologies in the assessment of the feasibility of commercial complexes in Minna, Nigeria. The study sought to evaluate the determinants of demand for commercial properties and appraise the benefits of commercial complexes to determine their viability.

According to the results of the investigation into the determinants of demand for commercial properties, the variable of location was identified as the most influential factor, with a RII of 0.0226 and 34% of the responses, thus ranking first (1st). Social amenities were also found to be significant, with a RII of 0.0126 and 18.8% of the

responses, ranking second (2nd). The Infrastructure/Transportation and Neighbourhood Quality have obtained a Relative Importance Index (RII) of 0.0066 and are placed in the third position with a percentage of 15% each. The Land Use factor has secured the fourth position with a percentage of 11%, which is in close proximity to the third-ranked factors. The RII values indicate that both neighbourhood properties and road/highway quality hold the 5th rank, while the age of the property and design specification hold a lower rank with a RII of 0.0022. All the variables, namely economy, information on current owners, policy intervention, supply of new properties or conversion, and volume of traffic, have not been ranked, while each variable has been assigned a rank of 6. The aforementioned statement is consistent with the research conducted by Babajide et al. (2014), which investigated the consequences of property market predictions on the assessment of commercial property in Nigeria. The study disclosed that the practise of real estate forecasting is not widely adopted in the Nigerian market. The aforementioned study is in alignment with Bello's (2009) research, which employed the coefficient of multiple regression model to examine the significance of Finland's commercial property attributes in relation to log price. The objective was to determine the potential impact of these attributes on property prices and the decision-making process of prospective home buyers, including considerations such as location, timing of purchase, and building age.

The study's results indicate that commercial complexes are a feasible option in the examined region. The disclosed information pertains to the benefit-cost ratio, a metric used to assess the profitability of a given investment or project. As per the data presented in Table 4.8, the BCR values are predominantly positive, indicating that the commercial complexes being evaluated for investment are largely profitable and therefore, feasible. The present discovery is in concurrence with the study conducted by Ihum and Stephen (2018) which examined the feasibility of building the Kashimbilla Multipurpose Dam in

Taraba State, Nigeria, through the utilisation of Cost and Benefit Analysis (CBA) in two distinct scenarios.

The study's results demonstrate the economic advantages of commercial complexes, specifically in terms of employment, income, and crime reduction within the study area. Conversely, other factors were not found to have significant economic benefits in relation to complexes. The aforementioned study by Nwabueze et al. (2020) and the work of Odoudoh and Oladokin (2015) both provide evidence that supports the use of cost-benefit analysis in infrastructure projects in Nigeria. Nwabueze et al. (2020) conducted a study on the cost-benefit analysis of a pipeline infrastructure project in Nigeria, while Odoudoh and Oladokin (2015) explored the application of cost-benefit appraisal technique in urban infrastructure provision in Nigeria.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Cost-Benefit Analysis of a Commercial Complexes in Minna, Nigeria has been explored in this study. Factors that influence the demand for commercial premises in Minna were evaluated, viability of commercial complexes in Minna as well as economic benefits of commercial complexes were assessed. From this study, a conclusion can be made that Cost and Benefit analysis (CBA) remains a very important analytical tool in real estate investment and related disciplines, as it is helpful in ascertaining the viability or otherwise of investments and a useful tool for policymakers, and that it provides important information that should be taken into account in a policymaking process.

5.2 Recommendations

It is recommended that;

i. The state government should be committed to industrializing the state and this would enhance investors from without the state as a result encourage economic advancement.

ii. The State Government should consider good road networks as well as affordable and efficient transport systems as this would encourage both private investors/developers and those occupying the complex spaces.

iii. Price control policy should be looked into and implemented in every way possible in other to regulate the unnecessary inflation of the prices of building materials as this is the major setback and constraints in the developing commercial complexes within the sampled location.

5.3 Contribution to Knowledge

The research presented experimental and empirical results on the application of cost-benefit analysis technique in viability appraisal of commercial complexes in Minna, Nigeria.

The outcome of this research outlines four contributions to knowledge:

1. The study provided knowledge of the factors that influence the demand for commercial premises in Minna, Nigeria. This was achieved using Relative Importance Index (RII) as a statistical tool for analysis.
2. The study also provided empirical evidence on reasons for present level of participation of the private estate developers in commercial complex provision in Minna, Nigeria.
3. The study contributed to the body of knowledge through evaluation of the benefits of commercial complexes in Minna, Nigeria.
4. The study also provided empirical evidence on the Viability of Commercial Complexes in Minna, Nigeria using Benefit-to-Cost Ratio statistical tool.

REFERENCES

Abelson, J. R. (2007). *Memorial for Dad. Presented at the Robert P*. Abelson memorial service, New Haven, CT.

Babajide, A., Folasade B.A. & Alexander E.O. (2014). Financial Inclusion & Economic Growth in Nigeria: International Journal of Economics and Financial Issues Financial Inclusion and Economic Growth in Nigeria. *International Journal of Economics and Financial Issues,* 5(3), 629-637

Badu, E., Owusu-Manu, D., Edwards, J.D., Adesi, M. & Lichtenstein, S. (2013) Rural Infrastructure Development in the Volta Region of Ghana: Barriers and Intervention. *Journal of Financial Management of Property and Construction,* 18, 142-159.

Bello, M. O. (2009). Squatter Settlement, Accessibility of Land and the Urban Poor. FIG Working Week 2009. Surveyors Key Role in Accelerated Development Eilat, Israel.

Bello, S. M. (2012). Impact of Ethical Leadership on Employee Job Performance. *International Journal of Business and Social Science,* 3, 228-236.

Boardman, A., Roberts, G., Torgensen, J. K. & Scammacca, N. (2008). Evidence-Based Strategies for Reading Instruction of Older Students with Learning Disabilities. *Learning Disabilities Research and Practice,* 23, 63-69.

Boardman, A.E., Greenberg, D.H., Vining, A. & Weimer, D.L. (1996). Cost-Benefit Analysis: Concepts and Practice. *Journal of Reading* 26(4), 297-305

Brzozowska K. (2007). Cost-Benefit Analysis in Public Project Appraisal. *Engineering Economics,* 3(3), 5-15.

Campbell, H.F. & Brown, R.P.C. (2003). *Benefit-Cost Analysis: Financial and Economic Appraisal Using Spreadsheets*. (1st Edition): Publisher: Cambridge University Press

Chandra, A.P. (2010). The Mechanisms of Pyrite Oxidation and Leaching: *A Fundamental Perspective*. Surface Science Reports, 65, 293-315.

Chuan, C.L. & Penyelidikan, J. (2006). Sample Size Estimation Using Krejcie and Morgan and Cohen Statistical Power Analysis: An Comparison. *Available at: https://www.academia.edu/8303970/sample_size_estimation_using_krejcie_and_morgan_and_cohen_statistical_power_analysis_a_comparison. [Accessed on 13th November, 2019]*.

CIWEM, (2010). Multi-Functional Urban Green Infrastructure, A CIWEM Briefing Report May 2010, http://www.ciwem.org/resources

Colwell, R.K., Chao, A. & Gotelli, N.J. (1998). Models and estimators linking individual-based and sample-based rarefaction, extrapolation and comparison of assemblages. *Journal of Plant Ecology,* 5(1), 3-21

Dabara, D. I. (2014). Commercial Real Estate Return Distributions: Empirical Evidence from Ibadan, Nigeria. *International Journal of Management and Applied Science,* 5(2), 94-107.

David, R., Dube, A. & Ngulube, P. (2013). A cost-benefit analysis of document management strategies used at a financial institution in Zimbabwe: A case study. *South African Journal of Information Management,* 15(2), 1-10.

Devarajan, S., Vinaya S. & Heng-fu Z. (1999). The Composition of Public Expenditures and Economic Growth. *Journal of Monetary Economics,* 37, 313-44.

Dupuis, M.M. (1985). "Develop Concepts Through Vocabulary: A Strategy for Reading Specialists to Use with Content Teachers." *Journal of Reading* 26:4, 297-305

Dupuit, J. (1844). On the measurement of the utility of public works. *International Economic Papers, 2*(12), 83-110.

Enever, N. & Isaac, D. (2002).The Valuation of Property Investments, 5th ed., Estate Gazette, London, UK.

European Commission (2014). Guide to Cost-benefit Analysis of investment projects. Economic appraisal tool for Cohesion Policy 2014-2020, Directorate-General for Regional and Urban Policy.

Fisher, D.S., Burns, J.C. & Pond, K.R. (1994) Measurement of Forage Intake. In: Fahey Jr., G.C., et al., Eds., Forage Quality, Evaluation, and Utilization, ASA, CSSA, and SSSA, Madison, 494-526.

Fraser, W. D. (1993). *Principles of property investment and pricing*. Macmillan International Higher Education. Palgrave McMillian: New York

Garden, D. (2012). Maximising Local Business Opportunities from Major Water Infrastructure Works: The Australian Paradise Dam Project. *Journal of New Business Ideas and Trends,* 10(2).

Gittinger, J. P. (1982). Economic analysis of agricultural projects (2nd ed.). Baltimore Johns Hopkins University Press. - References - Scientific Research Publishing. Kopp *et al*., 1997

Graeme, A.C., Kiss, D.L., & Andrulis, E.D. (2009). Core exosome-independent roles for Rrp6 in cell cycle progression. Mol. Biol. Cell 20(8): 2242--2253.

Han, D. (2012). *Concise Environmental Engineering*, PHD and Ventus publishing APS Downloaded from ebookboon.com, October 28th, 2012.

Hansson, F. (2007) Science Parks as Knowledge Organizations—The "ba" in Action? *European Journal of Innovation Management,* 10, 348-366.

Harvey, I. (2000). A randomised controlled trial and economic evaluation of a referrals facilitator between primary care and the voluntary sector. *Bmj*, *320*(7232), 419-423.

Heinzerling, L., & Ackerman, F. (2002). Pricing the priceless. *Costbenefit analysis of environmental protection. Georgetown Environmental Law and Policy Institute, Washington*.

Ifediora, G.S.A. (1993). Appraisal Framework. Enugu: Iwuba Ifediora and Associates.

Ihum, J.T. & Stephen, F. (2018). A Cost and Benefit Analysis of Kashimbilla Multipurpose Dam Project in Takum, Taraba State, Nigeria. *International Journal of Research and Innovation in Applied Science (IJRIAS)* 3(12), 54-61.

Iroham, C. O., Oluwunmi, A. O., Simon, R. F. & Akerele, B. A. (2014). Assessing the Trend in Rental Values of Commercial Properties along Oyemekun Road, Akure, Nigeria. *Covenant Journal of Research in the Built Environment (CJRBE),* 1(1), 13-37.

Jiya, M. J., J. (2019). Heavy metals concentration in the dumpsite soils using geo-accumulation index and ecological risk assessment. *Agricultural Engineering International*: *The CIGR e-journal*, 21(3),7-17

Johannesson, M., Johansson, P.O. & O'Conor, R.M. (1996). The Value of Private Safety versus the Value of Public Safety. *Journal of Risk and Uncertainty*, 13, 263-275.

Johnson, J.W. & LeBreton, J.M. (2004). History and Use of Relative Importance Indices in Organizational Research. *Organizational Research Methods*, 7, 238-257.

Kenyon, C. (2007). Heutagogy: A Child of Complexity Theory. Complicity: *An International Journal of Complexity and Education*, 4, 111-118.

Koopmans, C. & Oosterhaven, J. (2011). SCGE modelling in cost-benefit analysis: The Dutch experience. *Research in Transportation Economics, Elsevier,* 31(1), pages 29-36.

Kopp, A., Muskavitch, M.A. & Duncan, I. (1997). The roles of hedgehog and engrailed in patterning adult abdominal segments of Drosophila. *Development* 124(19), 3703--3714.

Kotchen, P. (2010). Uncovering the Relationships between Aspirations and Luxury Brand Preference. *Journal of Product & Brand Management*, 19, 346-355.

Krejcie, R.V. & Morgan, D.W. (2010). Determining Sample Size for Research Activities. *Educational and Psychological Measurement. Available at: http://www. kenpro.org /sample-size- determination- using-krejcie- and-morgan-table/ [Accessed on 25 June, 2019]*.

Krystalogianni, A. & Matysiak, G. (2004). Forecasting UK commercial real estate cycle phases with leading indicators: A probit approach. *Applied Economics* 36(20), 2347-2356

Leiser, K. & Groh, A. P. (2011). The Determinants of International Commercial Estate Investments. *Journal of Real Estate Research Institute*, 45, 561 – 589.

Leramo, G. A. (1992). *The Groundwork of Property Valuation*. Kaduna Polytechnic Press, Kaduna.

Lewis-Beck, M. S., Bryman, A., & Liao, T. F. (Eds.). (2004). *The Sage encyclopedia of social science research methods*. (3rd ed.). Thousand Oaks, California: Sage Publications Inc.

Lohmann, L. (2009). Toward a different debate in environmental accounting: The cases of carbon and cost–benefit. *Accounting, organizations and society*, 34(3), 499-534.

Mackie, P.J., Wardman, M., Fowkes, A.S., Whelan, G., NEllthorp, J. & Bates, J. (2011) Values of Travel Time Savings in UK. Report to Department of Transport.

Mcquigan, K., Joyce, T. & Conroy, R. (1999) Solar disinfection: Use of Sunlight to Decontaminate Drinking Water in Developing Countries. *Journal of Medical Microbiology*. 48, 785 – 787.

Ministry of Culture & Tourism. (2020). Mandate of Culture and Tourism: Niger State Government, 2020 Edition.

Ministry of Culture and Tourism (2016). Niger State Local Government Area Report. Ministry of Culture and Tourism, Minna Niger State, Nigeria.

Mishan, E. J. & Quah, E. (2007). *Cost-Benefit Analysis*, UK-B Format Paperback, Revised edition, New Edition.

Mohammed, L. N., Aboh, H. O. & Emenike, E. A. (2007). A regional geoelectric investigation for groundwater exploration in Minna Area, North West Nigeria. *Science World Journal*, 2(3), 15-19.

Morley, I. E. (1988). Relationships between Consideration and Initiating Structure: two causal relationships rather than one? *Current Psychological Research and Reviews,* 4(2), 119-132.

Musgrave, R. & Musgrave, P. (1998). *Public finance in theory and practi*ce (5th ed). New York: McGraw-Hill Book Co.

Musgrave, R.A. (1996). Public Finance and Finanzwissenschaft Traditions Compared. In Public Finance in a Democratic Society. 3, Cheltenham: Edward Elgar. 33–80.

Nguyen, J. (2011). Making Money in Residential Real Estate and Find Fortune in Commercial Real Estate. An Article retrieved 2nd July, 2013 from http://www.investopedia.com/articles/mortgages-real-estate/09/residential-real-estate-invest.asp

Niger State Bureau of Statistic. (2014). Annual Population Growth Rate Data 2014 Edition, Printed Under the Auspices of Nigeria Statistical Development Project (NSDP).

Niger State Geographic Information System Agency. (2021). Mapping and Satellite Imagery Unit, Off Ladi Kwali Road, Ibrahim Babangida Way, Behind Ministry of Land and Housing, Minna, Niger State.

NPC Projection (2007). National Population Commission Projection. NPC Annual Bulletin, NPC Headquarters Abuja.

Nwabueze, C. J., Sogbanmu, T. O. & Ugwumba, A. A. A. (2020). Physicochemical characteristics, animal species diversity and Oxidative stress responses in dominant fish from an impacted Site on the Lagos Lagoon, Nigeria. *Ife Journal of Science,* 22(2), 81-93.

Odoudoh, G. & Oladokun, T. T. (2015). *Creating an Effective Land Market in an Emerging Economy:* Issues, Opportunities and Challenges. Unpublished Paper.

Ogbuefi, J. U. (2004); *Aspects of Feasibility and Viability Studies;* Institute for Development Studies, University of Nigeria, Enugu Campus

Ogunba, O. & Iroham, C. (2014). A Search for an Acceptable Margin of Valuation Error: A Case Study of Valuers and Clients in Nigeria. *Sri Lankan Journal of Real Estate,* 1(4), 54-73.

Ogunbajo, R. (2019); Property Investment Decision; Unpublished Postgraduate Lecture Note, Federal University of Technology Minna.

Oladokun, R., Brown, B., Aiyetan, P., Ayodele, O. & Osinusi, K. (2009) Comparison of Socio-Demographic and Clinical Characteristics of Orphans and Non-Orphans among HIV-Positive Children in Ibadan, Nigeria. *International Journal of Infectious Diseases,* 13, 462-468.

Olusegun, O.A. (2008). Energy consumption and Economic Growth in Nigeria: A Bounds Testing Co-inntegrative Approach. *Journal of Economic Theory* 2, 118-123.

Oyebode O. J. & Ige M. M. (2019) Strategic Evaluation of Cost and Benefit Analysis of a Rural Water Supply Project: A Case Study of Dei-DeiCommunity in Abuja, Nigeria Journal of Water Resource Engineering and Management ISSN: 2349-4336 (Online) 6(2) Civil and Environmental Engineering Department, Afe Babalola University, Ado-Ekiti, Ekiti State, Nigeria. www.stmjournals.com

Ozigbo A. S. (2013). Credit Risk and Performance of Deposit Money Banks in Nigeria, *European Journal of Accounting, Auditing and Finance Research,* 10(3), 31-41

Ozigbo, N.C. (2002). Technological Innovations and its Impact on Organizational Performance. International Conference on Management (ICM 2011) Proceeding 2011-116-100.

Pearce, D.A. (1998). Cyc2p is required for maintaining ionic stability and efficient cytochrome c import and mitochondrial function in Saccharomyces cerevisiae. *FEBS Letter,* 439(3), 307-11

Pearce, D.A., Atkinson, G. & Mourato, S. (2006). Cost-Benefit Analysis and the Environment: Recent Developments. OECD Publishing.

Pearce, J.A. (1983) Role of the Sub-Continental Lithosphere in Magma Genesis at Active Continental Margins. In: Hawkesworth, C.J. and Norry, M.J., Eds., Continental Basalts and Mantle Xenoliths, Shiva Cheshire, UK, 230-249.

Pearce, J.L., Porter, L.W., Tripoli, A.M. & Lewis, K.M. (1998) Differential Perceptions of Employers' Inducements: Implications for Psychological Contracts. *Journal of Organizational Behavior,* 19, 769-782.

Ratcliffe, S. G. (1949). The ontogenesis of sex chromosomal effects on human growth. In Hauspie, R., Lindgren, G., & Falkner, F., eds., Essays on Auxology, Welwyn Garden City: Castlemead, pp. 480–488.

Riscario Investment Agency (2013). RIA Global Cost-Benefit Targets 2015: Stunting Policy Brief. Retrieved from www.who.int/nutrition/ topics/globaltargets _stunting_policybrief.pdf.

Roberts, L.M. (1974) Grain Legumes of the Low Land Tropics. Advanced Agronomy, 26, 1-132.

Salant, P., & Dillman, D. A. (1994). *How to conduct your own survey.* New York: John Wiley and Sons.

Salling, K.B., Leleur, S., Nicolaisen, M. S. & Ambrasaite, I. (2012). UPD - the UNITE Project Database: Collection of reference class information. Database concerning cost and demand inaccuracies, database developed as part of the UNITE (Uncertainties in Transport Project Evaluation) project funded by the Danish Council for Strategic Research (2009-2013)

Samuelson, P. (1954). The Pure Theory of Public Expenditure. *The Review of Economics and Statistics,* 36, 387-389.

Sardar, M. N. I. & Christine, M. (2002). Social Cost-Benefit Analysis of the Pharmaceutical Benefit Scheme. *The Otemon Journal of Australian Studies,* 28(1), 249-281.

Sassone, P. & Schaffer, W. (1978). *Cost-Benefit Analysis*. New York, Academic Press.

Sayers, P.B., Hall, J.W., Meadowcroft, I.C. & Bramley, M.E. (2003) Integrated Flood Risk Management in England and Wales. *Natural Hazard Review,* ASCE 4 (3), 126–135.

Sirota, A.M. (2004) Application of Satellite Altimetry Data in Fish and Oceanologic Investigation in the Southeastern Pacific Ocean. Voprosu Rybolovstva (Fishering Problems), 5, 482-491.

Tompos, A. W. (2005). *Analyzing Investment Properties*. 2nd Edition, South-Western Thompson Learning, USA

Trochim, W.M.K. (2006). Descriptive Statistics. Research Methods Knowledge Base. *Available at: http://www.socialresearchmethods.net/kb/scallik.php. [Accessed on 12 November, 2019]*.

Tsamboulas, D.A. (2007). A tool for prioritizing multinational transport infrastructure investments. *Transport Policy*, 14(1), 11-26.

Tudela, A., Akiki, N. & Cisternas, R. (2006). Comparing the output of cost benefit and multi-criteria analysisAn application to urban transport investments. Transportation Research Part A 40, 414–423

Uchegbu, I. F. (2008). Polymeric Amphiphile Branching Leads to Rare Nanodisc Shaped Planar Self-Assemblies. Langmuir, 24(18), 9997-10004.

Udechukwu, C. E. (2006). Introduction to Estate Management; Treem Nigeria Ltd., Lagos.

Udia, D. (2003). Economic Evaluation and Sustainability. 1st State of Australian Cities National Conference, 3-5 December 2003, Sydney, Australia.

Umeh, J.A. (1977). *Feasibility and Viability Appraisal*. Onibonoje Publishers Ltd., Ibadan.

Van Wee, B., Maat, K. & De Bont, C. (2012). Improving Sustainability in Urban Areas: Discussing the Potential for Transforming Conventional Car-Based Travel into Electric Mobility. *European Planning Studies*, 20(1), 95-110.

Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin, 134*(2), 163–206.

Willemen, L., De Groot, R.S., Alkemade, R., Braat, L. & Hein, L. (2010). Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity*, 7(3), 260-272.

Woychuck, I. (2012). *Exploring Real Estate Investments*. http://www.investopedia. com/university/realestate/articles/basics/03/050203.asp

Yakub, A. A. & Aminu, G.W. (2013). Enhancing Property Development In Nigeria Through Concessional Arrangements. A study of Railway Property Management Company Limited (RPMCL), Kano. *Journal of the Nigerian Institution Of Estate Surveyors And Valuers,* 38(1), 115-32.

APPENDIX I

PLATES I: A two storey complex at Soje

PLATES II: A two storey complex at Barikin Sale

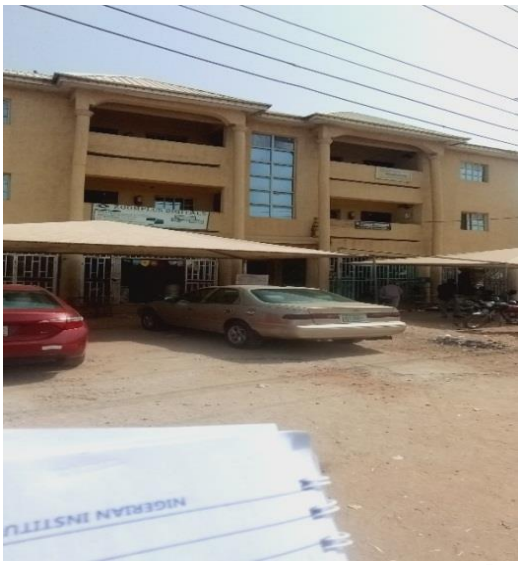
PLATES III: A single storey complex at at Western Byepass

PLATES IV: A single storey complex Western Byepass

PLATES V: A single storey complex at at Western Byepass

PLATES VI: A single storey complex Western Byepass

PLATES VII: A single storey complex at at Western Byepass



PLATES VIII: A Two storey complex Paiko road

PLATES IX: A single storey complex at Paiko road

PLATES X: A single storey complex at Paiko road

PLATES XI: A Two storey complex at Shiroro road

PLATES XII: A Two storey complex at Shiroro road

PLATES XIII: A Two storey complex at Shiroro road

PLATES XIV: A Two storey complex at Shiroro road

PLATES XV: A single storey complex Shiroro road

PLATES XVI: A two storey complex at Kpakungu

PLATES XV: A two storey complex Shiroro road

PLATES XVI: A two storey complex at Kpakungu

APPENDIX II

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION

RESEARCH QUESTIONNAIRE

Dear Respondents,

I am a Postgraduate Student of the Department of Estate Management and Valuation, School of Environment Technology, Federal University of Technology, Minna, Niger State, currently carrying out a research on cost-benefit analysis of commercial complexes in Minna. .

Please fill the questionnaire appropriately. All responses will be treated with utmost confidentiality and used for the purpose of this study only.

Thank you for your anticipated co-operation.

Isah, Yahaya Maji
Email Address: iymaji82@gmail.com
Phone Numbers: 08036569808; 08057275097

Instruction: Please fill and tick (√) the appropriate Boxes as may be applicable.

NOTE:

SECTION A is to be completed by private developers of commercial complexes

SECTION B is to be completed by individual property owners

Personal Data

Section A: Respondent's Profile

1. Gender: Male [ ] Female [ ]

2. What is your Office Address? (Optional):

   _____

3. What is your profession?:

   Estate Surveyors and Valuer [ ]

   Banking [ ]

   Architecture [ ]

   Land Surveying [ ]

   Building [ ]

   Town Planning [ ]

   Quantity Surveying [ ]

   Engineering [ ]

   Others, please specify [ ]…….....

4. Average years of experience of respondent.

   0 – 5 years [ ] 6 – 10 years [ ] 11 – 15 years[ ] 16 – 20 years [ ] Over 20 years[ ]

5. Highest level of educational qualification attained.

   Ordinary National Diploma (OND) [ ] Higher National Diploma (HND) [ ]

   Post Graduate Diploma (PGD) [ ] First Degree [ ] Master Degree [ ]

   Doctorate Degree [ ] Others, (please specify) [ ] …….....

6. Highest level of professional qualification attained

Fellow [ ] Associate [ ] Corporate [ ] Probationer [] Graduate [ ]

Others, (please specify) [ ] …….....

7. What is your Rank/ Designation/Position in the organisation?

Managing Director [ ]

General Manager [ ]

Project Manager [ ]

Public Relation Officer [ ]

Others, (please specify) [ ] …….....

COMMERCIAL REAL PROPERTY DEVELOPER

THE PRIVATE DEVELOPER'S ORGANISATION FOR COMMERCIAL REAL PROPERTY

1. Address of the organisation ..... …….....……...

…….....…...……

2. Is your organisation registered with the Real Estate Developers' Association of Nigeria (REDAN)? Yes [ ] No [ ]

3. Kindly indicate the type of ownership structure in your Organisation

Sole proprietor [ ] Partnership [ ] Private Limited Company [ ] Public Limited Company[ ]

4. How long have you been involved in commercial real estate development ?

0 - 5 years [ ] 6 – 10 years [ ] 11- 20 years [ ] Over 20 years [ ]

5. Please state the size of your organisation

5 – 10 employees [ ] 11 – 20 employees [ ] 21 – 50 employees [ ] 51 – 100 employees [ ]

Over 100 employees [ ]

6. Indicate the number of your company's personnel in these professions.

S/NO	Profession	Number of personnel
1	Estate Surveyor and Valuer	
2	Engineering	
3	Architecture	
4	Land Surveying	
5	Building	
6	Planning	
7	Quantity Surveying	
8	Accountant	
9	Others, please specify……	

7. What category of developer is your organisation?

Land developer [ ] On-site developer [ ] Merchant developer [ ]

Developer Investor [ ] Prefabricated housing producer [ ]

Others (please specify) [ ].....

8. How would you rank the reasons for private developer`s participation in commercial complex provision; on a scale of 1 to 5? where

1= Not Important; 2= Slightly Important; 3= Fairly Important; 4= Important; 5= Very Important.

S/NO	Reasons for Private Developers of commercial complex	Rank	Rank	Rank	Rank	Rank			
		1	2	3	4	5			
A	Profit								
B	Speculation								
C	Political Prestige								
D	Provision of Social Benefit								
E	Lack of other options								
F	Professionalism								

9. What is your assessment of the level of participation of the Private Estate Developers in Commercial complex development in Minna, Nigeria?

5. Very high (≥ 70%) [ ] 4. High (60-69%) [ ] 3. Average (45-59%)[ ]

2.Low (30-44%) [ ] 1. Very low (<30%) [ ]

10. How would you rank the reasons for present level of participation of the Private Estate Developers in commercial complex provision in Minna on a scale of 1 to 5? where

1= Not Important 2= Slightly Important 3= Fairly Important 4= Important

5. Very Important

S/NO	Reasons for Present Level of Participation	Rank	Rank	Rank	Rank	Rank
		1	2	3	4	5
A	Huge Return on Investment					
B	Normal Business Operation					
C	Incentives from the Government					
D	Financial Issues					
E	Land Acquisition					
F	Inadequate Return on Investment					

11. Kindly rank the availability of commercial complex inputs in Minna as follows:

1=Not available 2= Poorly available 3= Fair available 4= Available 5= Readily available

S/NO	Housing Construction Input	Rank	Rank	Rank	Rank	Rank
		1	2	3	4	5
A	Labour					
B	Material					
C	Market					
D	Profit					
E	Finance					
F	Land					
G	Equipment					

12. How would you rate or describe the performance of construction personnel in your organisation?

a. Excellent [ ] b. Good [ ] c. Average [ ] d. Poor [ ] e. Very poor [ ]

13. Rank commercial complex development in order of frequency of construction by your company

1. Very infrequent (<30% of construction) [ ] 2. infrequently (30-39% of construction) [ ] 3. Fairly frequently (40-49% of construction) [ ] 4. frequently (50-69% of construction) [ ] 5. Very frequently (≥70% of construction) [ ]

S/NO	Complex type	Rank	Rank	Rank	Rank	Rank
		1	2	3	4	5
A	Offices					
B	Shops					
C	Super Market					
D	Shopping complex					
E	Shoping Malls					

14. What is your average commercial complex development?

1 – 5 units [ ] 6 – 10 units [ ] 11 – 15 units [ ] Over 16 units [ ]

15. Each commercial complex is made of how many m^2(s) space unit? Distribute your development(s) in Percentage (%) of the total delivery.

S/NO	Housing Unit	Percentage%
A	$10m^2$	
B	$14m^2$	
C	$18m^2$	
D	$22m^2$	
E	$26m^2$	
F	Others, Special…….	

16. Which of these space units has the greatest demand? …….....

17. What section of the population patronizes your commercial complex most?

High income earners [ ] Medium income earners [ ] Low income earners [ ]

18. How would you describe the market for the commercial complex development?

Excellent [ ] Good [ ] Average [ ] Poor [ ]

a. Excellent [ ] b. Good [ ] c. Average [ ] d. Poor [ ] e. Very poor [ ]

19. Kindly scale in percentages how lands are acquired for commercial complex development by your organisation?

S/NO	Land Acquisition	Percentage %
A	Government allocation	
B	Outright purchase from the land owner	
C	District heads/ Traditional rulers	
D	Others	

20. Kindly Rank the level of significance of each of the following constraints to commercial complex developers?

1 = Very insignificant 2= insignificant 3= fairly significant 4= significant 5= Very significant

S/NO	Constraints	Rank	Rank	Rank	Rank	Rank
		1	2	3	4	5
1	High cost of construction					
2	Poor demand					
3	Delay in Certificate of Occupancy and building plan Approval					
4	High cost of building materials					
5	Land acquisition problem					
6	Route of infrastructure					
7	Manpower shortage					
8	Government Policy					

20. Kindly Rank the level of significance of each of the following constraints to commercial complex developers?

1 = Very insignificant 2= insignificant 3= fairly significant 4= significant 5= Very significant

S/NO	Constraints	Rank	Rank	Rank	Rank	Rank
		1	2	3	4	5
1	High cost of construction					
2	Poor demand					
3	Delay in Certificate of Occupancy and building plan Approval					
4	High cost of building materials					
5	Land acquisition problem					
6	Route of infrastructure					
7	Manpower shortage					
8	Government Policy					

21. Kindly provide details of commercial complexes developed by your organisation in the last ten years by completing this Table

S/N	Description of Commercial Complex	Location	Gross Area (m^2)	Date of Completion	Total Cost of Development on Completion (₦)

22. Please provide details of the rent paid to occupy the commercial complexes in Question 21 in the last ten years

S/N	Location	Year and Rent Paid Per m^2 in ₦' 000									
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021

SECTION B: Individual commercial complex occupiers

Section B: Respondent's Profile

1. Gender: Male [ ] Female [ ]

2. What is the name of your Firm or Organization? (Optional):

   _____

3. What is your Office Address? (Optional):

   _____

4. What is the nature of your occupation?:

   Office space [ ]

   Business premises [ ]

   Others, please specify [ ]…….....

5. Highest level of educational qualification attained.

   Ordinary National Diploma (OND) [ ] Higher National Diploma (HND) [ ]

   Post Graduate Diploma (PGD) [ ] First Degree [ ] Master Degree [ ]

   Doctorate Degree [ ] Others, (please specify) [ ] …….....…

6. How much did you pay as rent to occupy the complex?

Rent paid in (N)	
100,000-200,000	
200,001-300,000	
300,001-400,000	
400,001-500,000	
500,001-600,000	
600,001-700,000	
700,001-800,000	
800,001-900,000	
900,001-1,000,000	

Above 1,000,000	

7. Kindly Rank the factors that influence the demand for commercial complexes. Strongly Agree = 4; Agree = 3; Disagree = 2 and Strongly Disagree = 1.

S/NO	Factors	Rank 4	Rank 3	Rank 2	Rank 1
1	Location				
2	Economy				
3	Information on Current Owners				
4	Nearby Properties				
5	Policy Intervention				
6	The density/Population				
7	Land use				
8	Supply of new properties or conversion				
9	Social amenities				
10	volume of traffic				
11	transportation/infrastructure				
12	Neighbourhood quality				
13	Age of property				
14	Improved road/highway quality				
15	Design quality specifications				

8. Are you an owner occupier? a. Yes [ ] b. No [ ]

9. If the above answer is yes, how much is the actual cost of developing the complex……

10. When did you purchase/developed the complex?----------

11. What is the nature of the space unit?

a. Single Shop [ ]

b. Double shop [ ]

c. Parking Store [ ]

d. Ware House

e. Others, Specify----------[ ]

7. Kindly Rank the social-economic benefits of the commercial complexes. Strongly Agree = 4; Agree = 3; Disagree = 2 and Strongly Disagree = 1.

S/NO	Factors	Rank 4	Rank 3	Rank 2	Rank 1
1	Employment				
2	Environment				
3	Income				
4	Recreation/Leisure				
5	Safety and Security				
6	Crime				
7	Culture				
8	Tax				
9	Education				
10	Tourism				