

## Evaluation of Risks Involved in Housing Projects Procured by Public Private Partnership in Kebbi State, Nigeria

<sup>1\*</sup> Shittu, A. A., <sup>1</sup>Bello, B. R., <sup>1</sup>Mohammed, Y. D. and <sup>2</sup>Salisu, O. I.

<sup>1</sup>Department of Quantity Surveying, Federal University of Technology, Minna, Niger State, Nigeria.

<sup>2</sup>Department of Building, Federal College of Education (Technical), Akoka, Lagos State, Nigeria.

\* Corresponding Author's E-mail: [funsho@futminna.edu.ng](mailto:funsho@futminna.edu.ng) ;

Tel: 08034767554

---

Submitted on: 15/08/2022

Accepted on: 30/09/2022

---

### Abstract

*Studies have shown that the adoption of Public Private Partnership (PPP) system which is expected to enhance the provision of affordable housing with diverse arrays of benefits, have failed to accomplish this task due to hindrances from several risk factors. The study evaluated the risks involved in housing projects procured by PPP in Kebbi State with a view to providing better housing delivery. Data were collected using questionnaire administered on professionals in 25 construction firms registered with the Kebbi State Ministry of Land, Housing and Urban Planning, and 15 purposively selected occupiers of PPP housing projects. Analysis of data was undertaken with the use of Mean Item Score (MIS) and Relative Importance Index (RII). The study revealed that the most important reason for the adoption of PPP procured housing projects was "Reduction in the size of inefficient bureaucracy" (RII = 0.87); the most critical risk associated with PPP procured housing projects was "Completion Risks" (MIS = 4.12); the factor leading to the success of PPP housing projects with the highest value was "Stable economic system" (MIS = 4.52; average MIS = 3.96), thus implying that the projects were successful; and Occupiers were satisfied with the conditions surrounding the Gesse Phase I and Phase II PPP Housing Estate in Birnin Kebbi, Kebbi State (MIS = 3.68 and 3.60 respectively). It was concluded that the risks involved in PPP housing projects in Kebbi State are fairly critical and can be effectively managed by adopting the drivers of the success of PPP projects and preventing the occurrence of the barriers to the success of PPP projects in Kebbi State, Nigeria. The major recommendation from the study was that the Government should focus more attention on implementing the strategies of "Stable economic system", and "Avoidance of bribery and corruption among contracting parties", so as to mitigate the barriers to the success of PPP housing projects in Kebbi State, Nigeria.*

**Keywords:** Evaluation, Housing Projects, Public Private Partnership, Risks.

### Introduction

Housing is required to provide comfort, safety, satisfaction, experience, and convenience for its occupants. Hence, it is one of the essential social conditions which define the living standard of a country's citizens. If the housing quality is adequate and available, the citizens and government will spend less on health care, crime prevention, recreation, and pollution; leading to increased productivity and prosperity (Ezennia & Hoskara, 2019). However, due to rapid rates of urbanization reported worldwide, housing supply has always failed to satisfy demand. Therefore, exploring the reasons why households pay or choose what they pay for housing, would help to sustain housing delivery (Jegade *et al.*, 2018), which can eliminate or reduce artificial restrictions and prevent housing abandonment (Ezennia & Hoskara, 2019). In the same vein, the increasing global population and economic challenges experienced in most parts of the globe, especially in developing countries such as Nigeria, had resulted in the provision of a means of residential housing forms on a larger scale to cater for the needs of population that is continually increasing. This housing type is referred to as mass housing schemes, a form of large number of housing provision for large number of people. This is provided most times by the government and is referred to as public housing, although with different name in different countries, such as "social housing" or "state-housing" in the United Kingdom and "welfare housing" in USA (Ademiluyi & Raji, 2008). However,

there are various problems associated with public housing and is more critical in developing countries such as Nigeria as specified by Olotuah (2009), Ademiluyi and Raji (2008) and Jegede *et al.* (2018). These problems include among others, inadequate and nonavailability of facilities and infrastructure, inadequate dwelling space, overcrowding, poor sanitation, increase in crime, poor maintenance culture, and environmental degradation. The inability of government alone to meeting these various problems of public housing in addition with the problem of population increase and economic factors brought on-board the Public–Private partnership (PPP) housing schemes (Ibrahim *et al.*, 2006a and b; Jegede *et al.*, 2021).

In addition, Owotemu *et al.* (2022) reported that the impact of PPP is beginning to be more pronounced in emerging markets like Kenya and Nigeria as a preferred means for the delivery of infrastructure and housing. In terms of its popularity, the adoption and growth of PPP has been traced to under performance of Government budgeting and lack of sufficient funding available to government for financing the different strategically important and development focused projects (including Social Housing), this is also in addition to governments poor risk management capabilities. The challenges facing public funding and its impact on Nigeria's development have increased the potential for PPP as an alternative to infrastructure and housing. According to Ogunbayo *et al.* (2018), PPP in housing development provides conducive housing environment through provision of services, good and quality facilities, easy access to social amenities, good security arrangement among others. This is an advancement in the provision of public mass housing by the private sectors for citizens, a verge in solving some of the highlighted problems of public housing is what the introduction of the private partnership is all about. In view of the attention on the building sector, which is caused by the increasing rate of urbanization especially in developing countries has attracted international attention. This is due to the result of the massive and intense visible shortage in adequate housing provision, which has become overwhelming in respect with the population of countries like Nigeria (Ogunbayo *et al.*, 2018). The need to know the role and the situations of PPP and its contributions to meeting the mass public housing needs in Nigeria is therefore, important.

In addition, in the fulfilment of the United Nations Sustainable Development Goals (SDGs), Goal 11; which seeks to make towns, cities and settlements an inclusive habitation that is safe, resilient and sustainable for all categories of people by the year 2030 (Ademiluyi & Raji, 2008; Jagafa, 2008; Awodele, 2012; Ogunbayo *et al.*, 2018; Jegede *et al.*, 2021). However, due to various limiting factors, the government have run short of meeting this expectation and in order to bridge this gap, it has brought about the PPP schemes to meeting mass housing provision. Therefore, in spite of the fact that it was due to the shortcomings of the traditional method of procuring buildings and infrastructure projects that the PPP system was adopted, the PPP system did not come without its own challenges (Oyewobi *et al.*, 2012). The practice of PPP in Nigeria is plagued by various issues that have affected the success of scheme. As a result, PPP in Nigeria is not too glooming though at the same time not doomed. This is because while some of the PPP projects were successfully executed, some failed to be actualized. PPP infrastructure projects implementation in Nigeria is characterized with controversies, failures, delays, litigations, revocations among others (Sanda *et al.*, 2016). Furthermore, Arijeloye (2021) reported that inadequate supply of decent and affordable houses for urban low-income earners has constituted a challenging situation for both developing and developed economies. It was also observed that decent housing for the urban low-income earners has become elusive in most Nigerian cities. Developers are therefore required to be knowledgeable in building performance when providing services for clients or occupants (Olukolajo & Mbazor, 2021).

In view of above, housing satisfaction has been acknowledged as a key prognosticator of individual's quality of life and response to residential location related features (Ohiro, 2018). Measuring housing satisfaction therefore, is very significant, since understanding the factors that determine users' satisfaction levels is central to the formulation of a productive housing policy. Earlier studies have provided basis for

measuring housing satisfaction to include dwelling units, neighbourhood quality, facilities, amenities and management services as provided within the building structure and its surroundings by developers and housing providers. Nevertheless, there seems to be no ostensible agreement about the direction of these factors on satisfaction (Ohiro, 2018; Yahaya & Ibrahim, 2019). This is one of the identified gaps this study anticipated to fill by evaluating the risks involved in housing projects procured by PPP system in Kebbi State, Nigeria. Equally, in spite of the billions of dollars being spent on PPP residential estates, beneficiaries' satisfaction still begs empirical examination, particularly in Nigeria. While most researchers have assessed different risks associated with various PPP procured infrastructure around the world (Raftery, 1994; Raftery *et.al.*, 1998; Ramcharran, 1998; Li *et al.*, 1999; Abdul Aziz, 2001; Awodele, 2012), not so much can be said of the risks associated with PPP procured housing projects in Nigeria. The adoption of PPP in housing provision in Nigeria is intended to increase urban housing stock and address housing affordability and accessibility challenges (Ibem, 2012a). It is government's expectation that if the projects are managed properly and parties involved fulfil their contractual obligations, the adoption of PPP will enhance the provision of affordable housing (Sani *et al.*, 2018). However, in practice, these arrays of benefits are rarely achieved due to numerous risks associated with PPP projects.

In view of the above research problem and gaps identified, this study evaluated the risks involved in housing projects procured by PPP system in Kebbi State with a view to reducing these risks and providing better housing delivery in the process. In order to achieve the aim of the study, the following objectives were pursued: to identify and examine the reasons for the adoption of PPP; to examine the risks associated with PPP procured housing projects; to examine the drivers and barriers to the success of PPP projects; and to examine the degree of occupiers' satisfaction and dissatisfaction in housing projects procured using PPP system in Kebbi State. In order to achieve the objectives of the study and to identify the research variables, some vital issues have been introduced and reviewed in this section. These issues are hereby discussed.

### **Reasons for adopting Public-Private Partnership (PPP) system for housing projects**

The PPP housing, simply means a system in which the government and private individuals are associated persons and sharer in business of housing provisions, sharing risks and profits. This partnership also, means the existence of a contract that places persons in a state of being called partners in any business of providing effective housing scheme to bridge the housing deficits. However, in order to achieve a very effective housing provision of this type, a good partnership amongst the country's public, private, voluntary, non-governmental organizations and individuals for this cause are very essential. In line with this, Martin (2004) explained that PPP carries out projects, which are usually delivered or provided by the public sector, by establishing a partnership involving the private and public sector, just as PPP on its own, is being made known as one of the partnering strategies that is an alternative approach to the provision of goods and services.

The reasons for the adoption of PPP system for housing projects in Nigeria stem from the critical benefits of PPP system for housing provision. However, the greatest benefit of PPP to the development of infrastructure is the availability of financial, technical and managerial resources from the private sector for the delivery of quality social and economic infrastructure (Shaibu & Abdullahi, 2018). This is to ensure efficiency and subsidised costs of infrastructure and service operation and management. This approach is not a withdrawal by the government or the public sector from basic services and infrastructure provision and critical areas of interventions. Rather, it improves the performance of utilities and services (Shaibu & Abdullahi, 2018). Also, the private sector is seen as the means to solving the problem of shortages and unfair prices of shelter in Nigeria by the new National Housing Policy, 2006. The government is interested in providing a housing market where the public can purchase a home for themselves through a lenient and fair mortgage system (Shaibu & Abdullahi, 2018). The National Housing Policy moves real estate developers in the country to be under one association that the government can partner with, so as to give low-income earners the opportunity to own a house and

developers are required to develop houses to serve specific targets (Habitat, 1993). This allows for these groups to partner with government and her agencies in providing required housing in key sectors, both in old and new settlements, especially in cities like Lagos. Furthermore, the application of the PPP initiatives is a global arrangement. Turkey has one of the oldest examples of partnerships for housing development involving the central government, the municipality and other sector organization (United Nations Human Settlements Programme, 2006; Babalola, 2016). Tokman (1992) noted that between 1979 and 1990, 120,000 dwellings for the low-income earners were provided in 27 municipalities' partnership experiences. According to Ibrahim *et al.* (2006a), public housing in Kebbi State is provided by Federal and State government agencies. The federal agencies involved are the Federal Ministry of Lands and Housing and Federal Housing Authority (FHA), while State government agencies are the Kebbi State Ministry of Land, Housing and Urban Planning. However, with the increase in rural-urban drift which witnessed the massive movement of civil servants to Birnin Kebbi, the State capital, residential accommodations and public buildings are becoming scarce. In line with the review of literature undertaken so far in this sub-section, Ibrahim *et al.* (2006a) identified several reasons for adopting PPP system in Kebbi State; these are: to remove the responsibility for funding the investment from the governments balance sheet; to relieve short-term pressure on public finances; to introduce competition, and thereby ensure that the public sector receives best value for money; to take advantage of managerial practices and experience, of the private sector; to provide opportunity for innovation in the provision of public services; to introduce new technologies and encourage technology transfer; and to restructure public sector service enterprises by embracing private sector capital and practices.

Past studies have also shown that Governments prefer PPP in housing projects because of the greater involvement of private sectors which are known to be more efficient and innovative than the public sector (Shaibu & Abdullahi, 2018; Yahaya & Ibrahim, 2019; Yahaya *et al.*, 2020; Alrashidi, 2021). It was also argued further that the private sector's competitive pressures ensure quality delivery of public services as they might be better able to manage risk associated with projects than the public sector. The better management of risk offers financial benefits which are the key benefit of PPP in housing projects and improves which also improve the quality of housing services provided by the projects. These past studies also established that the financial benefits are the key reasons why PPPs are used in housing projects because they able to deliver high-quality services at lower costs than through public provision. Ibrahim (2022) also revealed that in Nigeria, studies on risks management are focused on general application of the principle in construction projects. Most of the studies have paid little attention towards specifically investigating the implementation of risk management in the provision of housing. Therefore, Ibrahim (2022) emphasized that the implementation of risk management in PPP housing projects in Nigeria is very important to the survival of the building industry and there is need for measures in order to improve the practice towards effective housing provision. In the contribution of Owotemu *et al.* (2022), it was established that PPP arrangement allows public institutions to benefit from the special technical expertise of the private sector, manage issues, and realize cost savings. Under PPP, private contractors usually have no relationship with the end user, and all financial interactions are conducted with the public sector partner. The public sector partner is responsible for funding additional capital expenditures that may be required for expansion of the project or initiative (Owolabi *et al.*, 2019).

### **Risks associated with PPP procured housing projects**

Risks in PPP are inevitable, because PPP is a joint business arrangement between the public sector and individual or private sector and some of this risk could lead to partial or total stoppage of any project. Risk is defined as a hazard, or chance of a bad consequences, loss, and exposure to mischance, exposing oneself to loss (Tembo *et al.*, 2014). Based on a related line of thought, risk allocation between public and private sector has been described to be central to implementation of PPP system of project procurement. Indeed, risk allocation is the fundamental principle of PPP implementation. The public sector is largely relieved of many bundles of responsibility thereby creating a chain of benefits to the project (Ijigah *et al.*,

2013; Dahiru & Muhammad, 2015). Therefore, whenever a construction project is embarked upon, there are some risk elements inherent in it; such are physical risk, environmental risk, logistics risk, financial risk, legal risk and political risk among others (Ijigah *et al.*, 2013). These various risks are presented in Table 1.

**Table 1: Risks in Public Private Partnerships**

Risk	Explanation
Completion risk	The possibility that a project's construction or installation will be delayed, with additional cost or other implication.
Cost overrun risk	The possibility that during the design and construction phase, the actual project costs will exceed projected costs.
Design risk	The possibility that the private party's design may not achieve the required specifications.
Exchange rate/risk	The possibility that exchange rate fluctuations will impact on the costs of imported inputs or the project's debt or equity.
Force Majeure	The occurrence of certain unexpected events that are beyond the control of the parties, whether natural or man-made, that affects the project.
Interest rate	Fluctuations in the rate which the project borrows money.
Market rate	The demand for the service generated may be less than projected.
Operating risk	Factors other than Force Majeure such as projected operating expenditure, skills requirements, labour disputes, and employee fraud.
Political risk	Unforeseeable conduct by a government institution that materially and adversely affects the expected return on equity, debt service or costs of the project. This includes expropriation and nationalization.
Regulatory risk	Consents required from government authorities or an independent regulatory agency is not obtained or results in additional costs.
Utilities risk	The utilities (water electricity, gas) for the project are not available.

Source: NEPAD (2006); Ijigah *et al.* (2013); Tembo *et al.* (2014); Dahiru and Muhammad (2015)

The risks, as shown in Table 1, include completion risk, cost overrun risk, design risk, exchange rate/risk, force majeure, interest rate, and market rate, operating risk, political risk, regulatory risk, utility risk. All these risks have direct impact on any project, and they most time lead to delays with additional cost implication. In the design of any project there could be design error, which could lead to non-achievement of the required project design specifications. Unstable political environment, have its own effect that could have effect and increase the level of risk involves in a project. However, risks in public private partnerships are inevitable but can be reduced, if necessary, actions will be taken before the commencement of any project.

In the same view, Dahiru and Muhammad (2015) identified several forms of risks associated with PPP project delivery. These risks were referred to as influential factors constraining PPP project delivery in Nigeria. These are: Political constraint factors; Political instability; Poor public decision making process; Foreign policies; Inconsistency of government policies; Corruption; Social unrest; Economic constraint factors; Imbalance supply and demand; Weak infrastructures; Foreign reserve; Devaluation of naira; Payment by end users; Financial attraction of project to investors; Legal constraint factors; Fear of change in tax regulation; Fear of industrial regulatory change; Inadequate security legislation of PPP contract; Unclear legislation to promote foreign investment; Unclear legislation on lease and franchising; Unclear PPP contract enforceability; Regulation on import duties; Technical/other constraint factors; Inexperience of government in handling PPP transaction; Inadequate PPP expertise; Lack of public awareness; High level of bureaucracy; Poor tendering process and award mechanism; Non-tradition of private; Provision of public services; and Lack of government support. These 26 factors were grouped into four main factors; these are: political (6 sub-factors), economic (6 sub-factors), legal (7 sub-factors), and technical/others (7 sub-factors) in order of importance.

In addition, Sanda *et al.* (2019) reported that the application of PPP in sustainable housing development is on the increase across the globe. However, studies have shown that no construction project is risk free and

that these risks cannot be eliminated but prevented from occurring or mitigated by cushioning their effects should they occur. Stressing further, Sanda *et al.* (2019) emphasized that failure in PPP housing have been attributed to inherent risks associated with PPP projects resulting from the number of contracting parties involved in addition to the changing economic, political, social and cultural conditions under which the projects are undertaken. These risks have direct influence on the sustainability of project objectives such as project budget, delivery period, quality, project safety, environmental sustainability, satisfaction of contracting parties and access to housing by target groups among others. There is the need for these risks to be properly addressed to ensure that, the right types of housing are produced at the right time; accessible by and affordable to the target groups.

### **Drivers and Barriers to the success of PPP projects**

The PPP scheme in housing and urban infrastructure provision has been witnessed by almost all countries of the world since its adoption into the housing sector (UN-Habitat, 2012). Part of the drivers of the success of PPP projects is measured in relation to housing units developed through PPP delivered housing units, which may vary in different countries as a result of political, economic and cultural factor differences. This has proved the relevance of PPP in many countries of the world (Al-Shareem *et al.*, 2004). All across Nigeria, PPP has been adopted at all Government levels, the Federal, State and Local levels. PPP is important to achieving an environment that is market oriented, by shifting focus away from a bureaucratic or state-led management, allowing solutions provided by private and public investors to complement themselves, this is explained by Ibem (2011). Middle and low-income housing delivery has also been established by some small-scale contractors (Daramola *et al.*, 2005). Practice proves, however, that value adding PPPs are rare and private partners with personal interests and gain make urban renewal and low-cost housing difficult to realize. The intention of PPP is meant to assist government develop more effective integrated solutions, foster innovative approaches that could bring about reduction in cost and time used in executing projects, share risks with the private partner, foster quality results and build an interest to a part of projects in bidders, as opportunities to learn new skill and acquire advanced technology (Li & Akintoye, 2003). The adoption of PPP still has not solved housing problems both in qualitative and quantitative terms. This is evident in reports gotten from surveyed areas of the country. Only a few PPP housing projects have been successfully implemented (Ibem & Aduwo, 2012b).

The barriers to the success of PPP system for housing projects emanate from the problems of PPP system, while the drivers of the success of PPP system stem out from the successes recorded by PPP system as reported by past studies. Based on this, the following are some of the drivers of the success of PPP system identified by Ibrahim *et al.* (2006b): Trust and openness between parties; Stable political system; Stable economic system; Government guarantee; Vast experience of partners; Clearly demarcated shared authority and responsibility; Consistent monitoring; Technical competence; Social support; Thorough and realistic assessment of the costs and benefits; and Favourable legal and administrative framework. In recent times, the attempt to adopt PPP as a method of infrastructural development in Nigeria failed many times due to several barriers. Majority of the stakeholders do not understand the principles of PPP. However, the following are some of the barriers to the success of PPP projects (Abdul-Aziz & Kassim, 2011): Bribery and Corruption among contracting parties; Availability of fund; Policy instability; Lack of sound legal framework; Institutional framework; Attitude of the members of the public to government projects; and Nonadherence to planning standard. In addition, Mohit *et al.* (2010) found that in Malaysia, most of the households in the public low-cost housing that were newly constructed were most satisfied with the estates' social environment and the housing units' support services, while based on their housing conditions and it environ, they were moderately satisfied. Findings from the study of Mohit and Azim (2012) revealed that more than half of the Hulhumale and Maldavies public housing residents were not that satisfied based on their present buildings but they have higher satisfaction level with the services and public facilities than the housing estates social environment and dwelling units' physical space. Ogunbayo *et al.* (2018) evaluated residents' satisfaction of available facilities within housing provided through PPP

housing projects in Ogun State, Nigeria. The study evaluated residents' satisfaction based on seven (7) parameters. These parameters are: Cost of residence, Location of residence, Proximity to work place, Security of life and property, Space, Quality of building materials, Aesthetics and Maintenance culture on the residence. The study established that nature of tenure, type of housing, location of residence, proximity to work, security of life and property, space allocation, adequacy of space and facilities, type of building material, external appearance, quality of available facilities, and maintenance practice on available facilities are very important factors that determine the satisfaction level of occupant of housing provided through PPP housing delivery project. It was therefore concluded that for successful facility satisfaction among resident of housing developed through PPP, it will require the redefinition of facilities required for both movable and static facilities.

In the same vein, the study by Jegede *et al.* (2021) described the weakness and successes of the PPP and how to bring about issues that require necessary attention to achieve adequate and consistent mass housing delivery. The problems identified include: (i) awareness (ii) the problem of affordability (iii) Association problem which involves the delays brought on the completion of PPP projects and meeting up with deadlines because of issues like the bureaucratic bottleneck in the on-time release of FMBN credit fund. These delays are evident in production, commercial bank interest rates, government's provision of infrastructure, (iv) Organisational Constraints, (v) Lack of motivation for private investors, (vi) Non-Adherence to planning standard, (vii) The Use of Inexperienced housing developers: Quality of big-time jobs depends greatly on the experience of the housing developer but perhaps as a result of unfavourable time schedules and inadequate and uneasy to access well trained professionals to pool and carry out such big-time jobs, they are contracted to inexperienced housing developers causing problems to the quality of the job and accountability for the entire project execution and (viii) The Challenges of Poverty: many families in Nigeria cannot afford a good home in Nigeria because the market for the purchasing houses based on cash and carry reduced marketing drives and hence home-owning citizens in the country (Ibem, 2011; Shaibu & Abdullahi, 2018; Yahaya & Ibrahim, 2019; Yahaya *et al.*, 2020). These are obstacles to PPP's aims and policy thrust.

In addition, Oyedele and Oyesode (2019) reported that the quality of neighbourhood where people live in have influence on the manners and experience of its residents. This will also enhance their satisfaction. Such satisfaction in a residential property includes shelter, health, privacy, protection, comfort, convenience, and dignity (Oladapo & Adebayo, 2014). Residents should be able to withdraw and rest from the day-to-day stressful demands of life. This is a reflection of a conducive housing unit (Ndubueze, 2001). Therefore, the economic, physical and environmental needs of the occupants should be satisfied by habitable housing units. However, when the needs of the residents in terms of quality infrastructure are not met, this result to dissatisfaction and this will cause a negative impact on the well-being of the residents (Oyedele & Oyesode, 2019; Yahaya & Ibrahim, 2019). In view of this, Oyedele and Oyesode (2019) established four major objectives of which satisfaction on housing has been used; these are: first, for prediction of the quality of life's perception of the individual generally. Second, influences the changes in the surrounding areas as a result of residents' mobility. Third, the success of the development of the private sector can be measured through it. Fourth, to measure the individual's acceptance based on the existing inadequacies in the development of surrounding area and to determine the relationship between the background of the residents and their attitude towards movement. Based on these parameters, the study of Oyedele and Oyesode (2019) revealed that the level of satisfaction residents derived from available infrastructure in the Osun State was relatively low.

**Degree of occupiers' satisfaction and dissatisfaction in housing projects procured using PPP system**  
Oyedele and Oyesode (2019) described satisfaction as the evaluation (that is based on individual judgement and perspective) of the products and services' performance in meeting the expectations and needs of the users or residents. Satisfaction is a state whereby there are no complaints about the infrastructure and living conditions since the needs and target of the residents are met. According to

Jegade *et al.* (2021), the level of satisfaction could be measured by the noticed differences between achievement and aspiration, which is influenced by past experience and present expectations. Housing needs and expectations evolve as residents go through different life situations and studies have shown that social and physical factors like job, religion, residence, family among others affect quality and satisfaction, in which quality life can be seen as the combination of these different factors.

Furthermore, the study by Francescato *et al.* (1989) proposed a model of housing satisfaction, describing six factors that predict resident satisfaction. They include objective environmental attributes, behavioural and normative beliefs, individual characteristics, emotions, perception, and behavioural intentions. These factors come together to contribute and constitute qualities of residential satisfaction. However, social dimensions have proven to be more important in evaluating residential satisfaction than previously thoughts, and where other factors like race also alter resident perception (Painter *et al.*, 2001). These researches explored a comparison between long-time and newly arrived residents in respect to characteristics that influence their residential satisfaction. It was clear from these studies that quality of satisfaction is influenced by different factors including physical, social and cultural, economic, and public services, which will also be investigated. Variables like housing conditions, the neighbourhood, among others, constitute the physical environment. Therefore, the assessment of these characteristics combined will give an overall result on the quality of satisfaction for this research. From the study of Jegede *et al.* (2021), users' satisfaction was analysed based on three main criteria; these are: (i) Housing unit features (ii) Neighbourhood Environment (iii) Maintenance practices. It was revealed that residents were satisfied with the current condition of the housing unit features; the Neighbourhood Environment; and on the average the overall condition of the studied estates. On the other hand, the residents were not satisfied with the current condition of the Maintenance practices in the estates.

### **Materials and Methods**

A quantitative research approach was adopted in this study. The use of structured questionnaire was employed for data collection. Quantitative research entails quantitative data collection, which is then subjected to rigorous analysis (Morenikeji, 2006). Data were collected from Kebbi State Ministry of Land, Housing and Urban Planning. The target population of the study is comprised of construction firms involved in PPP housing Projects (Geshe Phase I and Phase II PPP Housing Estate, Birnin Kebbi) in Kebbi State. This Ministry is in-charge of the mass housing Estate projects in the State. At the time of the study, the Geshe Phase I and Phase II projects were the PPP housing projects that were completed and readily available for the study. The two projects were constructed using prototype design with the same cost and time of completion. The number of construction firms registered with the Kebbi State Ministry of Land, Housing and Urban Planning and that took part in the projects in question constituted the research population. The 25 construction firms that participated in the Geshe Phase I and Phase II PPP Housing Estate projects were considered for data collection. Each of the respondents representing each of the construction firms are the professionals representing the contractor on site (i.e., Architect, Engineers, Builders, and Quantity Surveyors). In addition, 15 purposively selected occupiers of the Geshe Phase I and Phase II PPP Housing Estate projects were also considered based on level of education and age. These occupants are the residents and beneficiaries of the PPP housing projects who have spent minimum of 3 - 5 years in the buildings and have a minimum of secondary school certificate.

The questionnaire used to collect data was designed on a five-point Likert's Scale format. The weight and the authenticity of every research rely greatly on the validity and reliability of the collected data (Ahmed, 2017). Data collection is a major pillar of research work. In view of this, the questionnaire was given to professionals in the academia and housing sector to validate before being used. The questionnaire was comprised of four sections. The first section addressed issues relating to the reasons for adopting of PPP system for housing projects (Objective 1). Section 2 handled issues with respect to Risks Associated with Procured Housing Projects (Objective 1), while issues relating to the drivers and barriers to the success of PPP projects (Objective 3) were addressed in Section 3. The fourth section of the questionnaire addressed

issues relating to the degree of occupiers’ satisfaction and dissatisfaction in housing projects procured using PPP system (Objective 4). The last part of the questionnaire (Section 4) was given to the 15 purposively selected occupiers of the Gesse Phase I and Phase II PPP Housing Estate projects. Data analysis involves making sense out of the numerical values obtained through the data collection process (Eric, 2009). Therefore, the data collected were analysed using Relative Importance Index (RII) and Mean Item Score (MIS). These tools were adopted in view of the fact that it is the perceptions of respondents that were sought from a ranked data. The decision rules adopted for the RII and MIS are summarised in Table 2.

**Table 2:** Decision Rule for RII and MIS

Scale	Cut-Off Point			Interpretation				
	RII	MIS		Level of Importance	Level of Significance	Level of Significance	Level of Satisfaction	Level of Dissatisfaction
5	0.81	- 4.51	-	Very Important	Very Critical	Very High	Very Satisfied	Very Dissatisfied
	1.00	5.00						
4	0.61	- 3.51	-	Important	Critical	High	Satisfied	Dissatisfied
	0.80	4.50						
3	0.41	- 2.51	-	Fairly Important	Fairly Critical	Medium	Fairly Satisfied	Fairly Dissatisfied
	0.60	3.50						
2	0.21	- 1.51	-	Less Important	Less Critical	Low	Less Satisfied	Less Dissatisfied
	0.40	2.50						
1	0.00	- 1.00	-	Not Important	Not Critical	Very Low	Not Satisfied	Not Dissatisfied
	0.20	1.50						

Source: Adapted and modified from Shittu *et al.* (2021, pp 182)

The choice of 3.50 – 5.00 as the cut-off point for the important factors was as a result of the fact that occupiers’ satisfaction, being a crucial issue to the successful completion of a PPP housing project, requires best practices in order to bring about improved performance. Based on the scale used (1 - 5), best factors required for a successful delivery of PPP housing projects should be far above average. In addition, in the study of Shittu *et al.* (2021), the MIS value for the important factors from the analysis of data carried out ranged between 3.80 and 4.60. This justifies the choice of 3.50 – 5.00 as the cut-off point for the important factors in this study. From Table 1, the perception of the respondents on the reasons for adopting PPP system for housing projects was ranked in order of importance (i.e., based on scale 0.00-1.00) using RII. Based on Table 1, the opinions of respondents on risks associated with PPP procured housing projects were ranked in order of significance using MIS (i.e., based on scale 1.00-5.00). The opinions of respondents on the drivers and barriers to the success of PPP Projects were ranked in order of significance as shown in Table 1 using MIS. Finally, the opinions of respondents on the level of occupiers’ satisfaction and dissatisfaction in housing projects procured using PPP System were rated using MIS as shown in Table 1.

## Results and Discussion

### RII results on the reasons for the adoption of PPP procured housing projects in Kebbi State

The RII results of the reasons for the adoption of PPP procured housing projects is presented in Table 3. As shown in Table 3, ten (10) reasons for the adoption of PPP procured housing projects in Kebbi State were identified from the review of literature in this study. It was revealed that “Reduction in the size of inefficient bureaucracy” (RII = 0.87), “To relieve short-term pressure on public finances” (RII = 0.86), “Relief of administrative burden” (RII = 0.82), and “To introduce competition by ensuring the public sector receives best value for money” (RII = 0.80) are the most important reasons for the adoption of PPP procured housing projects in Kebbi State. The remaining reasons for the adoption of PPP procured housing projects are also shown to be important.

**Table 3: RII Results on Reasons for the Adoption of PPP Procured Housing Projects in Kebbi State**

S/No.	Code	Reasons for the Adoption of PPP Housing Projects	RII	Rank	Decision
1	C10	Reduction in the size of inefficient bureaucracy	0.87	1st	Very Important
2	C1	To relieve short-term pressure on public finances	0.86	2nd	Very Important
3	C2	Relief of administrative burden	0.82	3rd	Very Important
4	C3	To introduce competition by ensuring the public sector receives best value for money.	0.80	4th	Important
5	C4	To take advantage of managerial practices and experience of the private sector.	0.77	5th	Important
6	C6	To introduce new technologies and encourage technology transfer	0.77	5th	Important
7	C5	To provide opportunity for innovation in the provision of public services	0.76	7th	Important
8	C8	Better service to the public	0.75	8th	Important
9	C7	To restructure public sector service enterprises by embracing private sector capital and practices.	0.72	9th	Important
10	C9	Encouragement of growth	0.72	9th	Important
<b>Average RII</b>			<b>0.78</b>		<b>Important</b>

These are “To take advantage of managerial practices and experience of the private sector”, “To introduce new technologies and encourage technology transfer”, “To provide opportunity for innovation in the provision of public services”, “Better service to the public”, “To restructure public sector service enterprises by embracing private sector capital and practices”, and “Encouragement of growth” with RII values ranging from 0.72 – 0.77. On the average, all the identified reasons for the adoption of PPP procured housing projects in Kebbi State are important (average RII = 0.78).

The results of this study are in line with the findings from past studies. For instance, Shaibu and Abdullahi (2018) found that the greatest benefit of PPP to the development of infrastructure is the availability of financial, technical and managerial resources from the private sector for the delivery of quality social and economic infrastructure. In line with this, it was reported by Alrashidi (2021) that the private sector’s competitive pressures ensure quality delivery of public services as they might be better able to manage risk associated with projects than the public sector. Others also revealed that PPP arrangement allows public institutions to benefit from the special technical expertise of the private sector, manage issues, and realize cost savings (Owolabi *et al.*, 2019; Ibrahim, 2022; Owotemu *et al.*, 2022). It is therefore important for the government to factor in occupiers’ satisfaction into the project’s goals of PPP in order to justify these reasons for the adoption of PPP procured housing projects in Kebbi State.

**MIS results on risks associated with PPP procured housing projects in Kebbi State**

Table 4 presents the results of the MIS analysis of the identified risks associated with PPP procured housing projects in Kebbi State. Table 4 revealed that thirteen (13) risks associated with PPP procured housing projects in Kebbi State were identified in this study. It was shown that the most critical risk associated with PPP procured housing projects in Kebbi State is “Completion Risks” with MIS of 4.12. Six (6) other factors have been shown to be critical. These are “Force Majeure”, “Financing Risks”, “Interest Rate”, “Change in Government”, “Political Risk”, and “Market Rate” with MIS of 3.96, 3.92, 3.80, 3.64, 3.60 and 3.56 respectively.

**Table 4: MIS Results on Risks Associated with PPP Procured Housing Projects in Kebbi State**

S/No.	Code	Risks Associated with PPP Procured Housing Projects	MIS	Rank	Decision
1	B1	Completion Risks	4.12	1st	Critical
2	B4	Force Majeure	3.96	2nd	Critical
3	B12	Financing risks	3.92	3rd	Critical
4	B7	Interest rate	3.80	4th	Critical
5	B13	Change in Government	3.64	5th	Critical
6	B5	Political Risk	3.60	6th	Critical
7	B8	Market rate	3.56	7th	Critical
8	B9	Operation risk	3.36	8th	Fairly Critical
9	B11	Utility risk	3.32	9th	Fairly Critical
10	B6	Exchange rate risk	3.08	10th	Fairly Critical
11	B10	Regulatory risk	2.92	11th	Fairly Critical
12	B2	Cost overrun Risk	2.84	12th	Fairly Critical
13	B3	Design Risk	2.64	13th	Fairly Critical
		<b>Average MIS</b>	<b>3.44</b>		<b>Fairly Critical</b>

The remaining six (6) risks factors are fairly critical. These are “Operation Risk”, “Utility Risk”, “Exchange Rate Risk”, “Regulatory Risk”, “Cost Overrun Risk” and “Design Risk” with MIS of 3.56, 3.32, 3.08, 2.92, 2.84 and 2.64 respectively. On the average, all the identified risks associated with PPP procured housing projects in Kebbi State are fairly critical with average MIS of 3.44. The findings here agree with the findings from the studies of Ijigah *et al.* (2013) and Tembo *et al.* (2014) where it was found that risks in PPP are inevitable, because PPP is a joint business arrangement between the public sector and individual or private sector and some of these risks could lead to partial or total stoppage of any project. This therefore implies that whenever a construction project is embarked upon, there are some risk elements which have direct impact on the project, and they most time lead to delays with additional cost implication. These risks can however be reduced, if necessary, actions will be taken before the commencement of the project. In addition, past studies have also shown, in line with the findings of this study, that no construction project is risk-free and these risks cannot be eliminated but prevented from occurring or mitigated by cushioning their effects should they occur (Dahiru & Muhammad, 2015; Sanda *et al.*, 2019).

**Table 5: MIS Results on the drivers of the success of PPP Projects**

S/No.	Code	Drivers of the Success of PPP Projects	MIS	Rank	Decision
1	D1.3	Stable economic system	4.52	1st	Very High
2	D1.2	Stable political system	4.40	2nd	High
3	D1.4	Government guarantee	4.20	3rd	High
4	D1.10	Thorough and realistic assessment of the costs and benefits	4.20	3rd	High
5	D1.5	Vast experience of partners	4.16	5th	
6	D1.1	Trust and openness between parties	4.04	6th	High
7	D1.6	Clearly demarcated shared authority and responsibility	4.04	6th	High
8	D1.7	Consistent monitoring	4.00	8th	High
9	D1.11	Favourable legal and administrative framework	4.00	8th	High
10	D1.8	Technical competence	3.92	10th	High
11	D1.12	Good governance	3.88	11th	High
12	D1.9	Social support	3.64	12th	High
13	D1.14	Consistent monitoring	3.64	12th	High
14	D1.13	Efficient approval process	3.60	14th	High
15	D1.15	Supportive community	3.20	15th	High
		<b>Average MIS</b>	<b>3.96</b>		<b>High</b>

**MIS Results on the drivers and barriers to the success of PPP projects in Kebbi State**

Table 5 presents the MIS results of the drivers and barriers to the success of PPP projects, while Table 6 presents the MIS results of the drivers of the success of PPP projects in Kebbi State. Table 5 presented the results of the fifteen (15) identified drivers of the success of the success of PPP housing projects in Kebbi State. It was shown that the drivers with the highest value is “Stable economic system” (MIS = 4.52). The remaining drivers were also shown to have high values these range from “Stable political system” (MIS = 4.40) to “Supportive community” (MIS = 3.29). Averagely, all the identified drivers of the success of PPP projects in Kebbi State have high values (MIS = 3.96); this also implies that the PPP housing projects in Kebbi State were successful.

The result of this study is in line with the findings of UN-Habitat (2012) that PPP scheme in housing and urban infrastructure provision has been witnessed by almost all countries of the world since its adoption into the housing sector; parts of its success is measured in relation to housing units developed through PPP delivered housing units, which may vary in different countries as a result of political, economic and cultural factor differences. In line with this, Ogunbayo *et al.* (2018) also revealed that the Cost of residence, Location of residence, Proximity to work place, Security of life and property, Space, Quality of building materials, Aesthetics and Maintenance culture on the residence, are very significant in improving residents’ satisfaction in housing provided through PPP system in Ogun State.

**Table 6: MIS Results on Barriers to the Success of PPP Projects**

S/No.	Code	Barriers to the Success of PPP Projects	MIS	Rank	Decision
1	D2.1	Bribery and corruption among contracting parties	4.48	1st	High
2	D2.2	Availability of development funds	4.08	2nd	High
3	D2.7	Non adherence to planning standard	3.88	3rd	High
4	D2.4	Lack of sound legal framework	3.76	4th	High
5	D2.5	Institutional framework	3.76	5th	High
6	D2.9	Inadequate experience in PPP	3.76	5th	High
7	D2.3	Policy instability	3.68	7th	High
8	D2.11	Fluctuation of material cost by private	3.68	7th	High
9	D2.12	Quality of operation	3.56	9th	High
10	D2.13	Project delay	3.52	10th	High
11	D2.6	Attitude of the members of the public to Government Projects	3.24	11th	Medium
12	D2.8	Market demand	3.08	12th	Medium
13	D2.10	Weather condition	2.28	13th	Medium
<b>Average MIS</b>			<b>3.60</b>		<b>High</b>

Table 6 presented the results of the thirteen (13) identified barriers to the success of PPP housing projects in Kebbi State. It was revealed that the barriers with the highest values are “Bribery and corruption among contracting parties” with MIS of 4.48 and “Availability of development funds” with MIS of 4.08. The next nine (9) barriers are also of high values. These range from “Nonadherence to planning standard” (MIS = 3.88) to “Project delay” (MIS = 3.52). The last three (3) barriers are shown to be of medium value. These are “Attitude of the members of the public to Government Projects”, “Market demand”, and “Weather condition” with MIS of 3.24, 3.08 and 2.28 respectively. On the average, all the identified barriers to the success of PPP housing projects in Kebbi State have high values with MIS of 3.60, thus implying that these barriers should be taking note of in future projects. The studies of Ibrahim *et al.* (2006a and b) and Abdul-Aziz and Kassim (2011) also identified these barriers as critical in hindering the success of PPP executed construction projects. It was also reiterated that bribery and corruption topped the list of barriers to the success of PPP projects in these past studies. Therefore, bribery and corruption in infrastructure development will not allow PPP to be sustainable because development partners rely on steady income cash stream to recoup their investment. It is thus imperative for PPP projects to be based on value for money; that must be economical, efficient and effective. Also, in line with the findings of this study, Jegede *et al.* (2021) described the barriers to the success of PPP projects in terms weakness and

successes of the PPP and how to bring about issues that requires necessary attention to achieve adequate and consistent mass housing delivery. In view of this, Jegede *et al.* (2021) emphasized that these weaknesses can serve as obstacles to PPP's aims and policy thrust; therefore, there is a need to identify and use effective success strategies to mitigate the barriers to the success of PPP projects so as to achieve adequate and consistent mass housing delivery.

### MIS results on the degree of occupiers' satisfaction and dissatisfaction in housing projects procured using PPP system in Kebbi State

The degree of occupiers' satisfaction and dissatisfaction in housing projects procured using PPP system in Gesse Phase I and II PPP Housing Estate, Birnin Kebbi, Kebbi State was assessed using five parameters. These are: Housing unit feature; Housing conditions; Maintenance practices; Community sensitivity; and Neighbourhood environment. The results of the MIS ranking of 15 occupiers' perception on this level satisfaction and dissatisfaction are presented in Tables 7 – 10.

It was revealed from Table 7 that the occupiers are most satisfied with the "Maintenance practices" of the PPP housing estate of the Gesse Phase I Estate (MIS = 3.73). On the average, the occupiers are satisfied with all the conditions surrounding the Gesse Phase I PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria (average MIS = 3.68).

**Table 7:** Degree of Occupiers' Satisfaction in Housing Projects Procured Using PPP System in Kebbi (Gesse Phase I PPP Housing Estate, Birnin Kebbi, Kebbi State)

Code No	Parameters for Occupiers' Satisfaction	MIS	Rank	Decision
E1.3	Maintenance practices	3.73	1st	Satisfied
E1.1	Housing unit features	3.70	2nd	Satisfied
E1.2	Housing conditions	3.69	3rd	Satisfied
E1.4	Community sensitivity	3.65	4th	Satisfied
E1.5	Neighbourhood environment	3.63	5th	Satisfied
<b>Average MIS</b>		<b>3.68</b>		<b>Satisfied</b>

**Table 8:** Degree of Occupiers' Satisfaction in Housing Projects Procured Using PPP System in Kebbi (Gesse Phase II PPP Housing Estate, Birnin Kebbi, Kebbi State)

Code No	Parameters for Occupiers' Satisfaction	MIS	Rank	Decision
E2.3	Maintenance practices	3.80	1st	Satisfied
E2.1	Housing unit features	3.60	2nd	Satisfied
E2.5	Neighbourhood environment	3.55	3rd	Satisfied
E2.2	Housing conditions	3.53	4th	Satisfied
E2.4	Community sensitivity	3.50	5th	Fairly Satisfied
<b>Average MIS</b>		<b>3.60</b>		<b>Satisfied</b>

It was revealed from Table 8 that the occupiers are also most satisfied with the "Maintenance practices" of the PPP housing estate of the Gesse Phase II Estate (MIS = 3.80). On the average, the occupiers are satisfied with all the conditions surrounding the Gesse Phase II PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria (average MIS = 3.60).

**Table 9:** Degree of Occupiers' Dissatisfaction in Housing Projects Procured Using PPP System in Kebbi (Gesse Phase I PPP Housing Estate, Birnin Kebbi, Kebbi State)

Code No	Parameters for Occupiers' Dissatisfaction	MIS	Rank	Decision
E3.2	Housing conditions	2.17	1st	Less Dissatisfied
E3.4	Community sensitivity	2.07	2nd	Less Dissatisfied
E3.1	Housing unit features	2.06	3rd	Less Dissatisfied
E3.3	Maintenance practices	1.95	4th	Less Dissatisfied
E3.5	Neighbourhood environment	1.93	5th	Less Dissatisfied
<b>Average MIS</b>		<b>2.04</b>		<b>Less Dissatisfied</b>

It was revealed from Table 9 that the occupiers are most less dissatisfied with the "Housing conditions" of the PPP housing estate of the Gesse Phase I Estate (MIS = 2.17). On the average, the occupiers are less

dissatisfied with all the conditions surrounding the Gesse Phase I PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria (average MIS = 2.04). This implies that the occupiers are satisfied with the conditions surrounding the Gesse Phase I PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria.

**Table 10:** Degree of Occupiers' Dissatisfaction in Housing Projects Procured Using PPP System in Kebbi (Gessee Phase II PPP Housing Estate, Birnin Kebbi, Kebbi State)

<b>Code No</b>	<b>Parameters for Occupiers' Dissatisfaction</b>	<b>MIS</b>	<b>Rank</b>	<b>Decision</b>
E4.2	Housing conditions	2.19	1st	Less Dissatisfied
E4.4	Community sensitivity	2.16	2nd	Less Dissatisfied
E4.5	Neighbourhood environment	2.01	3rd	Less Dissatisfied
E4.1	Housing unit features	1.89	4th	Less Dissatisfied
E4.3	Maintenance practices	1.79	5th	Less Dissatisfied
	<b>Average MIS</b>	<b>2.00</b>		<b>Less Dissatisfied</b>

It was revealed from Table 10 that the occupiers are also most less dissatisfied with the “Housing” conditions of the PPP housing estate of the Gessee Phase II Estate (MIS = 2.19). On the average, the occupiers are less dissatisfied with all the conditions surrounding the Gessee Phase II PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria (average MIS = 2.00). This implies that the occupiers are satisfied with the conditions surrounding the Gessee Phase II PPP Housing Estate, Birnin Kebbi, Kebbi State, Nigeria. Findings from the study of Mohit *et al.* (2010) slightly differs from the findings of this study because the study found that most of the households in the public low-cost housing that were newly constructed were most satisfied with the estates’ social environment and the housing units’ support services, while based on their housing conditions and it environ, they were moderately satisfied. In agreement with the findings of this study, the study of Ogunbayo *et al.* (2018) revealed that for successful facility satisfaction among resident of housing developed through PPPs, it will require the redefinition of facilities required for both movable and static facilities.

Design and construction must also align with best practices and ensure that experience tradesmen are employed in fixing required facilities and using best methods and materials for needed facilities within the estate. Other past studies also agree with the findings of this study by revealing that the quality of neighbourhood where people live in have influence on the manners and experience of its residents and hence enhance their satisfaction. Such satisfaction in a residential property includes shelter, health, privacy, protection, comfort, convenience, and dignity (Oladapo & Adebayo, 2014; Oyedele & Oyesode, 2019; Yahaya & Ibrahim, 2019; Yahaya *et al.*, 2020; Jegede *et al.*, 2021). Finally, the study of Jegede *et al.* (2021), in line with this study, established that residents were satisfied with the current condition of the housing unit features; the Neighbourhood Environment; and on the average the overall condition of the studied estates. On the other hand, findings of the study of Jegede *et al.* (2021) disagrees with this study by finding out that the residents were not satisfied with the current condition of the Maintenance practices in the estates.

**Conclusion**

This study set out to examine the reasons for the adoption of PPP; risks associated with PPP procured housing projects; factors leading to successful and failed PPP projects; and degree of occupiers’ satisfaction and dissatisfaction in housing projects procured using PPP system in Kebbi State. This was carried out empirically and based on the findings of the study, the major conclusions made were stated in this section.

This study revealed that the most important reasons for the adoption of PPP procured housing projects are “Reduction in the size of inefficient bureaucracy”; “To relieve short-term pressure on public finances”; and “Relief of administrative burden”. The most critical risk associated with PPP procured housing projects revealed is “Completion Risks”. The drivers of the success of PPP housing projects with the highest value is “Stable economic system”. The barriers to the success of PPP housing projects with the

highest values are “Bribery and corruption among contracting parties” and “Availability of development funds”. Occupiers were revealed to be satisfied with the conditions surrounding the Gesse Phase I and II PPP Housing Estate in Birnin Kebbi, Kebbi State, Nigeria. It can therefore be concluded that the risks involved in housing projects procured by public private partnership in Kebbi State are fairly critical and can be effectively managed by adopting the drivers of the success of PPP projects and preventing the occurrence of barriers to the success of PPP projects in Kebbi State, Nigeria.

In view of the conclusions made from the findings of this study, it is recommended that in order to mitigate the barriers to the success of PPP housing projects in Kebbi State, the Government should focus more attention on implementing the strategies of “Stable economic system”, “Stable political system”, “Government guarantee”, “Avoidance of bribery and corruption among contracting parties”, and “Availability of development funds”. It is also recommended that in order to enhance the degree of occupiers’ satisfaction in housing projects procured using PPP system in Kebbi State, Nigeria, Government and other stakeholders should intensify efforts on the improvement of the conditions of “Community sensitivity” and “Neighbourhood environment”. Finally, the study strongly recommends that Government and other stakeholders should intensify efforts on the improvement of the general conditions of PPP housing estates in Kebbi State in the areas of “Housing conditions”; “Housing unit features”; “Maintenance practices”; “Community sensitivity”; and “Neighbourhood environment” so as to reduce the degree of occupiers’ dissatisfaction.

### **Acknowledgement**

The authors wish to thank the management and staff of the Kebbi State Ministry of Land, Housing and Urban Planning, Birnin Kebbi, Kebbi State for assisting during the field work by providing the data required and providing response to the questionnaire administered.

### **References**

- Abdul-Aziz, A. R. (2001) Unraveling of BOT scheme: Malaysia’s Indah Water Consortium, *Journal of Construction Engineering and Management*, 127(6): 457-460.
- Abdul-Aziz, A. R. and Kassim, P. S. J. (2011) Objectives, Success and Failure Factors of Housing Public-Private Partnerships in Malaysia, *Habitat International*, 35, 150-157.
- Ademiluyi, A. I. and Raji, B. A. (2008) Public and private developers as agents in urban housing delivery in Sub-Saharan Africa: The situation in Lagos State, *Humanity and Social Sciences Journal*, 3(2): 143-150.
- Ahmed, Z. (2017) The Impact of Material Management on Construction Project Delivery in Maldives, Unpublished M Sc. Thesis submitted to Faculty of Engineering and Science, University of Tunku Abdul Rahman, April 2017.
- Alrashidi, M. (2021) Multiple Perspective of Public-Private Partnership Project Success: The Case of Kuwaiti Public Housing Initiative, A Thesis Submitted to the University of Salford for the Degree of Doctor of philosophy. School of Science, Engineering and Environment, The University of Salford, Manchester.
- Al-Shareem, K. M, Yusof, N., Roosli, R. B, and Abdullah, A. (2004) Public Private Partnership as a Housing Delivery for Affordable Housing Development in Yemen, *Business Management Dynamics*, 3(8): 358-365
- Arijeloye, B. T. (2021) Development of Risk Allocation Model for Public – Private Partnership (PPP) - Procured Mass Housing Projects in Abuja, Nigeria, A Thesis in the Department of Quantity Surveying Submitted to the School of Postgraduate Studies, in Partial Fulfilment of the Requirement for the Award of the Degree of Doctor of Philosophy (PhD) in Quantity Surveying of the Federal University of Technology, Akure, Ondo State, Nigeria.

- Awodele, O. A. (2012) Framework for Managing Risk in Privately Financed Market Projects in Nigeria, Unpublished PhD Thesis, Heriot-Watt University, School of the Built Environment, Presented at ICAO on Agriculture Financing in Libreville, Gabon.
- Babalola, D. O. (2016) Assessment of housing quality of selected residential estates in Lagos state, Nigeria (Doctoral dissertation, Covenant University, Nigeria).
- Dahiru, A. and Muhammad, R. S. (2015) Critical Success Factors of Public-Private-Partnership Projects in Nigeria. *ATBU Journal of Environmental Technology*, December, 8(2): 52-63.
- Daramola, S. A., Alagbe, O. A., Aduwo, B. and Ogbiye, S. A. (2005) Public-private partnership and housing delivery in Nigeria, In: *Proceedings of African Union of Architects Congress*, 23-28.
- Eric, C. E. (2009) *Social and Economic Research: Principles and Methods, (Second Edition)*. African Institute for Applied Economics, Enugu, Nigeria, ISBN 978-37955-2-X.
- Ezennia, I. S. and Hoskara, S. O. (2019) Exploring the Severity of Factors Influencing Sustainable Affordable Housing Choice: Evidence from Abuja, Nigeria. *Sustainability*, 11, 5792-5817. doi:10.3390/su11205792
- Francescato, G., Weidemann, S. and Anderson, J. R. (1989) Evaluating the built environment from the users' point of view: An attitudinal model of residential satisfaction, In: *Building Evaluation*. Springer, Boston, MA., pp 181-198
- Habitat, U. (1993) *Public-Private Partnerships in enabling shelter strategies*. Nairobi, Kenya: UNCHS.
- Harloe, M. (2008) *The people's home: Social rented housing in Europe and America*, John Wiley and Sons, USA
- Ibem, E. O. (2011) The contribution of Public-Private Partnerships (PPPs) to improving accessibility of low-income earners to housing in southern Nigeria, *Journal of Housing and the Built Environment*, 26(2), 201-217.
- Ibem, E. O. and Aduwo, B. E. (2012a) Public-Private Partnerships (PPPs) in Urban Housing in Nigeria: Evidence from Ogun State. *International Journal of Architecture and Urban Development (IJAUD)*, 2(2): 2-15.
- Ibem, E. O. and Aduwo, E. B. (2012b) Public-Private Partnership (PPP) in Housing Provision in Ogun State, Nigeria: Opportunities and Challenges, *Proceedings of 4th West Africa Built Environment Research (WABER) Conference*, Abuja, Nigeria; pp 653-662.
- Ibrahim, A. D, Price, A. D. F. and Dainty, A. R. J. (2006a) The analysis and allocation of risks in public private partnerships in infrastructure projects in Nigeria, *Journal of Financial Management of Property and Construction*, 11(3): 149-163.
- Ibrahim, A. D, Price, A. D. F. and Dainty, A. R. J. (2006b) An analysis of success factors for public private partnership in infrastructure projects in Nigeria. *Journal of Construction Procurement*, 12 (1): 51-68.
- Ibrahim, D. S. (2022) Appraisal of Public Private Partnership (PPP) and Risk Management on Housing Projects for OW Income Earners, *International Journal of Research Publication and Reviews*, February. 3(2): 240-243. Available online at: <http://www.ijrpr.com/>
- Ijigah, E. A., Jimoh, R. A., Bilau, A. A. and Agbo, E. A. (2013) An Assessment of Risk Management Practices in the Nigerian Construction Industry: Towards Establishing Risk Management Index, *International Journal of Pure and Applied Sciences and Technology*, 16 (2): 20-31.
- Izuwah, C. K. C. (2020). Accelerated Infrastructural Development for Nigeria – The PPP Imperative. Presentation by the ICRC at the Istanbul PPP Week Country Session – 5th November. Infrastructure Concession Regulatory Commission (ICRC), Nigeria.
- Jagafa, K. A. (2008) Development of framework for assessing value for money of PPP projects in Nigeria, Unpublished BSc Thesis, Department of Quantity Surveying, Ahmadu Bello university Zaria.
- Jegede, F. O., Adewale, B. A., Jesutofunmi, A. A. and Loved, K. S. (2021) Assessment of Residential Satisfaction for Sustainability in Public-Private Partnerships (PPPs) Housing Estates in Lagos State, Nigeria, *International Conference on Energy and Sustainable Environment*. IOP Conference Series:

- Earth and Environmental Science 665, pp 012-031. IOP Publishing. doi:10.1088/1755-1315/665/1/012031
- Jegade, F. O., Ibem, E. O. and Oluwatayo, A.A. (2018) Manifestation of Defensible Space in Lagos State Development and Property Cooperation Housing Estates, Lagos, Nigeria, *International Journal of Civil Engineering and Technology (IJCIET)*, 9(12): 491–505.
- Li, B. and Akintoye, A. (2003) An overview of public-private partnership, *Public Private Partnerships: Managing Risks and Opportunities*, Pub. Blackwell Science, pp 3-30.
- Li, B., Tiong, R. L. K., Wong, W. F. and Chew, D. A. S. (1999) Risk Management in International Construction Joint Ventures. *Journal of Construction Engineering and Management*, 125 (4): 277-284.
- Martin, C. (2004) Law and Order in Public Housing: The Residential Tenancies Amendment (Public Housing) Act 2004 (NSW), *Current Issues in Criminal Justice*, 16(2): 226-232.
- Mohit, M. and Azim M. (2012) Assessment of Residential Satisfaction with Public Housing in Hulhumale, Maldives. *Procedia - Social and Behavioural Sciences*, 50:756 - 770
- Mohit, M., Ibrahim, M. and Rashid, Y. (2010) Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia, *Habitat International*, 34(1): 18-27.
- Morenikeji, W. (2006) *Research and Analytical Techniques (for Social Scientists, Planners & Environmentalists)*, Jos University Press Ltd. Jos.
- Ndubueze, O. J. (2001) Urban Residential Housing Satisfaction of the Low Socio- Economic Group in Enugu Metropolis, *Journal of Nigerian Institute of Town Planners*, XIV, 11-26
- NEPAD, New Partnership for Africa's Development (2006) Policy Focus Report 2 (2006), pp 15.
- Ogunbayo, B. F., Ajao, A. M., Alagbe, O. T., Ogundipe, K. E., Tunji-Olayeni, P. F. and Ogunde, A. O. (2018) Residents' Facilities Satisfaction in Housing Project Delivered by Public Private Partnership (PPP) in Ogun State, Nigeria, *International Journal of Civil Engineering and Technology (IJCIET)*, 9(1): 562-577. ISSN Print: 0976-6308 and ISSN Online: 0976-6316. Available online at <http://http://www.iaeme.com/ijciet/issues.asp?JType=IJCIET&VType=9&IType=1>
- Ohio, I. E. (2018) Public Private Partnership Residential Estates: Beneficiaries' Satisfaction Assessment, *Discovery*, 54(272): 298-303. ISSN 2278–5469; EISSN 2278–5450.
- Oladapo, R. A. and Adebayo M. A. (2014) Effects of Housing Facilities on Residents' Satisfaction in Osogbo, Osun State, Nigeria, *Covenant Journal of Research in the Built Environment (CJRBE)*, 2(2): 35-44.
- Olotuah, A. O. (2009) Demystifying the Nigerian urban housing question inaugural lecture series 53, Federal University of Technology Akure, Nigeria.
- Olukolajo, M. A. and Mbazor, D. N. (2021) Evaluation of Occupants' Satisfaction with On-campus Private Hostel in a Nigerian University, *Journal of Building Performance*, Universiti Kebangsaan Malaysia, The Royal Institution of Surveyors, Malaysia, 12(1): 1-10. ISSN: 2180-2106. Available online at: <http://spaj.ukm.my/jsb/index.php/jbp/index>
- Owolabi, H. A., Oyedele, L., Alaka, H., Ebohon, O. J., Ajayi, S., Akinade, O., Bilal, M. and Olawale, O. (2019) Public Private Partnerships (PPP) in the Developing World: Mitigating Financiers' Risks, *World Journal of Science, Technology and Sustainable Development*, 16, 121-141. Available online at: <https://doi.org/10.1108/WJSTSD-05-2018-0043>
- Owotemu, A. E., Daniel, C. O. and Abubakar, H. S. (2022) Evaluating the Management of Public Private Partnerships for the Provision of Affordable Housing in Nigeria, *Journal of Service Science and Management*. Scientific Research Publishing, 15, 392-415. ISSN Online: 1940-9907; ISSN Print: 1940-9893. Available online at: <https://www.scirp.org/journal/jssm>
- Oyedele J. B. and Oyesode M. F. (2019) Residents' Perception of Importance and Satisfaction with Infrastructure in Selected Public Housing Estates in Osun State, Nigeria, *Nigerian Journal of Environmental Sciences and Technology (NIJEST)*, October, 3(2): 398 – 409. ISSN (Print): 2616-051X; ISSN (electronic): 2616-0501. Available online at: <http://www.nijest.com/>

- Oyewobi, L. O., Ibrahim, A. D. and Ibrahim, Y. M. (2012) Investigating Optimum Conditions for public-Private Partnership in Health, Education and Housing Sectors in Nigeria, In: Laryea, S., Agyepong, S. A., Leiringer, R. and Hughes, W. (Ed.). *West Africa Built Environment Research (WABER) Conference*, Ghana, pp 24-26 July.
- Raftery, J. (1994) Risk Analysis in Project Management, E & FN Spon, London.
- Raftery, J., Pasadilla, B., Chiang, Y. H., Hui, E. C. M. and Tang, B. S. (1998) Globalization and Construction Industry Development: Implications of Recent Developments in the Construction Sector in Asia. *Construction Management and Economics*, 16: 729-737.
- Ramcharran, H. (1998) Obstacles and opportunities in international engineering services. *Journal of Management in Engineering*, 14 (5): 38-46.
- Sanda, N. M., Daniel, M. M. and Akande, E. M. (2016) A Review of Public-Private Partnership for Building and Infrastructure Procurement in Nigeria. *Developing Country Studies*, 6(2): 5-13. ISSN 2224-607X (Paper) ISSN 2225-0565 (Online). Available online at: <http://www.iiste.org/>
- Sanda, Y. N., Anigbogu, N. A., Izam, Y. D. and Wuyokwe, G. N. (2019) Preventing and Mitigating Risks in Public Private Partnership (PPP) Housing Projects in Abuja, Nigeria, *Journal of Sustainable Development in Africa*, Clarion University of Pennsylvania, Clarion, Pennsylvania, 21(2): 86-99. ISSN: 1520-5509.
- Sani, M., Sani, A. and Ahmed, S. U. (2018) Public Private Partnership Housing Projects Implementation. *Journal of Engineering, Project, and Production Management*, 10 (1), 42-49.
- Shaibu, S. I. and Abdullahi, I. (2018) Analysis of Public and Private-sectors Partnership (PPP) in housing delivery in, Niger State, Nigeria, *AU-eJournal of Interdisciplinary Research*, 3(2): 12 -23. ISSN: 2408-1906.
- Shittu, A. A., Adamu, A. D., Tsado A, J., Arowolo, L. A. and Abdulazeez, S. R. (2021) Application of information and communication technology for the implementation of health and safety measures by construction firms in Abuja, Nigeria, In: Laryea, S. and Essah, E. (Eds), *Procs West Africa Built Environment Research (WABER) Conference*, 9-11 August 2021, Accra, Ghana, 177-194. ISBN 978-0-620-95367-2
- Tembo, C. K. Khatleli N. and Milandu, C. (2014) Risk Allocation in the Zambian Construction Industry. DII- 2014
- Tokman, V. E. (1992) Beyond regulation: The informal economy in Latin America (No. 330.9 B573b), Colorado, US: Lynne Rienner Publishers.
- UN-Habitat (2012) Cities in a globalizing world: Global Report on Human Settlements, Taylor and Francis.
- United Nations Human Settlements Programme (2006) The State of the World's Cities 2006/2007: The Millennium Development Goals and Urban Sustainability: 30 Years of Shaping the Habitat Agenda (Vol. 3), Routledge.
- Yahaya, A. and Ibrahim, A. B. S. (2019) Critical Factors for Implementation of Public-Private Partnership for Affordable Housing in Nigeria, *International Journal of Scientific & Technology Research*, September, 8(09): 1125-1131. ISSN 2277-8616
- Yahaya, A., Ibrahim, A. B. S., Hariati, B. A. H. (2020) Public Private Partnership Strategy for Housing Provision in Abuja, Nigeria, *International Journal of Scientific & Technology Research*, 9(01): 1958-1965. ISSN 2277-8616